



The Scottish
Government

Reducing Drug Users' Risk of Overdose

Crime and Justice



social
research

REDUCING DRUG USERS' RISK OF OVERDOSE

Andrew Rome, Figure 8 Consultancy Services Ltd
April Shaw, Scottish Drugs Forum
Katie Boyle, Figure 8 Consultancy Services Ltd

Scottish Government Social Research
2008

This report is available on the Scottish Government Social Research website only www.scotland.gov.uk/socialresearch.

The views expressed in this report are those of the researcher and do not necessarily represent those of the Scottish Government or Scottish Ministers.

© Crown Copyright 2008

Limited extracts from the text may be produced provided the source is acknowledged. For more extensive reproduction, please write to the Chief Researcher at Office of Chief Researcher,
4th Floor West Rear, St Andrew's House, Edinburgh EH1 3DG

Acknowledgements

The Research Team would like to express its thanks to all service providers, service users and their families who gave up their time to help us with this study.

We would also like to thank James Egan, Scottish Drugs Forum, who provided invaluable help with the final formatting of the document and Jenni Goodall, Figure 8 Consultancy, who helped us to collect and collate the data. Finally, the Research Team would also like to thank Katey Ward, Claire Giblin, Lisa McKibben and Katharine Ronald of Scottish Drugs Forum for helping to transcribe the qualitative interviews.

CONTENTS

EXECUTIVE SUMMARY	1
CHAPTER ONE - INTRODUCTION	5
CONTEXT	5
AIMS AND OBJECTIVES	6
CHAPTER TWO - METHODS	7
SUMMARY OF STUDY METHODS	7
STAGE 1 LITERATURE REVIEW	7
<i>Synthesising the evidence</i>	8
STAGE 2 QUANTITATIVE SURVEYS	8
<i>Survey of drug users</i>	8
<i>Survey of Telephone Responders: Emergency Service Control Room (ESCR) and NHS 24 Staff</i>	9
STAGE 3 QUALITATIVE INTERVIEWS	9
<i>Interviews with drug users and family members</i>	9
<i>Interviews with emergency service personnel</i>	10
ETHICAL APPROVAL	11
LIMITATIONS OF THE RESEARCH	11
CHAPTER THREE - REVIEW OF LITERATURE	13
INTRODUCTION	13
SECTION 1 - EMERGENCY RESPONSES	13
<i>Overdose Witnesses and Interventions</i>	13
<i>Ambulance</i>	14
<i>Police</i>	15
<i>Accident and Emergency</i>	16
<i>Communicating public health alerts</i>	16
SECTION 2 - MAINSTREAM & EMERGING INTERVENTIONS	17
<i>Drug Treatment and Methadone</i>	17
<i>General Practitioners</i>	18
THE IMPACT OF SERVICES ENGAGING AND RETAINING DRUG USERS	19
<i>Emerging interventions – Take-Home-Naloxone and Safer Injecting Rooms</i>	21
<i>Safer Injecting Rooms</i>	23
SECTION 3 - EARLY INDIVIDUAL & SOCIAL INDICATORS	24
<i>Tolerance</i>	24
<i>The impact of injecting drug use, benzodiazepines, alcohol and cocaine</i>	26
<i>Health Morbidity</i>	27
<i>Recent Life Problems/Psychological Factors</i>	28
<i>Antidepressants</i>	28
<i>Suicide</i>	29
<i>Understanding Social Networks</i>	31
<i>Public Injecting and Overdose</i>	32
<i>Accommodation</i>	32
IMPLICATIONS OF THE LITERATURE REVIEW	34
<i>Emergency responses</i>	34
<i>Mainstream & Emerging Interventions</i>	34
<i>Developing and Disseminating Key Messages</i>	35
EXAMPLES OF INNOVATIVE PRACTICE	36
<i>Drug Action Teams</i>	36
<i>Provision of Information</i>	36
<i>Training</i>	36
<i>Harm-Reduction Projects</i>	36
<i>Naloxone Pilots</i>	37
<i>Ambulance Protocol</i>	38

<i>Drug-Related Death Partnership</i>	38
<i>Joint Working Practices</i>	40
<i>Festive Overdose Awareness Campaigns</i>	40
<i>Harm Reduction Measures in SPS</i>	40
CHAPTER FOUR - PRIMARY DATA COLLECTION	41
DRUG USERS AND FAMILY MEMBERS	41
VIEWS OF PEOPLE WHO HAVE EXPERIENCED AN OPIATE OVERDOSE	41
VIEWS OF PEOPLE WHO WITNESSED OVERDOSE	43
REASONS FOR PERSONAL AND WITNESSED OVERDOSE	43
CHANGES IN DRUG USE FOLLOWING OVERDOSE EXPERIENCES	44
OVERDOSE RISK FACTORS	45
<i>The attributes of the person</i>	45
<i>The attributes of the setting</i>	45
<i>The attributes of the drug</i>	46
WITNESSES' PERCEPTIONS OF THE SIGNS OF OVERDOSE	46
WITNESS RESPONSES	48
BARRIERS TO CALLING EMERGENCY SERVICES	50
ENCOURAGE CALLING HELP SOONER	52
CONTACT WITH EMERGENCY SERVICES	52
<i>999 Operators</i>	52
<i>Ambulance</i>	53
<i>Police</i>	53
<i>Hospital staff</i>	54
EMOTIONAL CONSEQUENCES OF OVERDOSE	55
<i>Panic</i>	55
<i>Anger</i>	56
<i>Guilt</i>	56
<i>Paranoia</i>	56
<i>Stigma</i>	57
OVERDOSE INFORMATION AND TRAINING	57
NALOXONE	58
RAISING OVERDOSE AWARENESS	59
<i>Individual</i>	59
<i>Local Services</i>	60
<i>Government</i>	61
EMERGENCY SERVICE PERSONNEL	62
POLICE AND AMBULANCE STAFF	62
<i>Experiences of attending overdose events</i>	62
<i>Views on ways to reduce overdose</i>	69
TELEPHONE RESPONDERS	70
<i>Number of calls</i>	70
<i>Care Pathway for the management of opiate overdose</i>	70
<i>Training on managing an overdose situation</i>	71
<i>Naloxone</i>	71
<i>Information or advice relayed to the caller</i>	71
<i>Issues and challenges for the caller</i>	71
<i>Resources</i>	72
ACCIDENT AND EMERGENCY CONSULTANTS	72
<i>Nature and extent of the problem</i>	72
<i>Use of protocols for managing overdose</i>	74
<i>Drug liaison nurses</i>	74
<i>Admission to hospital</i>	74
<i>Information and onward referral</i>	75
<i>How to provide overdose prevention information</i>	76
CHAPTER FIVE - CONCLUSIONS	79
ESTIMATING THE SIZE OF THE PROBLEM	79

CYCLE OF OVERDOSE MANAGEMENT	79
<i>Recognise overdose</i>	80
<i>Manage situation</i>	80
<i>Get person to hospital</i>	83
<i>Manage medical emergency</i>	84
<i>Assessment of needs</i>	84
<i>Harm reduction strategies</i>	86
<i>Reduce risks</i>	87
CHAPTER 6 - RECOMMENDATIONS	89
RECOMMENDATION 1: IMPROVING THE QUALITY OF EXISTING RESPONSES	89
RECOMMENDATION 2: IMPROVING THE ASSESSMENT OF NEEDS	90
RECOMMENDATION 3: IMPROVING AND EXTENDING CURRENT CARE PROVISION	90
RECOMMENDATION 4: INFORMATION AND TRAINING FOR EMERGENCY SERVICE STAFF, CLINICAL STAFF AND SERVICE PROFESSIONALS	91
RECOMMENDATION 5: INFORMATION AND TRAINING FOR DRUG USERS AND SIGNIFICANT OTHERS	91
REFERENCES	92
APPENDICES	100
APPENDIX 1 LITERATURE REVIEW METHODS	100
APPENDIX 2 REVIEW ARTICLE TABLE	103
APPENDIX 3A INTERVIEW SCHEDULE – DRUG USERS & FAMILY MEMBERS	130
APPENDIX 3B INTERVIEW SCHEDULE – EMERGENCY SERVICE STAFF	136
APPENDIX 3C INTERVIEW SCHEDULE – A&E CONSULTANTS	139
APPENDIX 3D SURVEY INSTRUMENT – EXPERIENCED OVERDOSE	142
APPENDIX 3E SURVEY INSTRUMENT – WITNESSED OVERDOSE	143
APPENDIX 3F SURVEY INSTRUMENT – NHS 24 & 999 STAFF	144

EXECUTIVE SUMMARY

Background and aims

1. This is the report of a research project looking at ways of reducing drug users' risk of overdose, conducted by Figure 8 Consultancy and Scottish Drugs Forum, on behalf of the Scottish Government. The research was commissioned in May 2007 and all research took place between August 2007 and January 2008.

2. The National Investigation into Drug Related Deaths in Scotland, 2003 reported on the causes and circumstances of the deaths of 317 people in Scotland. It highlighted that there is no single cause of death. In any one year, about 65% of all drug-related deaths are classified as being caused by problem drug use, 13% by intentional self-poisoning, a similar number are accidental self-poisoning and many more remain undetermined.

3. There is no single reason why people use drugs, and there is no single way to stop people overdosing. We need to build on the findings of the National Investigation and identify evidence informed interventions that drug users, their families and friends, and health and social care professionals can use to prevent overdose and death resulting from problem drug use. This research broadens the scope of investigation beyond intravenous drug users and beyond specialist drug services, which are the traditional sources of information.

4. The overall aim of the research was to recommend a range of interventions to reduce the number of drug-related deaths in Scotland. The research had two key objectives:

- To investigate how to increase the number of witnesses to drug overdose calling for help quickly; and
- To investigate what measures could be effective in preventing death from overdose while help is on its way.

Methods

5. The methodology was designed to capture both the breadth and depth of views that exist in relation to drug overdose in Scotland. In order to address such a broad scope of investigation both quantitative and qualitative methods were used. In addition, sampling was targeted at a wide range of populations, including urban, semi-urban and rural populations, areas with increasing drug deaths and sites associated with at risk groups, such as Accident & Emergency (A&E) departments and hostels.

- A review of national and international literature on drug overdose
- Semi-structured interviews with drug users who had either witnessed an overdose or had overdosed themselves (or both)
- Semi-structured interviews with family members who had witnessed an overdose
- Semi-structured interviews with Emergency Service personnel (incl. Ambulance, Police and Accident & Emergency staff)
- Survey of drug users who had overdosed on drugs
- Survey of individuals who had witnessed a drug overdose
- Survey of Emergency Services Control Room (999) and NHS 24 staff.

Recommendations

6. The recommendations aimed at reducing drug users' risk of overdose based on the evidence collected in this report are as follows.

Recommendation 1: Improving the quality of existing responses

- Police forces and ambulance services should regularly review their policy of police presence at overdose scenes. Such reviews should acknowledge the evidence presented in this report about the negative effect that fear of prosecution has on people's decision-making regarding calling for an ambulance.
- Scottish ministers and service commissioners should consider the need for drug liaison nurses in all Health Board areas.
- Patients admitted to hospital following an opiate overdose should be routinely provided with written information on overdose prevention and details of local drug services and harm reduction services.
- Ambulance staff should carry information about overdose management and contact details of local drug services. These should be routinely distributed to people who overdose and to witnesses at the scene.
- Drug services and primary care should be able to provide a rapid response to those seeking support following an overdose incident. This may range from support and advice to engagement with structured treatment programmes.
- The Scottish Government and NHS Boards should develop an information system that accurately collects and collates overdose related calls, ambulance attendances and A&E activity. This should be able to categorise fatal and nonfatal overdose using ICD-10 codes and be used to inform local service planning processes.
- Integrated Care Pathways for the management of opiate overdose should be developed and utilised in General Hospitals.

Recommendation 2: Improving the assessment of needs

- Long-term drug users should be offered regular medical examinations and liver function tests.
- Regular screening for harmful or dependent drinkers should form part of regular reviews for drug users in treatment programmes.
- Structured suicide-risk assessments using validated instruments should be carried out as part of routine assessments of drug users in treatment in order to identify suicidal ideation and moderate to severe depression and, consequently, provide more effective treatment interventions for this high-risk group.
- GPs and other members of the primary care team should be able to facilitate the screening for overdose risk factors and provide onward referral as appropriate.

Recommendation 3: Improving and extending current care provision

- If the Lanarkshire and Glasgow pilots prove successful, naloxone distribution should be more widely offered in combination with a range of other strategies to prevent fatal and non-fatal overdose, such as syringe exchanges and user education on overdose risk and prevention strategies. This would also enable services to contact and target vulnerable

and hard-to-reach groups. The development of any further naloxone programmes should be carefully monitored and evaluated.

- GPs and other prescribers should be made aware of the risks of polypharmacy in drug users and patients should be screened for problem drug use and their prescription history should be examined before antidepressants are prescribed. Other therapy interventions to treat depression, such as counselling, should be carefully considered as alternatives to antidepressants.
- To ensure that drugs provided at any one time do not exceed the patient's therapeutic requirement, prescribers and pharmacists should be extremely vigilant and study a patient's prescription history, ensuring that unused medications are returned to the pharmacy for disposal.
- Health and social care services should recognise the psychological impact that can be caused by witnessing or experiencing an opiate overdose and offer support and counselling when required.
- Methadone treatment programmes should seek to reduce the number of service users they expel due to on-going illicit drug use, explore alternative ways to reduce drug use among service users, and follow-up and assess discharged service users, providing them with opportunities to re-enter treatment or enrol in other kinds of programmes.
- The care of people with co-morbidity issues should be co-ordinated to include all relevant services.
- A dialogue should be established with service providers and service users to consider the merits of introducing safer injecting rooms in Scotland.

Recommendation 4: Information and training for emergency service staff, clinical staff and service professionals

- Drug workers should receive updated overdose information and training as part of their continuous professional development. This may allow for improvement in cascading information to client groups and those most at risk.
- Telephone response staff should be provided with information regarding the management of overdose including guidance on the use of naloxone.
- Overdose awareness training should be made available to all police, ambulance staff and clinical staff working in primary care and hospitals. This should cover the prevention and management of overdose as well as the principles of harm reduction.
- Overdose awareness training should include guidance on how to manage an overdose situation and reduce the potential for diffusion of responsibility.

Recommendation 5: Information and training for drug users and significant others

- Local Police Drug Co-ordinators should play an active role in overdose awareness training for drug users and significant others, and develop links with A&E departments and local drug services.
- Consideration should be given to engaging with peer training networks to deliver some aspects of overdose prevention training.
- Action should be taken at national and local level to ensure that information about the prevention and management of drug overdose is made available to drug users and their families.
- Information should be made available to drug users and family members regarding the

current policy on police attendance at overdose events and the positive benefits that this can bring. Drug services have a key role in providing clear factual information on such policy to drug users and family members, and in helping to address relevant concerns.

CHAPTER ONE INTRODUCTION

Context

1.1 Scotland's drug-related deaths have been consistently higher than those in the rest of the United Kingdom. In 2005, the number of deaths in Scotland per 100,000 population was 7.30, compared to 2.68 in England and Wales and 1.51 in Northern Ireland (Reitox National Focal Point, 2007).

1.2 The latest figures published by the General Register Office for Scotland (GROS) showed that, in 2007, Scotland's drug-related deaths rose to 455, 34 (8%) more than in 2006 and 231 (103%) more than in 1997 (GROS, 2008). The long-term trend appears to be rising as drug-related deaths in Scotland have increased in 8 of the last 10 years. Of the 455 drug-related deaths in 2007, heroin and/or morphine were present in 64% of cases; methadone was involved in 25%; diazepam in 17%; cocaine in 10%; and alcohol in 35% of deaths. The majority of drug-related deaths (86%) were male and, while a third were among 25 to 34 year olds, another third were among 35 to 44 year olds. The Greater Glasgow & Clyde Health Board area accounted for 35% of the deaths, Lothian for 12%, Lanarkshire for 11% and Grampian for 10%. Comparing the annual average for 2003 to 2007 with the annual average for 1996 to 2000 showed that male deaths have increased at a greater rate than female deaths and that the percentage increases for 35 to 44 year olds and people aged 45 and over are greater than for 25 to 34 year olds (GROS, 2008).

1.3 In 2002, the highest annual number of drug-related deaths (n=382) was recorded in Scotland. Following on from this, the Scottish Deputy Justice Minister ordered a National Investigation into all drug-related deaths in 2003 (Zador et al, 2005). The National Investigation into Drug-Related Deaths in Scotland, 2003, reported on the causes and circumstances of the deaths of 317 people. It highlighted that, in any one year, about 65% of all drug-related deaths are classified as being caused by problem drug use (defined as *known or suspected habitual drug abusers*, GROS, 2007). The National Investigation reported that 44% of individuals did not inject any drugs prior to overdose and death. Of the 237 people who were in contact with services, 138 had had a previous overdose recorded in their case file and 31 of them had experienced an overdose in the 6 months prior to death. Case records indicated that of those who died of a drug overdose in 2003, more were seen at A&E departments (22%) and by social work services (30%) in the 6 months prior to death than were seen by specialist drug services (17%).

1.4 Following on from the findings of the National Investigation and the publication of a report on drug-related deaths by the Association of Drug Action Teams (ADAT, 2005), a Working Group on Drug-Related Deaths from the Scottish Advisory Committee on Drug Misuse (SACDM) provided recommendations to support a reduction in future drug-related deaths in Scotland (SACDM, 2005). The Scottish Executive then launched an Action Plan, *Taking Action to Reduce Scotland's Drug-Related Deaths*, based on these recommendations (Scottish Executive, 2005).

1.5 Since the publication of this Action Plan, a range of national responses have been adopted including the "Going Over" DVD; the development of a national Critical Incidents Training post to provide overdose awareness information and training to service users, their families and significant others, and workers; and the establishment of a National Forum on Drug-Related Deaths in Scotland. A number of Alcohol and Drug Action Teams (ADATs)

have established local Drug Death Monitoring Groups with some ADATs promoting their own local overdose awareness campaigns (e.g. Christmas Overdose Awareness Campaign in Glasgow in 2006 and 2007). Further measures to reduce drug-related deaths include the piloting of 2 naloxone programmes in Glasgow and Lanarkshire between 2007 and 2008.

1.6 It is important to build on the findings of the National Investigation and identify evidence informed interventions that drug users, their families and friends, and health and social care professionals can use to prevent overdose and death resulting from problem drug use.

Aims and objectives

1.7 The overall aim of the research was to recommend a range of interventions to reduce the number of drug-related deaths in Scotland. The research had 2 key objectives:

- **To investigate how to increase the number of witnesses to drug overdose calling for help quickly.**
- **To investigate what measures could be effective in preventing death from overdose while help is on its way.**

1.8 This research broadens the scope of the National Investigation beyond intravenous drug users and beyond specialist drug services, which are the traditional sources of information.

CHAPTER TWO METHODS

2.1 The methodology for this study was designed to capture both the breadth and depth of views that exist in relation to drug overdose in Scotland. In order to address such a broad scope of investigation both quantitative and qualitative methods were used. In addition, sampling was targeted at a wide range of populations including urban, semi-urban and rural populations, areas with increasing drug deaths and sites associated with at risk groups, such as Accident & Emergency (A&E) departments and services for the homeless.

Summary of study methods

2.2 Table 2.1 summaries the three distinct stages to this study. A fuller description of these methods is provided in Paragraph 2.3 to Paragraph 2.19.

Table 2.1 Summary of Study Methods

Stage 1	Method	
Literature Review	<ul style="list-style-type: none"> • A review of national and international literature on drug overdose. 	
Stage 2	Method	Target Distribution
Quantitative Surveys	<ul style="list-style-type: none"> • Survey of drug users who had overdosed on drugs. 	1500 questionnaires sent to: <ul style="list-style-type: none"> • Drug Services
	<ul style="list-style-type: none"> • Survey of individuals who had witnessed a drug overdose. 	1000 questionnaires sent to: <ul style="list-style-type: none"> • Drug Services
	<ul style="list-style-type: none"> • Survey of telephone responders. 	1200 questionnaires sent to: <ul style="list-style-type: none"> • Emergency Services Control Room staff • NHS 24 staff
Stage 3	Method	Target Sample Size
Qualitative Interviews	<ul style="list-style-type: none"> • Semi-structured interviews with drug users who had either witnessed or personally experienced an overdose (or both). 	n = 58
	<ul style="list-style-type: none"> • Semi-structured interviews with family members who had witnessed an overdose. 	n = 10
	<ul style="list-style-type: none"> • Semi-structured interviews with emergency service personnel: police, ambulance staff and Accident & Emergency consultants. 	Police, n = 20 Ambulance staff, n = 20 A&E Consultants, n = 5

Stage 1 Literature review

2.3 This study included a descriptive review of all available and relevant English-language literature (UK and international) relating to drug overdose and the cultural factors that might explain them. The papers were drawn primarily from academic and medical electronic libraries and databases, covering the period from 1987 to 2008. The initial

literature search produced 534 potential papers for inclusion, of which 92 full text documents were retrieved for detailed review. A full search strategy is set out in Appendix 1.

Synthesising the evidence

2.4 A narrative summary of the salient findings of each of these papers was undertaken. The evidence was synthesised to create a summary of drug-related overdose and the likely consequences of these patterns. A table detailing the country of origin, sample size, key findings, and statistical significance of each of the selected papers can be seen in Appendix 2. In addition, the findings of the literature review were used to guide the selection of samples included in the qualitative study and indicated further topics to consider when reviewing examples of innovative practice from around the UK.

Stage 2 Quantitative Surveys

2.5 The inclusion of a quantitative survey component to the study allowed the Research Team to categorise, quantify and describe experiences relating to drug overdose across Scotland – an exercise which would have been unfeasible using a purely qualitative design.

Survey of drug users

Aim

2.6 The purpose of the survey was to capture and describe views and experiences of those with direct personal experience of drug overdose events. Two types of questionnaires were sent out: one enquiring about witnessing an overdose and the other enquiring about experiencing an overdose. The survey instruments (see Appendices 3d & 3e) were informed by findings from the literature review and developed by the Research Team with input from the Research Advisory Group.

Sample

2.7 Survey participants were recruited through a variety of statutory and voluntary service providers across Scotland. They were primarily identified through the directory of specialist drug services and the Scottish Network of Families Affected by Drugs. A total of 2,500 one-page, self-completion questionnaires in pre-paid, self-addressed envelopes were sent out to 200 statutory and voluntary drug services across Scotland for distribution to drug users and family members, with a further 1500 for drug users who had experienced a personal overdose and 1000 for people who had witnessed an overdose.

2.8 The survey received a total of 346 responses. Two hundred and sixty-one participants completed the survey enquiring about experiencing an overdose, of which 153 (59%) stated that they had experienced drug overdose in the past. Eighty-five participants completed the survey enquiring about witnessing an overdose, of which 70 (82%) stated that they had witnessed an overdose.

Survey of Telephone Responders: Emergency Service Control Room (ESCR) and NHS 24 Staff

Aim

2.9 ESCR and NHS 24 staff are often the first professional point of contact for witnesses at a drug overdose. The objective of the survey of emergency service staff was to enquire about the training they receive in relation to drug overdose, their awareness of changes in law regarding naloxone, the information they relay to witnesses/callers, and their views on how to improve witness response to drug overdose.

Sample & data analysis

2.10 Contact with NHS 24 and ESCR staff was negotiated by the Research Team in conjunction with the Research Advisory Group. One thousand pre-paid, self-addressed envelopes containing a one-page, self-completion questionnaire (see Appendix 3f) were sent out to NHS 24 staff. Two hundred questionnaires were sent out to all ESCR staff across Scotland. These numbers were arrived at in consultation with managers in each of the organisations to ensure that one questionnaire was provided for each member of staff. A total of sixty seven responses were received, forty-one responses from NHS 24 staff and twenty-six responses from ESCR staff (of the sample respondents, 61% were NHS 24 staff and 39% were ESCR staff). The resulting quantitative data were computed and analysed using Microsoft Access and Excel Packages, and descriptive statistics were used to summarise the data.

Stage 3 Qualitative Interviews

Interviews with drug users and family members

Aim

2.11 Qualitative semi-structured interviews were conducted with drug users, family members, and emergency service personnel with the aim of exploring participants' overdose awareness and knowledge, the action they had taken during overdose events and whether they had been offered information and/or training on handling and preventing an overdose situation.

Sample

2.12 The sample included 68 participants who had either witnessed a drug overdose or had personally overdosed on drugs. Participants resided in one of four¹ selected areas of Scotland: Glasgow, Edinburgh, Fife and Lanarkshire. These areas were selected as being representative of areas experiencing high or increasing numbers of drug-related deaths. Of these participants:

¹ In agreement with the Research Advisory Group.

- 49 were drug service users
- 9 were drug users not in contact with treatment services
- 10 were family members of drug users

Recruitment & data collection

2.13 In order to recruit drug users and significant others, the Research Team contacted Drug Services, Family Support Groups (via the Scottish Network of Families Affected by Drugs), Homeless Street Working Teams/Drop-In Centres, and Needle Exchange Outreach Working Teams. The interviews, which were based on a semi-structured questionnaire design (see Appendix 3a for full interview schedule), took place in services and private residences over a 4-month period (November 2007 to February 2008) and each interview lasted approximately 60 minutes. Informed consent for participation in the study was sought and obtained prior to interview, as was agreement to recording.

Data analysis

2.14 The initial stage of the data analysis involved transcribing the interviews. Once the interviews were transcribed verbatim, the transcripts were imported into QSR NVivo 2.0 (a qualitative data analysis software package). The documents were then categorised into 24 broad themes based on the questions asked during interview. Within these broad thematic categories the texts were further coded into “child” nodes, and where appropriate these were sub-categorised into “sibling” nodes. This process allowed the Research Team to build a picture of the views and experiences of the study participants and facilitated the identification of common trends among those who had witnessed and/or experienced an overdose. Additionally, as a means of guaranteeing rigour in the process, the initial analysis of interview data was reviewed by the entire Research Team. Points of divergence were discussed and agreement reached for final analysis.

Interviews with emergency service personnel

Aim

2.15 The purpose of the interviews with police and ambulance staff was to identify current perspectives of drug overdose amongst emergency service personnel in Scotland. The interviews enquired about participants’ experiences of attending overdose events and whether they had received information and/or training on managing an overdose situation.

2.16 The Research Team conducted a number of interviews with Accident and Emergency Consultants with the aim of exploring their views on what could be done following a non-fatal overdose to reduce the likelihood of further overdose incidents (e.g. advice, information, brief intervention, liaison service), and who they consider to be best placed to deliver these.

Sample

2.17 The sample included 45 emergency service personnel working in the 4 selected areas of Scotland. These were:

- Twenty ambulance personnel (including A&E Team Leaders, Community First Responders, Paramedics and Technicians).
- Twenty police personnel (including Police Constables, Detective Constables, Sergeants, Detective Sergeants, and Patrol Sergeants).
- Five Consultants working in A&E departments or related areas (including 2 Consultants in A&E Medicine, one Emergency Medicine Consultant, one Consultant in Liaison Psychiatry and one Consultant in Psychological Medicine).

Recruitment, data collection & analysis

2.18 Permission to interview ambulance and police personnel was arranged through the Justice Department of the Scottish Government. Access was provided by local managers in each of the 4 areas who identified suitable interviewees and arranged for the interviews to take place over a 4-month period (November 2007 to February 2008). The interviews, which were audio recorded, utilised a semi-structured questionnaire design (see Appendices 3b and 3c for full interview schedules), and lasted approximately 30 minutes. Informed consent for participation in the study was sought and obtained prior to interview, as was agreement to recording.

2.19 As with the data collected from interviews with drug users and family members, these interviews were transcribed and the data analysed using QSR NVivo 2.0 (see Paragraph 2.14 for more detail).

Ethical Approval

2.20 Ethical approval for multi-site research was sought by the Research Team and granted by NHS Greater Glasgow, North Glasgow University Hospitals Division (West Glasgow Ethics Committee 1, REC Ref. 07/S0703/75).

Limitations of the research

2.21 The quantitative surveys were distributed through drug services across Scotland, which limited the range of responses to those already engaged with treatment. This may have biased these results by only collecting the views and experiences of those less at risk of overdose due to their involvement with services.

2.22 The aim of these questionnaires was to obtain information about people's personal experiences and views, and therefore they were designed to guarantee anonymity. As a result, no identifiable information was collected limiting the opportunity to explore demographic comparisons.

2.23 The response rate to the quantitative surveys was lower than anticipated. Of the 2,500 self-completion questionnaires sent to agencies it is unknown how many were actually distributed to potential participants. Efforts were made by the Research Team to improve the response, and agencies were re-contacted on 2 occasions to remind them of the study and encourage a response from their clients.

2.24 The overall response rate from the emergency service telephone operators was 6%, which was significantly lower than anticipated. There were 26 completed questionnaires returned by 999 staff from a workforce of approximately 200, yielding a 13% return rate. NHS 24 management estimated that there are around 1000 NHS 24 telephone responders. The Research Team and the Contract Manager at Scottish Government held discussions with NHS 24 management over a period of months before receiving approval in November 2007 to send 1000 questionnaires to NHS 24 head office for distribution. Forty-one (4.1%) completed questionnaires were returned to the research team by February 2008.

2.25 The qualitative study was conducted in 4 of the 14 Health Board Areas in Scotland. These areas were selected as being areas with a high or increasing number of drug-related deaths. By their nature these areas are more representative of urban and semi-urban populations and therefore may not reflect the experiences of people living in rural, remote and island communities.

2.26 Difficulties were experienced in recruiting A&E Consultants to participate in interviews. Despite enlisting the help of the Drug and Alcohol Action Team and the Consultant in Substance Misuse in Fife, the Research Team was unable to find an A&E Consultant from NHS Fife willing to participate in the study. As the Research Team only received ethical approval and local permissions to conduct the qualitative part of the study in these four areas of Scotland, it was decided, with the approval of the Research Advisory Group, to conduct further interviews at the Royal Infirmary of Edinburgh. This allowed the Team to collect the views of a Consultant in Liaison Psychiatry and a Consultant in Psychological Medicine. A second A&E Consultant in Glasgow was identified and was willing to participate in the study but was not able to fit the interview into his busy schedule within the timescales of this study.

2.27 There was a degree of self-selection in the 5 A&E Consultants interviewed insofar as they consented to being interviewed because they regard drug overdose as an important issue that is relevant to their work. By the nature of their selection, the views of these 5 consultants and the way in which they manage opiate overdoses may differ from those of consultants working in other areas.

2.28 Similarly, the views and experiences of the 20 ambulance staff and 20 police officers provided useful insights into their work and the challenges that they face; however, they may be different from those of their colleagues. The relatively small number of interviewees makes it difficult to generalise these findings to the wider ambulance and police officer staff.

CHAPTER THREE REVIEW OF LITERATURE

Introduction

3.1 This review of the literature is divided into three main sections. The first section will look at emergency responses, the second focuses on mainstream and emerging interventions with the final section looking at a range of early individual and social indicators facing those most at risk of drug overdose.

3.2 In section 1, the reviewed literature on emergency responses covers witness response and intervention to drug overdose. It also examines ambulance, police and accident emergency responses. The section concludes by looking at the role of public health alerts.

3.3 In section 2, the key themes explored are traditional mainstream treatment interventions. This involves examining the role of methadone, General Practitioners and engagement and retention themes for drug users and service providers. This section concludes by exploring 2 emerging interventions: Take-Home-Naloxone and Safer Injecting Rooms.

3.4 Finally, in section 3 early individual and social indicators facing those most at risk of non-fatal and fatal overdose are examined. The indicator themes are drug users' tolerance, the impact of injecting drug use and poly drug use. The health-related indicators include morbidity, recent life problems, the role of antidepressants and suicide. Social indicators explored are the role of drug using networks, public injecting and accommodation issues.

Section 1 - Emergency Responses

Overdose Witnesses and Interventions

3.5 Witnesses present at an overdose event are willing to intervene, according to the papers reviewed. For example, Best et al (2002) noted that witnesses reported using a range of strategies – from appropriate (e.g. cardio pulmonary resuscitation) to inappropriate (e.g. shocking the casualty with cold water). The authors noted that successful outcomes were strongly linked with immediate overdose onset while fatalities were often linked to slow overdose onset. It has also been suggested that where narcosis is slow to develop, vital signs are less likely to be recognised (McGregor et al, 1998).

3.6 The decision to call emergency services for help during an overdose may be influenced by past experience. According to Tobin and colleagues (2005), past witnesses of a fatal overdose were almost twice as likely to call emergency services compared to those who had been present at a non-fatal overdose. They suggest that witnessing a fatality may “sensitize drug users to the seriousness of overdose”.

3.7 However, the study paints a more complex picture. The authors suggest that drug users who have survived overdose and go on to witness it may be a) less aware of the life-threatening nature of the situation and b) less likely to call an ambulance. They may also feel more confident and competent in managing the overdose situation.

3.8 Commenting on overdose casualties that received emergency medical help, the authors hypothesise that their experiences and perceptions of this help may reduce the future likelihood of calling an ambulance (Tobin et al, 2005).

3.9 A New York study by Tracey and colleagues (2005) found that witnesses of overdose events within public areas were more likely to summon medical help compared to overdoses occurring within private locations. Furthermore, those taken to hospital following a recent overdose were more likely to call for help than those who had not. Fears about medical care and police involvement (which are common barriers to seeking help) may be less acute among those who experienced an overdose and subsequent hospitalisation.

3.10 The presence of bystanders may decrease the likelihood of calling an ambulance. To reduce the likelihood of a “diffusion of responsibility”, Tobin and colleagues (2005) suggest that drug users should be trained to direct someone present to be responsible for calling an ambulance while others attempt resuscitation. Noting that drug users tend not to telephone an ambulance as a first response (Fitzgerald, 2000), it has been suggested that two components require consideration - diagnosis and intervention (Best et al, 2002).

3.11 Many initial witness responses, such as slapping and shaking the casualty, may be attempts to assess the severity of the problem and their capacity to manage the situation before considering external help. Best and colleagues (2002) found that remaining with the casualty may help prevent choking or provide a level of sensory stimulation that prevents them falling too far into an overdose state. Thus the continued presence of witnesses attempting a range of resuscitation methods may play a critical role in the prevention of many fatalities even if some of these techniques are individually ineffective.

3.12 Witnesses who attempted CPR prior to ambulance arrival improved hospitalisation rates compared to cases where it was not administered (Dietze et al, 2002). Moreover, CPR administration was associated with a statistically significant improvement in clinical outcomes in cases of non-fatal heroin overdose; for example, complications due to prolonged depression of respiratory function and conscious state. The authors suggest that benefits might include a reduction in the incidence and severity of cases of hypoxic brain injury (Dietze et al, 2002).

3.13 Pollini and colleagues (2006) have noted that intervention was also more likely when witnesses had received information on how to prevent/revive a casualty compared to those who had received no information. This reinforces the views that providing relevant information may be an effective strategy to help prevent or reduce further harm such as related morbidity and deaths (Dietze et al, 2002; Bennett et al, 1999; Best et al, 2002; Tobin et al, 2005; Zador et al, 1996; Wright et al, 2005; Hall, 1998). Additionally, offering CPR training and other interventions (such as naloxone or emphasising witnesses to remain with the casualty until medical help arrives) should be offered to those likely to be present, such as drug using peers, family and friends.

Ambulance

3.14 An Austrian study conducted in Vienna used ambulance service data to observe illicit opiate use. The study reviewed the records of ambulance crews called out to emergencies where a diagnosis of heroin or opiate overdose was recorded over a 14 month period (Seidler

et al, 2000). With 707 people involved in 1087 non-fatal overdoses, an important sub-group was identified - more than half (52%) of all the 1087 emergencies were attributed to 189 drug users.

3.15 This Viennese ambulance data was used by local drug agencies to target services by mapping high risk areas and identifying those repeatedly overdosing. It also led to the identification of high-risk groups (in this case young people) not previously identified by services with subsequent help being offered, which included drug counselling.

3.16 Seidler and colleagues argue that this ambulance data allows for rapid discussions and focussed attention. They also state that undertaking a local evaluation of emergency service responses, which includes operational structures, could result in a new and useful source of information on drug use and drug-related deaths.

3.17 In Melbourne, Australia, a similar approach was undertaken which involved establishing a database of non-fatal heroin overdoses attended to by ambulance personnel (Dietze et al, 2000). The aim of this ambulance database was to provide interested stakeholders with reliable, quality and up-to-date data on heroin-related harm. Similar to the work in Vienna, the Melbourne data was used to map high-risk areas and identify overdose clusters within a number of areas. Although police attendance is often cited as a key barrier to people not contacting ambulance services, Dietze and colleagues (2000) noted low police attendance at drug overdose scenes (12%). They also stated that strong links developed between researchers and the ambulance service, may serve as the basis for important future research regarding heroin overdose.

3.18 In the UK, extensive work carried out on behalf of the Joseph Rowntree Foundation (JRF) emphasised the need for standardised ambulance call-out statistics collated at a national level. The JRF Independent Working Group (IWG), which examined international work on the role of Drug Consumption Rooms, stated that the lack of data on fatal and non-fatal drug overdoses was a “significant weakness” in the evidence base (Joseph Rowntree Foundation, 2006).

Police

3.19 Several authors have reported that a main barrier to calling for help is the “fear” of police involvement (Pollini et al, 2006; Tobin et al, 2005; Tracy et al, 2005; Bennett et al, 1999). It has been suggested that this barrier requires research attention to provide a better understanding of drug users’ fear of arrest and how barriers can be reduced (Tobin et al, 2005). It has also been argued that liaison between police and ambulance services, aimed at supporting the safe calling of ambulances - should form a component of any planned intervention (McGregor et al, 1998).

3.20 At a structural level, reducing police attendance at the scene of an overdose and decreasing the risk of arrest might increase willingness to call emergency services (Pollini et al, 2006; Bennett et al, 1999).

3.21 Although not formally evaluated, some UK police force areas have been involved in developing protocols regarding police attendance at overdose incidents. For instance, an agreement was reached between Nottinghamshire Police, the East Midlands Ambulance

Service and the local DAATs to ensure that police officers do not routinely attend ambulance call-outs to drug overdoses unless a death has already occurred; there are child protection concerns; and/or the address is identified as one where there could be a threat of violence. Similar protocols have been established in other parts of England, such as Kirklees, Leicestershire and Avon & Somerset.

Accident and Emergency

3.22 A recent unpublished Edinburgh study, which analysed 90 drug-related deaths over a two-year period in the Lothian region, investigated the association between drug-related deaths and past contact with the Royal Infirmary of Edinburgh (Thanacoody et al, 2007). Just over half of the confirmed deaths had previous hospital contact within five years of their death. More than one third had contact within 12 months of their death.

3.23 A similar study examined methadone-related deaths in the Lothians between 1997 and 1999 (Fiddler et al, 2001). It noted that 60% had attended accident and emergency departments for deliberate self-harm or accidental overdose. Commenting on this finding, the authors described these periods of hospitalisation as providing a “unique” opportunity for appropriate interventions to be targeted at these high-risk patients.

3.24 Other European studies have also identified missed opportunities for intervening within medical settings (Pollini et al, 2005; Cook et al, 1998). The studies noted that the number of patients receiving treatment information from emergency departments or hospital staff was low, as were the numbers referred on to drug treatment. Importantly, Pollini’s study found that hospital staff and crisis counsellors appeared particularly influential in linking injecting drug users (IDUs) with drug treatment.

3.25 Clearly, there is a need for medical care providers to capitalise on contact with drug users following an overdose event and provide information on overdose prevention strategies and referral to drug treatment programmes. Thanacoody and colleagues (2007) point to liaison between emergency departments, clinical toxicology services and community drug-based addiction services to help increase the number of drug users engaging with community treatment services. Other broader policy suggestions include routine screening for health-damaging behaviours and implementation of health promotion strategies within general hospitals (Canning et al, 1999).

3.26 In Scotland, innovative practice is being developed to meet these challenges. For example, Monklands Hospital, in NHS Lanarkshire, have located substance use specialist nurses within the accident and emergency department to progress referral for drug overdose casualties, and provide advice and information to family members or significant others accompanying the casualty.

Communicating public health alerts

3.27 Appropriate dissemination of health messages may be an important vehicle for reducing drug-related deaths. Therefore, it is important that identification of drug users’ information networks is explored.

3.28 An investigation has explored the communication channels through which drug users receive information on “bad dope” (Freeman and French, 1995). In this instance, it was Fentanyl (an extremely potent opioid analgesic) which contributed to a small number of fatalities and an increase in hospital admissions in New Jersey. There were geographical differences in sources of information across three city areas in New Jersey with notable gender differences. Male drug users were most likely to have received their information from the TV while females were more likely to have heard from friends. Other information sources included radio, newspapers, other drug users, relatives and to a lesser extent police sources. The authors cautiously advise that public health alerts could have the paradoxical effect of increasing some users’ interest in obtaining a particular drug.

3.29 Elsewhere, media coverage that refers to street heroin locations has been linked to the increased use (Fitzgerald, 2000). When asked about trusted sources on providing good information about “bad dope”, friends and other addicts were considered most reliable with no one regarding TV, radio or the police as reliable sources.

3.30 These papers suggest that health officials need to understand how public health messages are perceived and processed by drug users and should include further exploration of those sources considered trustworthy.

Section 2 - Mainstream & Emerging Interventions

Drug Treatment and Methadone

3.31 A small Scottish study of 33 drug overdose casualties attending 6 accident and emergency departments in 2 Scottish cities may provide some drug treatment, policy and practice insights (Neale, 2000). The researchers identified 4 overdose situations related to methadone and methadone treatment: 1) Topping up on a legitimate methadone prescription 2) Using someone else’s methadone prescription 3) Preferring illegal drug use in favour of prescribed methadone 4) Unable to access a methadone prescription.

3.32 Methadone diversion was viewed as an important factor contributing to non-fatal overdose which was common among those already prescribed methadone. The author considered tighter supervision of methadone consumption in pharmacies and drug clinics as a way of reducing illicit diversion.

3.33 Conversely, Neale (2000) noted that methadone-related overdoses occurred among those unable to obtain substitute medication, despite a number often having had previous methadone prescriptions. Careful monitoring and evaluation of substitute prescribing should include the opinions and concerns of the drug users by actively involving them in their treatment decisions wherever possible (Neale, 2000).

3.34 Some overdose casualties had not always taken their prescribed medication which may have prompted reduced drug tolerance, withdrawals and an increased susceptibility to overdose. Those casualties that consumed methadone prior to overdose cited a range of explanations - from unintentionally taking too many drugs, unexpected heroin purity to a lower tolerance or ingesting unknown tablets. The author suggests that despite drug users understanding the risks, more information is required as to why “self-destructive” behaviours persist. With a significant number requesting additional support, those leaving hospital

should receive follow-up support and/or additional help to avoid future drug overdose (Neale, 2000).

3.35 Echoing some of these Scottish findings, an NTORS study found that clients who had overdosed in the three months prior to treatment were more frequent users of illicit methadone (Stewart et al, 2002) and others found that most people involved within a structured methadone maintenance programme reported continued illicit drug use (Cullen et al, 2000). Therefore, the risks of consuming both prescription and illicit drugs need to be addressed among users and service providers.

3.36 Stewart and colleagues (2002) found that the continued incidence of overdose among some clients at one year follow-up was a cause for concern. In accordance with these findings, a study in Dorset linked overdose to very high levels of drug intake with users experiencing difficulty in controlling their drug intake (Bennett et al, 1999). Drug injectors at greater risk, and in contact with mainstream drug services and prison, are in an ideal position to be offered overdose prevention work (Bennett et al, 1999).

3.37 The relationship between poor treatment response and non-fatal overdose suggests there is a strong case for incorporating non-fatal overdose into routine measurements of treatment in order to target interventions at individuals most at risk. Fischer and colleagues (2004) suggest further research is required to disentangle the “complex dynamics of the potential anti-therapeutic effects of treatment”, taking into account the fact that many treatment episodes for drug users are suddenly or prematurely terminated, with no opportunity for transition measures.

3.38 Addressing some of these challenges, a National Treatment Agency (NTA) briefing paper examined the evidence on methadone dose and maintenance treatment. A key research message was the consistent finding of greater benefit being accrued from offering most individuals on methadone maintenance a daily dose between 60mg and 120mg. Yet the paper noted that British methadone treatment doses are on average less than 50mg daily with only one in four service users receiving over 60mg (NTA, 2004).

3.39 The NTA briefing paper also found that higher doses were consistently shown to encourage treatment retention and reduce illicit drug use in methadone maintenance regimes. Conversely, lower dose levels may undermine the provision of optimal services and compromise the therapeutic relationship between service user and key worker. The briefing paper also noted that responsive and flexible individualised dosing can help foster the therapeutic relationship, and lead to improved outcomes and reductions in illicit drug use (NTA, 2004).

General Practitioners

3.40 Despite many General Practitioners (GPs) playing an active role in the management of drug problems, including prescribing substitute drugs such as methadone, there are limited studies looking at the role of the GP in the management and prevention of drug-related overdose.

3.41 An Irish study involving a small sample of heroin users in a Dublin GP practice revealed high levels of activity associated with overdose and poor preventive measures

(Cullen et al, 2000). Although the sample had significant personal experience of overdosing or knowing people who had died, there was poor knowledge of preventative measures and how to manage an overdose. The majority of this sample was involved in a structured methadone maintenance programme, but reported continued illicit drug use and ongoing exposure to witnessed overdoses.

3.42 This Dublin study found that GPs recognised the importance of being involved in blood borne virus (BBV) interventions with drug users. However, their role in responding to overdose activity was not well recognised. Cullen and colleagues recommend that overdose prevention and management should become a priority for GPs caring for opiate-dependent patients.

3.43 An Australian study looked at prescription drug-seeking behaviours among young people who died of heroin-related overdose (Martyres et al, 2004). Key study findings included high levels of poly-drug use and prescription drug use among the heroin deaths and circumstantial evidence of increasing use of multiple doctors and excessive increases in psychoactive drug prescriptions.

3.44 Increased GP attendance may be an “indicator” of overdose risk but also an opportunity to intervene and advise injecting drug users about treatment options (Martyres et al, 2004). However some GPs may be reluctant to become involved in identifying and managing drug users and when faced with persistent and threatening patients, the temptation to prescribe on request may be an easier option. Martyres and colleagues suggest that there is a need for a longitudinal study of heroin users, in relation to fatal and non-fatal overdose, to assess if increased “doctor shopping” is a predictor of overdose risk.

The impact of services engaging and retaining drug users

3.45 A study by Digiusto et al (2004) noted that all deaths and most overdoses occurred after leaving treatment. Other authors have also pointed out that those engaged in treatment were at lower risk of death (Fugelstad et al, 2007; Darke et al, 2005; Bartu et al, 2004). A ten-year longitudinal mortality study found no significant differences between two treatment types (methadone versus buprenorphine maintenance treatment) but concluded that increased exposure to maintenance treatment decreases the risk of death (Gibson et al, 2008).

3.46 In an Australian study, the number of heroin users who overdosed declined by half following enrolment in treatment; with the risk further reduced the longer people stayed in treatment (Darke et al, 2005). The study identified that a greater number of separate treatment episodes lead to an increase in overdose risk, leading the authors to highlight the importance of treatment stability, longer spells in services and less treatment episodes to improve outcomes (Darke et al, 2007).

3.47 A Swedish study examined opiate users who had been in contact with a methadone treatment programme, from 1988 to 2000, which included those discharged from treatment and those not accepted into treatment (Fugelstad et al, 2007). It found the lowest mortality rates among those within the methadone treatment programme and the highest rates among those who had left the service or were discharged from it.

3.48 This Swedish study also highlighted that different countries choose different strategic

approaches towards methadone programmes - from “low threshold” programmes that prioritise availability and try to keep people in treatment for as long as possible to “high threshold” approaches that prioritise security. Although the Swedish methadone programme protected people from fatal heroin overdose or methadone intoxication, it was not attractive or easily accessible to many and there was a high mortality rate among those discharged from the programme. The authors concluded that different treatment policies and rules of inclusion lead to different mortality patterns with strict rules increasing the risk of discharge resulting in a high mortality rate (Fugelstad et al, 2007).

3.49 Examining mortality rates after one year among people in a methadone treatment programme, Zanis and Woody (1998) found that discharged patients were 8 times more likely to be dead compared to those still in treatment with the main cause being drug-related overdose. Although it was not possible to know if those discharged would still be alive if they had remained in treatment, the authors noted that the significant differences in mortality would imply that it may have produced a more favourable outcome. They suggest the need for more tolerant programmes to increase retention among less compliant active drug users; restrict the number discharged due to on-going drug use; and, explore alternative ways to reduce drug use. Other suggestions include follow-up and assessment of those discharged to provide opportunities to re-enter treatment or enrol in other programmes (Zanis and Woody, 1998).

3.50 An Italian study examining unintentional illicit drug overdose between 1984 and 2000, found that withdrawal from drug treatment was an important precursor to fatal overdose - most deaths occurred among those out of treatment for more than two weeks (Preti et al, 2002). The authors concluded that the greater availability of drug treatment services in Italy may have been partly responsible for the decrease in the risk of death by overdose among injecting users during the study period.

3.51 Another Italian study drew attention to the importance of retention for long-term and maintenance clients as a means of preventing overdose (Davoli et al, 2007). The authors found that the risk of overdose within the first 30 days after stopping/completing treatment was 3 times higher compared to 31 days or more after treatment. They also identified an increased mortality risk among those that *finished* methadone detoxification compared to those who had ceased or dropped out of it. This was attributed to greater reductions in tolerance among those finishing detoxification thus increasing overdose risk following relapse. The authors emphasised the importance of adequate follow-up among abstinence-based treatment providers and educating drug users about the risks of post-treatment relapse and overdose (Davoli et al, 2007).

3.52 Exploring mortality among opiate and amphetamine users in Perth (Western Australia), Bartu and colleagues (2004) found that participants engaged in treatment are at lower risk of death regardless of the treatment received. Those opiate users that withdrew from treatment were more than 8 times at risk of drug-related death, 6 months after treatment. Those who withdrew from treatment against advice were also at higher risk. The authors emphasised the need for clinicians to stress that those withdrawing from treatment can return at any time in order to minimise the risk of death should they relapse.

3.53 A study in London into the characteristics and types of overdose deaths endorses these other European findings. Hickman and colleagues (2007) suggest that increased methadone prescribing was one explanation for the overall decline in drug-related deaths in

England and Wales between 2000 and 2003. Therefore, they argue that increasing the availability of treatment among heroin users both in the community and in prison is vital to reducing drug-related mortality rates.

3.54 Other treatments, such as heroin-assisted treatment may also reduce mortality rates, according to Rehm and colleagues (2005). The Swiss study of mortality rates among those involved in heroin-assisted treatment between 1994 and 2000 found that the rates among those in this treatment were lower than that of other users both in and out of treatment.

3.55 Although treatment retention is an important protective factor, Darke and colleagues (2005) stress the need to consider other important risk factors such as polydrug use and recent overdose.

Emerging interventions – Take-Home-Naloxone and Safer Injecting Rooms

Take-Home-Naloxone

3.56 With most drug overdose deaths occurring in the company of others, there are opportunities to intervene using naloxone (Strang et al, 1999; Lenton and Hargreaves, 2000; Baca and Grant, 2005). Naloxone, an antagonist drug used to reverse opioid overdose, has been identified as the single most important resuscitative action during heroin overdose (Baca and Grant, 2005). Reinforcing this view, Strang and colleagues (1999) argue that at least two-thirds of the 69 overdose fatalities identified in their study could have been prevented by immediate administration of take-home-naloxone (THN). At risk groups that could benefit from THN are detoxified opiate users discharged back into the community, those in the first few weeks of methadone substitution therapy, and opiate users being released from prison (Strang et al, 1999).

3.57 A national naloxone project involving emergency services, clinicians, and clients was carried out by the National Treatment Agency (NTA) in England (Strang et al, 2007). After being trained in overdose management, 239 clients received a THN supply.

3.58 NTA follow-up of 186 (78%) THN clients revealed that 18 overdoses were witnessed and 10 naloxone administrations were carried out with no adverse consequences and full success in overdose reversal. The study uncovered high rates of personal/witnessed overdose among opiate users attending treatment services but also high levels of support for expanding the provision of THN to prevent fatalities. Although there was scope for improving awareness of overdose prevention and naloxone administration, the study noted differences in the extent to which services were willing to commit time and resources to this THN initiative. However, clients who had used naloxone expressed a commitment to the project and suggested the biggest challenge was continuing to raise overdose awareness and provide training (Strang et al, 2007).

Take-Home-Naloxone concerns

3.59 It has been suggested that THN may encourage a small minority to increase their drug use, use in a more risky way (Strang et al, 1999; Lenton and Hargreaves, 2000) or take more heroin to lessen naloxone-induced drug withdrawals thus potentially falling back into a state

of overdose (Worthington et al, 2006; Seal et al, 2003). This latter point was explored in a study examining injecting drug users' (IDUs) attitudes towards being prescribed THN - 46% stated that they might not be able to dissuade the casualty from using more heroin following THN administration (Seal et al, 2003).

3.60 With the drug having a short-acting duration (30 to 90 minutes) more than one dose may be required when long-acting drugs, such as methadone, have been used (Baca and Grant, 2005; Lenton and Hargreaves, 2000). Offering THN to opiate users could have significant health implications as injecting naloxone could potentially increase the transmission of infectious diseases (Baca and Grant, 2005). There is also the probability that drug users and their peers offered THN may be less likely to call an ambulance resulting in fewer non-fatal overdose casualties being medically reviewed with associated morbidity remaining undetected and untreated (Lenton and Hargreaves, 2000).

Addressing Take-Home-Naloxone concerns

3.61 It has been argued that THN is a safe intervention and fears regarding its use are not well-founded (Baca and Grant, 2005). Lenton and Hargreaves (2000) emphasise that no significant problems have arisen following hundreds of administrations in both the UK and Australia and note that similar concerns that were raised about needle exchanges have proven unfounded. They also point to follow-up THN research in Berlin - involving a programme set up in 1999 - which did not identify any cases of risky drug consumption. Furthermore, the abuse potential is considered negligible as naloxone has no reinforcing properties and rapidly provokes unpleasant withdrawal symptoms thus reducing the likelihood of abuse (McGregor et al, 1998).

3.62 The lack of reinforcing properties were evident in a New York study which suggested that drug users were unlikely to engage in riskier drug-taking activity (Worthington et al 2006). Those with experience of administering THN described the incident as challenging, stressful and emotionally upsetting with some put off by the potential for "dopesickness" (or opiate withdrawal) after THN administration. However, there were no reports of study participants refusing to seek medical help after THN administration. The authors conclude that widespread THN availability would not weaken the important message of contacting the emergency services following overdose (Worthington et al, 2006).

3.63 Addressing the potential transmission of infectious diseases, Baca and Grant (2005) suggest that medical staff could combine naloxone distribution with syringe exchanges and user education regarding blood borne virus (BBV) transmission with THN programmes offering prevention and treatment opportunities to high-risk drug users. Other concerns could be reduced by looking at alternative methods of administering naloxone

3.64 Recently, Kerr and colleagues (2008) examined the use of intranasal naloxone for the treatment of heroin overdose. They found it to be a safe and effective option, which could be useful for administration within communities as it would reduce the risk of needle stick injuries for care-givers and reduce discomfort for those receiving it. Despite these advantages, they emphasise that there is still a lack of evidence to support its use as a first-line intervention by paramedics for the treatment of heroin overdose and call for further research to verify its effectiveness, safety and value.

3.65 With improving witness response a major challenge, the study by Lenton and Hargreaves (2000) found that, in practice, witnesses only called an ambulance in about one in 10 overdose incidents with no reported intervention taking place in nearly 8 out of 10 deaths. Addressing some of these concerns, Worthington and colleagues (2006) suggest that THN may prevent significant others reverting to potentially harmful and less effective resuscitation methods, but this will require increased education and resources.

3.66 In New York, drug users undertaking THN programmes reported gaining confidence in administering the drug through practice and follow-up training. Commenting on this work, Worthington and colleagues (2006) believe programmes need to arrange multiple visits with enrolled participants to practice role play in administering the drug, offering them support and addressing their fears. This may lessen the detrimental effect of panic and intoxication on successful THN administration.

3.67 Putting forward the view that peers are more likely to know what drugs the person has taken, monitor their initial response to THN and administer a subsequent dose if necessary, Lenton and Hargreaves (2000) suggest a range of measures: from encouraging peers to seek medical help to providing them with controlled amounts of methadone or buprenorphine to ensure the casualty experiences some relief from drug withdrawal. Others suggest the need to emphasise strategies within overdose prevention programmes that ensure effective response to potential THN risks (Seal et al, 2003). Commenting on some of the insights gained from New York City's THN programmes, Piper and colleagues (2007) conclude that programme experiences and data shows that these initiatives are a feasible option in effectively training drug users to respond effectively to overdose by administering THN. The authors emphasise the need for flexibility and simplicity in the development, implementation and evaluation of these types of programmes, adapting them to suit the needs and experiences of participants. Moreover, it was also considered important to incorporate user feedback in the planning and delivery stages (Piper et al, 2007).

3.68 In summary, there is a consensus among the reviewed papers that there is a potential to prevent many opiate overdose deaths using THN. The possible benefits of THN are considered sufficient to justify the need for carefully monitored pilot schemes that are linked into extensive educational programmes and training (Strang et al, 1999).²

Safer Injecting Rooms

3.69 Advocates of safer injecting rooms (SIRs) claim that these facilities can help reduce harms associated with IDU, such as heroin overdose levels (fatal and non-fatal), BBV transmission and the impact of street-based injecting. In a study carried out in Melbourne, prior to the establishment of a SIR, participants were aware of SIRs and their main components (Craig, 1999). A number of participants expressed concerns about injecting in public spaces and the risks of heroin overdose – they stated that SIRs had an important role to play here. Those participants who reported being most willing to use SIRs were male, had experienced more non-fatal heroin overdoses and used heroin more frequently in the 6

² In the UK, legislative changes to the Prescription Only Medicines (Human Use) Order (2005) means that naloxone can now be administered by any person in an emergency to save life. Several THN pilots involving drug users have already taken place in England and Scotland with recent pilots completed in Lanarkshire and Glasgow.

months prior to interview, compared to those not willing to use SIRs. The former group would be an important target group for harm-minimisation strategies, such as SIRs.

3.70 This Melbourne study also reported that a significant number of IDUs were not willing to use SIRs. Reasons cited included a preference to use in a private setting. Yet, the report authors point to evidence that shows that most heroin overdoses (fatal and non-fatal) occur within a private setting. If SIRs were established, it may be that the risk of overdose mortality and morbidity would likely continue among a significant number of this group who prefer injecting in private (Craig, 1999).

3.71 A literature review by Hunt (2006) for the IWG on Drug Consumption Rooms suggested SIRs can contribute to a reduction in drug-related deaths, although the significance of their effect depends on variables, such as the extent to which they reach their target population and the number of deaths occurring outside that target population - for example, those who use in private and among more socially integrated users. Nevertheless, there is no evidence that the use of SIRs contributes to increased risk of morbidity or mortality. Hunt reported that no fatal overdoses has occurred within a SIR despite there being “millions” of supervised drug consumptions and thousands of treated emergencies, thus showing evidence that SIRs provide a high level of safety from overdose among the people who use them.

3.72 An illustrative example of SIRs’ beneficial effects is the EVA project in Barcelona (Anoro et al, 2003). Records from the EVA project (from January 2001 to March 2003) showed that staff assisted 377 cases, 52% of which involved respiratory arrest, with no overdose deaths occurring during EVA opening hours or within the larger community. Eight out of 10 overdose interventions were carried out by EVA nursing staff with less than one out of 10 cases requiring an ambulance call out.

3.73 According to the authors, the availability of naloxone for staff and clients significantly helped to reduce overdose mortality rates, with staff operating within strict CPR/naloxone protocols. The EVA project also facilitated recruitment and training of active drug users in basic CPR which included providing them with THN. This take-home initiative was estimated to have reduced overdose mortality by one third in the Can Tunis area of Barcelona between 2000 and 2001.

Section 3 - Early Individual & Social Indicators

Tolerance

3.74 Numerous national and international studies have identified that reduced tolerance to opioids is a major risk factor in heroin-related overdose deaths. A study in Sheffield, examining the role of concomitant drugs and risk factors in accidental fatalities between 1997 and 2000, found that one in 5 deaths were after a period of abstinence from regular use, suggesting that decreased tolerance is a key factor (Oliver and Keen, 2003). The most frequently reported reasons for abstinence were imprisonment and hospital admission. The authors highlighted that research into fatal overdose following release from prison has been conducted on several occasions but that there is a need for further research to fully assess the risk of fatal overdose faced by opiate misusers discharged from hospital.

3.75 Examining drug related mortality for male ex-prisoners between the ages of 15 and 35

years old, Bird and Hutchinson (2003) found that it was 7 times higher in the 2 weeks after release than at other times of liberty. They estimated one drug-related death in the 2 weeks after release per 200 adult male injectors incarcerated for 14 days or more.

3.76 A study conducted by Jones and colleagues (2002) of drug users in Glasgow who had died of fatal overdose highlighted that, although the Scottish Prison Service had tried to tackle this problem by providing pre-release information about overdose risks and arranging for continued support from community drug services, drug users remanded in custody or released at short notice were likely to miss out on this support, suggesting the need to also target those facing this situation.

3.77 The results of a study by Thiblin and colleagues (2004) into heroin-related deaths in Stockholm between 1997 and 2000 as a result of intranasal administration (snorting) and pulmonary inhalation (smoking) also found that reduced tolerance is a major risk factor. The study revealed that low levels of tolerance are of particular significance in cases of heroin-related death involving administration routes other than injection. The study highlighted that, although these forms of administration are generally documented to be less risky, it is important to be aware that they lead to highly variable blood morphine concentrations and, thus, do not protect against lethal intoxication. The majority of individuals examined in this study were trying to reduce their level of drug use and using heroin less frequently thus indicating that low tolerance may have been an important factor in the fatal outcome for these non-injectors. This study supports other evidence that when tolerance has been lowered, rather than protecting against fatalities, the sporadic use of heroin is a major risk factor regardless of the chosen method of use (Thiblin et al, 2004).

3.78 Several studies have begun to identify the risks involved in methadone maintenance treatment. Rugestad and colleagues (2006) state that methadone is not only a “life-saving” drug but can also be a “fatal” drug. Wolff and colleagues (2002) found that overdosing with the drug has become more common and, although little is known about the circumstances surrounding methadone deaths, some of the people at highest risk are those whose usual tolerance has been reduced. Others have pointed out that the risk of overdose is generally higher during periods of induction and transition, such as when drug users (re)enter or discontinue treatment (Bell and Zador, 2000; Buster et al, 2002). For instance, fatal outcomes are often the result of prescription doses that exceed the user’s tolerance level (Bell and Zador, 2000) with higher overdose fatalities occurring during the first 2 weeks of treatment (Buster et al, 2002). There is a need for adequate assessment and review of tolerance prior to treatment among new and returning patients seeking help, especially recently liberated prisoners (Bell and Zador, 2000; Buster et al, 2002).

3.79 Wolff and colleagues (2002) have pointed out that drug tolerance develops at different rates and is often moderately slow with methadone. Therefore, problems may arise if the person’s dose is increased too quickly, or if the initial dose is too high. The need for tolerance testing (Wolff et al, 2002) is reinforced by the view that newly inducted methadone clients should be monitored closely during the initial days of treatment (Bell and Zador, 2000).

The impact of injecting drug use, benzodiazepines, alcohol and cocaine

Injecting drug use and benzodiazepines

3.80 The major NTORS and DORIS studies note that injecting drugs and benzodiazepine use are major factors in drug-related overdose (Stewart et al, 2002; Neale et al, 2005). Although one study found that benzodiazepine use increased the risk of overdose 28 fold (Dietze et al, 2005), of more concern the NTORS study indicated that 9 out of 10 drug injectors entering treatment reported past overdose. This group of injectors were also 10 times more likely to have overdosed than non-injectors entering treatment and were still the biggest at-risk group, at one year follow-up.

3.81 The NTORS one-year follow-up found that reductions in overdose were closely linked to large reductions in rates of injecting behaviour. Those reporting problems associated with injecting, such as abscesses or poor injecting practices, were significantly more likely to report an overdose. The authors suggest that interventions directed at these health problems may provide a useful opportunity to include information and counselling designed to reduce overdose risk (Stewart et al, 2002).

Alcohol consumption

3.82 A number of studies have reported alcohol consumption as being an overdose factor (Zador et al, 1996; Gossop et al, 2002; McGregor et al, 1998). The NTORS study found that clients drinking large quantities of alcohol were at greater risk of overdose. Failure to address their alcohol problems meant a continued risk of overdose despite improvements in levels of drug use after treatment (Stewart et al, 2002). A study of street-recruited heroin injectors in San Francisco Bay identified important independent risk factors which included being younger, frequently arrested, participation in methadone detoxification but also moderate to heavy daily alcohol consumption (Seal et al, 2001).

3.83 Targeting interventions at clients identified as daily alcohol users and those who are frequently arrested may help reduce the frequency of non-fatal and fatal overdoses among this particular group of drug users.

Cocaine

3.84 There has been relatively little research conducted into patterns of cocaine overdose and its contribution to overdose mortality and morbidity. Among the few papers looked at for this review, cocaine overdose was more common among injecting cocaine users (ICU) (Bernstein et al, 2007; Kaye et al, 2004; Pottieger et al, 1992). Females were also more likely to report a cocaine overdose and, as with opiate overdoses, long-term users were more likely to experience a cocaine overdose than younger users reflecting perhaps prolonged risk exposure or the cumulative effects of cocaine, which increases the risk of a toxic reaction over time (Bernstein et al, 2007; Kaye et al, 2004).

3.85 Injecting cocaine users (ICU) are reportedly more likely to have witnessed a cocaine overdose (Kaye et al, 2004) and although interventions to reduce opiate overdoses have gained importance and wide support, the findings from Kaye and colleagues suggest that drug

users possess a poor knowledge of cocaine overdose and appropriate interventions. Moreover, given the paucity of UK research into cocaine overdose, relatively little is known about the prevalence of and risk factors associated with cocaine overdose. If these findings hold true in Scotland, it is vitally important that measures are put in place to increase cocaine users' knowledge about the risks of cocaine overdose and appropriate responses to them.

Health Morbidity

3.86 Despite the fact that there appears to be extensive health morbidity associated with non-fatal overdose, it remains a relatively unexplored area. Warner-Smith and colleagues (2002) categorised overdose sequelae as follows: pulmonary effects, such as oedema, often resulting in pneumonia and occurring as a common complication of aspiration; cardiac effects, such as arrhythmia, acute cardiomyopathy and haemoglobinaemia; muscular effects, such as rhabdomyolysis; and neurological effects, such as cognitive impairment, resulting in impaired judgement regarding polydrug use, doses and tolerance.

3.87 In one of the first organized attempts to explore the extent of overdose-related harm among heroin users in the Sydney region in Australia, Warner-Smith and colleagues (2002) found that over three-quarters of overdose casualties had experienced at least one morbidity symptom. The most commonly direct symptoms were peripheral neuropathy, due to prolonged pressure on limbs while unconscious and pulmonary complications; commonly reported indirect injuries were from falling and burns. It is noteworthy that the study found that morbidity is a universal problem for all heroin users - no meaningful differences were identified between treatment and non-treatment groups.

3.88 With older long-term dependent users most at risk of fatal opioid overdose, Darke and colleagues (2006) carried out an analysis of coronial cases to explore the relationship between age and overdose. Warner-Smith and colleagues (2001) also identified age as a major problem, stating that the morbidity burden is directly related to the number of overdose episodes experienced and is therefore more likely to be greater among older, more experienced and more dependent users. Moreover, Bartu and colleagues (2004) noted that because the age at which people begin using drugs is falling, the length of time that people have used drugs may be a stronger indicator of overdose rather than chronological age.

3.89 The 2006 study by Darke and colleagues found that multiple systemic diseases, in particular hepatic and cardiac disease, are prominent among older cases - being found in nearly half of the oldest age group of the sample. The study identified high levels of hepatitis and cirrhosis which may have a serious effect on the drug user's ability to metabolise opioids and poor cardiac health which may increase the risk of hypoxia-induced cardiac arrest and arrhythmia. Webb and colleagues (2003) also identified an increasing risk of death among older users, and methadone users in particular, arguing that they are at high risk of contracting acute infections leading to septicaemia or endocarditis or contracting chronic infections such as HIV, Hepatitis B and Hepatitis C.

3.90 Several authors believe that the progressive disease burden acquired as drug users grow older means that they are more susceptible to overdose and that there is a clear case for regular medical examinations and liver function tests (Darke et al, 2006; Warner-Smith et al, 2001; Warner-Smith et al, 2002).

Recent Life Problems/Psychological Factors

3.91 Using data from the DORIS study, Neale and Robertson (2005) investigated the role of recent life problems in non-fatal overdose among heroin users entering various drug treatment settings. Results from the analyses suggested individuals who had overdosed recently (90 days prior to interview) were significantly more likely than the other participants to have recently experienced bereavement of someone close to them, a relationship breakdown and to have had accommodation problems. However, the authors acknowledge it was not possible to say whether the variables associated with recent overdosing occurred before or after the overdose incidents, thus they cannot be sure the life problems were instrumental in causing overdose. Nevertheless, they suggest that service providers should seek to identify and address drug users' problems as part of a broad strategy of overdose prevention. Assessment tools could cover a range of personal and social issues including a measure of suicidal intent. Similarly, clients should be encouraged to talk openly about any problems affecting them. Furthermore, the findings support the need for a coordinated approach among treatment agencies and other health, social care and criminal justice professionals, as well as specialist counsellors relating to bereavement and relationships. The findings also support the need for a coordinated approach particularly among community drug services and residential detoxification units where recent life problems were associated most strongly with recent overdose.

3.92 Similarly the NTORS study found that non-fatal overdose was also associated with more self-reported psychological health problems at treatment intake and at one year follow up (Stewart et al, 2002). Levels of anxiety were predictive of non-fatal overdose both before treatment and at one-year follow-up. A greater proportion of clients reporting a non-fatal overdose before treatment also reported suicidal thoughts with suicidal ideation a predictor of overdose at one year.

3.93 A recent case-control study which involved carrying out a "psychological autopsies" found that in cases where fatal non-deliberate overdose occurred, the person was more likely to have a history of mental health problems, a current psychiatric diagnosis and to have been prescribed psychotropic medicines (Oliver et al, 2007).

Antidepressants

3.94 Oyefeso and colleagues (2000) highlighted that access to anti-depressants, through genuine prescriptions, is a prominent risk factor for fatal anti-depressant overdose (FAO). Despite certain limitations, the results of Oyefeso's study into the predictors, extent and pattern of FAOs in England and Wales showed that this risk is particularly prominent among female drug users. It highlighted that this fact, together with the high risk of suicidal intent among female addicts and non-addicts and the identification of a subgroup of female drug users with mood disorders, suggests a need to obtain and carefully evaluate drug-abuse history of women with an affective disorder to reduce the risk of antidepressant misuse.

3.95 Cheeta and colleagues (2004) identified that deaths in which antidepressants are implicated in combination with other drugs are more likely to involve drug users and that the drugs most commonly implicated are alcohol and opiate-based drugs. These findings indicate that all patients prescribed antidepressants should be routinely screened for a history of problem drug use, and that GPs and psychiatrists should display caution when prescribing

for these individuals. This is of particular relevance taking into account the fact that the National Investigation into Drug Related Deaths in Scotland published by the Scottish Government in 2003 identified that 36% of the cohort were prescribed anti-depressant medication in the 6 months prior to death with GPs being the main prescriber. Furthermore, Oyefeso and colleagues (2000) identified that one risk factor associated with potential fatalities involving antidepressants is that patients may obtain different antidepressants from different prescribers; a practice that is commonly associated with drug users and known as “doctor shopping” (Martyres et al, 2004).

3.96 Oyefeso and colleagues (2000) suggest that, where possible, general practitioners and community health teams should supervise the consumption of medication, particularly in patients identified as high risk. Furthermore, to ensure that drugs provided at any one time do not exceed the patient’s therapeutic requirement, GPs and community health teams should be extremely vigilant and study the patient’s prescription history, ensuring that patients return unused prescriptions when a change in medication is considered.

Suicide

3.97 It is generally acknowledged that drug overdose is a common method of suicide. Data published by the General Register Office for Scotland on drug-related deaths revealed that, from 1996 to 2006, the number of drug-deaths coded as “intentional self-poisoning” was somewhere between 8% and 18% of the total each year. Darke and Ross (2002) stated that suicide is a major contributor to the fact that heroin users are approximately 13 times more likely to die than their peers and, therefore, a key problem for drug treatment agencies. Farrell and colleagues (1996) highlighted the difficulties in distinguishing between accidental and intentional overdose, in particular among opiate users, and Rossow and Lauritzen (1999) stated that, although the terms “suicide attempt” and “overdose” are theoretically viewed as separate categories, empirically the two types of behaviour cannot always be differentiated. Farrell and colleagues (1996) supported this view stating that the practical management of suicide risk and overdose risk are not very different. However, Darke and Ross (2001) disagree and believe that heroin overdose and suicide present different clinical problems and require different responses.

3.98 Several authors agree on the principal risk factors for suicide. Darke and Ross (2002) underlined that key risk factors for suicide among the general population - such as gender, psychopathology, family dysfunction and social isolation - also apply to opiate users; however, the main issue for heroin users is that they are more widely exposed to these factors. In addition, Darke and Ross (2002) maintain that heroin users carry additional risks associated with their drug use, such as polydrug use, which is linked to an increased risk of suicide. The authors found that drugs play a more significant role in suicide among heroin users than the general population, especially drugs other than heroin, such as benzodiazepines and antidepressants. Farrell and colleagues (1996) also identified the use of several different substances, including opiates, alcohol and benzodiazepines, as an overriding feature of fatal overdose and argue that polydrug use is more likely to be associated with more severe social and psychiatric problems. Consequently, they contend the need for adequate treatment of associated alcohol and benzodiazepines dependence and appropriate treatment of associated psychiatric morbidity in order to reduce the risk of suicide.

3.99 Oyefeso and colleagues (1999) identified the emerging role of antidepressants and the

dangers of GPs over-prescribing, in a suicide trends study among UK notified addicts over a period of 25 years. The authors demonstrated the impact that drug control and prescribing attitudes and practices can have on suicide prevention. They refer to how a concerted response from regulatory and treatment sectors in the 1980s led to a substantial decline in barbiturate overdose. Therefore, they contend that an appropriate quantity of antidepressants should only be prescribed after a clear diagnosis of depression and call for closer working relationships between general practitioners and community health teams (Oyefeso et al, 1999).

3.100 In addition, Oyefeso and colleagues (1999) identified methadone as a major contributor to overdose suicide during the last 5 years of the study and, therefore, the need for strict regulation of methadone prescribing and dispensing and supervised consumption, in particular among patients at a high risk of suicide. This is supported by the findings of a study conducted by Darke and Ross (2001) examining the relationship between suicide and heroin overdose among methadone maintenance patients in Sydney, Australia. They found that a history of attempted suicide is common among methadone maintenance patients, in particular female patients, and therefore a major clinical issue for methadone maintenance providers.

3.101 Several papers discuss the possible motivational factors for suicide among problem drug users. One causal factor identified was a distressing life event. Darke and Ross (2001) found that 80% of the sample reported that a major life event, such as imprisonment, had occurred prior to the suicide attempt. Farrell and colleagues (1996) identified loss events, such as loss of a loved one or a job, as a contributing factor to suicidal overdose. Neale and colleagues (2000) agreed that intentional overdoses are motivated by a range of psychosocial factors, such as predisposing personal circumstances and precipitating events, such as arguments, relationship breakdowns and homelessness.

3.102 The findings of the analysis conducted by Neale and colleagues (2000) showed that, consistent with the other papers examined, non-fatal illicit drug overdose is often motivated by suicidal intent. Despite its limitations, a Glasgow study conducted by Jones and colleagues (2002) provided new insight into the extent of contact that problem drug users have with services in the weeks and months before death. They found that 89% of the study sample, for which medical records were available, had seen their doctor in the year before death, often several times, and 20% had been seen by a psychiatrist, who diagnosed suicidal ideation, depression or an anxiety disorder.

3.103 The Glasgow findings are consistent with data from the National Investigation into Drug Related Deaths in Scotland, which revealed that, of the 305 cases for whom records were available, 77% had had contact with general practitioners in the 6 months prior to death, and 17% had had contact with psychiatric services.

3.104 Jones and colleagues (2002) concluded that problem drug users expressing suicidal ideation should be considered at high risk of overdose. An earlier study by Darke and Ross (2001) reinforces this finding as they identified that a quarter of the 223 patients interviewed had severe to extreme depression - almost half reported current suicidal ideation and 61% expressed some degree of hopelessness about the future. Both studies highlighted the significance of this finding for clinical practice as a predictor of future suicidal behaviour. Darke and Ross (2001) suggested the need for careful screening and Jones and colleagues (2002) stressed the importance of a thorough risk assessment by specialist drug services

followed up with intensive support. Oyefeso and colleagues (1999) argued that it would be beneficial for primary health care staff, community mental health teams and specialist substance misuse services to carry out suicide risk assessments as part of the routine assessment of problem drug users in their care. Jones and colleagues (2002) described how a specialist co-morbidity team was established in Glasgow in 2000 with the aim of addressing the problems of those with coexisting drug dependence and mental health problems.

3.105 The results of a Norwegian national study of people with drug problems in treatment between 1992 and 1993 identified that engagement in different types of life-threatening behaviour often results from a state of carelessness about life and reflects feelings of indifference, hopelessness and poor self-esteem, which are common due to the chaotic lifestyle and living conditions of drug addicts (Rossow and Lauritzen, 1999). These feelings of indifference and carelessness were identified among a sample of overdose survivors interviewed as part of the National Investigation into Drug Related Deaths in Scotland who attributed their survival to “luck”, “God” or having been found on time. Rossow and Lauritzen (1999) highlight that this “indifference” presents a major challenge in providing adequate treatment and support services, which must combine professional competence in substance abuse treatment and psychiatric treatment.

Understanding Social Networks

3.106 It has been suggested that social networks may be an important factor when considering non-fatal overdose. Latkin and colleagues (2004) have suggested that there could be drug overdose links to a) the number of drug injectors in a person’s social network and b) the number of networks they might be in conflict with e.g. arguments over sharing drugs.

A) Networks: having more drug injectors in your network can offer more chance to use drugs thus increasing the risk of overdose. Those involved with bigger networks may have a greater number of unplanned injection episodes with less ability to regulate and control their drug use compared to those involved with smaller networks.

B) Conflict: the harmful role that conflict may play within networks was uncovered. Recent overdose casualties reported experiencing conflict with more network members compared to those who had never overdosed or had overdosed in the past (more than 2 years ago). The authors suggest that more severely drug dependent subjects that reported conflictive ties may have been more likely to quickly inject their drug (“slam”) because of mistrust of others present within the network.

3.107 An earlier study examining the social context of those who had overdosed found that casualties were more likely to know people infected with Hepatitis C, and shared and received injecting equipment more often with someone who was not their sexual partner (Bennett et al, 1999). According to the authors, overdose casualties are more severely involved in injecting heroin and spend time with others displaying similar characteristics thus normalising their behaviours. The authors suggest that there may be value in trying to influence these cultural norms through peer training and education strategies.

Public Injecting and Overdose

3.108 Injecting drug use in public places is strongly associated with increased risk of blood borne virus transmission, abscesses and overdose (Taylor, 2006). Evidence from research showed that 42% of a sample of needle exchange users had injected in a public area at least once in the week prior to interview (Independent Working Group on Drug Consumption Rooms, 2006). Despite the risks associated with outdoor injecting, heroin use among rough sleepers can be used as a distraction from the discomforts of rough sleeping and a self-medicating means of responding to insomnia and cold weather. However, outdoor injecting under these conditions could contribute to fatal heroin overdoses among rough sleepers through a process of hypothermia secondary to heroin-induced coma (Wright et al, 2005). Where drug use is conducted in street locations, the perception of risk needs to be understood in terms of the social and environmental context in which drug use occurs. Safety from public and police view may be prioritised over the risk of overdose.

3.109 In Australia, Fitzgerald and colleagues (2000) suggested that one factor which could contribute to increased overdose morbidity and mortality is changes in police activity whereby dealing and use at static sites, such as houses, is displaced to street dealing in other areas. Added to this is the unpredictability of heroin quality when scoring in a street environment. It is also suggested that “sensationalist” media coverage of drug use was directly linked to increases in use by acting as publicity for street heroin locations. However in a later study, they described policing strategies that displace public injecting into “quasi-supervised” settings, such as public toilets – providing a degree of “independent third party” supervision that can respond to overdoses (Fitzgerald, 2004). Injecting in shallow or exposed settings increases the risk of discovery by police or public but can also confer a degree of safety from other risks such as overdose or drug-related crime. A recent study on the impact of public injecting highlighted that the public intervened to help overdosed or unconscious drug users, some did this as part of their job, and others did it voluntarily (Taylor et al, 2006).

3.110 Most overdose prevention strategies have focused on changing behaviours. However, the wider context in which heroin use occurs in public environments must be acknowledged and “safer” messages must recognise that “safe” will mean different things to different users depending on their social context. Drug users themselves weigh up the competing risks of public or semi-public sites and future interventions to prevent heroin-related deaths needs to take account of this and should be targeted towards situations where risk is highest.

Accommodation

3.111 Accommodation problems including homelessness have been identified (Neale and Robertson, 2005; Fischer et al, 2004; Wright et al, 2005). For instance, Fischer and colleagues (2004) have identified the important role of housing and other social factors in determining the health of marginalised populations, such as drug users. With housing and other forms of social support having a role to play in reducing drug users’ health risks, including the risk of overdose, Neale and Robertson (2005) suggest service providers should seek to identify and address users’ problems as part of a broad strategy of overdose prevention - assessment tools could cover a range of personal and social problems.

3.112 Exploring the relationship between housing status, social networks and risk factors for heroin related death, Wright and colleagues (2005) found that various cultures can exist

within different types of homeless accommodation that can impact on heroin use. For example, the amount of heroin used, the likelihood of injecting alone or abstaining from drugs. Hostel accommodation appeared to be conducive to group drug use with associated peer pressure, relaxation and availability of heroin and injecting equipment. For some, it was also a place for initiation into injecting heroin use. The hostel setting was also described as a difficult location to stop heroin use due to exposure to triggers for drug use. Paradoxically, although the hostel setting could contribute to one risk factor (increased heroin consumption), the practice of using in a group could also protect against fatal overdoses due to the presence of a third party who could attempt resuscitation and/or alert emergency services. However the presence of a third party could not be viewed as a panacea for all heroin-related deaths as fear of police involvement were cited as reasons for not taking action.

3.113 Looking at rented (social) accommodation, Wright and colleagues (2005) found consistent accounts of young drug users (or those in the early stages of their drug “career”) engaging in group drug using activities within the accommodation. Nevertheless, obtaining a tenancy could also increase the potential for fatal overdose due to solitary drug use, a practice that tended to be related to those with a longer history of injecting drug use (Wright et al, 2005).

3.114 Policy implications raised by Wright and colleagues (2005) include the potential for health promotion interventions to reduce fatal overdoses, such as training drug users in resuscitation techniques or in the peer use of naloxone. The authors suggest this would be most effective among those engaged in high risk behaviours, for example injecting with a third party present and also homeless people living in hostel accommodation or using their friends’ flats.

3.115 With inherent risks for homeless people engaged in heroin use varying according to their social settings and accommodation, it is suggested here that future overdose prevention initiatives take account of this and target those in high risk situations.

Implications of the Literature Review

3.116 The main implications that can be drawn from the review of literature are as follows:

Emergency responses

- Witnesses present at an overdose event are willing to intervene but the motivating factors that influence intervention and seeking help are complex. They can be shaped by past overdose experience and contact with emergency services. Enhancing effective response may be achieved by offering witnesses (peers, family and friends) a range of CPR training and interventions, such as naloxone or emphasising the need to remain with the casualty until medical help arrives.
- Ambulance data has been used in other countries to identify overdose clusters, those repeatedly overdosing and to map out high risk areas. The overdose data has also been used to offer help to those not in contact with drug services. The lack of UK data on fatal and non-fatal drug overdoses is considered a “significant weakness” in the evidence base thus leading to a call for collating standardised ambulance call-out statistics.
- Reducing “fear” of police involvement through police liaising with ambulance services may increase willingness among overdose witnesses to seek emergency help. Some UK police force areas have developed protocols that avoid police attendance at “routine” overdose incidents by limiting their attendance to fatalities, child protection concerns and threats of violence. Developing protocol changes will require an awareness-raising campaign that disseminates the information to drug users.
- Accident and emergency staff can capitalise on their contact with drug users following an overdose event or other high-risk behaviours (e.g. injecting-related health damage) by offering information on overdose prevention strategies and onward drug treatment referral. Innovative practice is being developed to meet these challenges by locating substance use specialist nurses within accident and emergency departments.

Mainstream & Emerging Interventions

- Reducing drug tolerance risks among those entering/returning to treatment can be achieved through accurate assessment and testing users’ tolerance through a process that is reviewed. With many treatment episodes suddenly or prematurely terminated, there is a need to address the potential anti-therapeutic effects of treatment. Improved retention rates and reduced illicit drug use may be achieved by offering most individuals on maintenance methadone a daily dose between 60mg and 120mg (in Britain, only one in 4 service users received over 60mg, according to the NTA).
- Actively involving drug users in their treatment decisions and alternatives to automatic discharge due to non-compliance with treatment regulations should be considered. For example, follow-up assessment of disengaged drug users to increase their uptake and retention within suitable services. It is also important to ensure that short-term prisoners are offered follow-up support from community drug services following release from prison.

- GPs and other primary care staff have a vital role to play in screening for overdose risk factors and provide relevant support. Older heroin users, at risk of overdose, may face a progressive disease burden, thus benefiting from regular health screening and liver function tests.
- There is also a need for clear and enhanced communication between primary and secondary care services involved in prescribing. Key prescribing risk areas are the dangers of “doctor shopping” among drug users, alcohol screening, identification and treatment options and consideration of psychological responses to treat depression, such as counselling, as alternatives to antidepressants. Suicide-risk assessments should also be carried out as part of routine assessments of drug users seeking treatment.
- There is an emerging consensus among the reviewed papers that there is a potential to prevent many opiate overdose deaths using take-home-naloxone, THN. The possible benefits of THN are considered sufficient to justify the need for carefully monitored pilot schemes that are linked into extensive educational programmes and training.
- Safer injecting rooms (SIRs) may help reduce drug-related deaths, however, the impact of SIRs will depend on factors such as the extent to which it reaches its target population (e.g. homeless drug users) and the number of deaths occurring outside the target population (e.g. drug users injecting at home or socially integrated users). There is also no evidence that SIRs contribute to increased morbidity/mortality risk - no fatal overdoses have occurred within a SIR despite there being “millions” of supervised drug consumptions and thousands of treated emergencies, thus showing evidence that they provide a high level of safety from overdose among people using them.
- Service providers need to be aware of the inherent risks for homeless heroin users which may vary according to their social networks and accommodation. Overdose prevention initiatives need to take account of this and target those in high risk situations.

Developing and Disseminating Key Messages

- Targeted campaigns aimed at addressing key risk factors facing heroin users, such as polydrug use and alcohol consumption, should be considered. These campaigns could also stress the important protective role played by treatment. Disseminating key health messages and overdose prevention information among peer networks may also be an effective way of supporting those at risk.
- It is important to ensure that short-term prisoners receive pre-release information about the risks of overdose. Further information on the risks of cocaine overdose and effective responses is required to increase the understanding and awareness of drug users, peers, family/friends and service providers.

Examples of Innovative Practice

3.117 Some evidence of current practice aimed at reducing drug overdoses was collected. Below are some of examples of innovative practice that have been carried out or which are currently underway in Scotland and England. This is not meant to be an exhaustive list and as such it is accepted that wider activity than is documented in this report might currently be underway. There is limited evidence of review and evaluation of these initiatives, therefore, the term *innovative practice* has been used throughout this section rather than *good practice*.

Drug Action Teams

3.118 Several areas of Scotland have set up Action Teams to consider and implement local strategies (e.g. Critical Incident Groups or similar mechanisms) to reduce drug-related deaths. However, there is currently no evaluated evidence to show that these practices reduce drug-related deaths.

Provision of Information

3.119 In 2003 Brighton & Hove DAAT distributed 3,000 copies of a leaflet on overdose and emergency calls. The leaflet provided information for drug users about what would happen if they called the emergency services; why the police might attend; the treatment provided by the ambulance crew; the use of crack and other stimulant drugs; and the recovery position. It also provided useful telephone numbers for services and overdose aid training. The leaflet has since been updated and redistributed.

Training

3.120 For several years now, Brighton & Hove DAAT have commissioned the St John Ambulance Homeless Service to provide overdose aid training to users, family members and friends.

3.121 As part of an effort to reduce drug-related deaths in Greater Manchester, the North West Ambulance Service has been involved in rolling out knowledge of the recovery position.

3.122 Overdose response training, including accredited basic life support training, is provided to service users and carers in Torquay. The Scottish Government has funded a Critical Incidents National Training Officer for almost four years. The National Training Officer provides a range of training initiatives on overdose prevention, primarily targeting service users and providers.

Harm-Reduction Projects

3.123 Set within a traditional needle exchange service, the NHS Lothian Harm Reduction Team, Low Threshold Methadone Programme (LTMP) was developed to target drug injectors who showed some motivation to change, but found it difficult to keep appointments

with mainstream services, and were at risk of overdose due to injecting practice. The LTMP is a self-referral programme that offers a flexible approach to treatment but requires daily attendance for methadone dispensing. There is a key-work system with access to medical, psychological and dental support and BBV interventions. The LMTP team also monitor overdose risk - made easier due to daily contact - with injecting activity recorded and discussed with the keyworker and medical staff. Psychiatric assessment is available to those displaying low mood or express suicidal tendencies.

3.124 HIT, an organisation set up in Merseyside in 1985 with the aim of reducing drug-related harm, currently delivers interventions on drugs, community safety and other public health concerns. Below are descriptions of two of the projects it has carried out to reduce drug-related deaths:

- Lifeguard: Act Fast Save a Life
 - This was a multi-component, social marketing campaign launched in 2003 to reduce opiate-related overdoses based on a collaborative approach across Cheshire and Merseyside. It was commissioned by Cheshire and Merseyside Drug and Alcohol Action Teams, Cheshire Constabulary, Merseyside Police and Mersey Regional Ambulance, NHS Trust. The campaign was aimed at three target groups: opiate users, the general public (including family and friends of opiate users), and practitioners, urging them to “Act Fast, Save a Life” by calling an ambulance at the first sign of overdose. The campaign involved local capacity building, a mass media campaign, and training for professionals and drug users. It also endeavoured to publicise the policy of the police not automatically attending drug overdose incidents when emergency medical help is requested unless exceptional or specific circumstances are identified, such as a threat of violence or evidence of harm being caused to children. The evaluation report for this project is available at:
 - <http://www.hit.org.uk/dbimngs/Evaluation%20Report1.pdf>
- Peer-To-Peer Project
 - This was a training programme for drug users to challenge misinformation and increase awareness and knowledge of safe practice. The project was created as a result of research showing that injecting drug users are mainly initiated into this practice by their peers and, consequently, it was hoped that by improving participants’ knowledge of safe drug using practices; this would in turn improve their confidence and ability to pass on this knowledge to the wider drug using community.

Naloxone Pilots

3.125 Several naloxone pilots have already taken place in Scotland and England. In Scotland, these pilots have been carried out in Lanarkshire and Glasgow.

3.126 The Lanarkshire Naloxone (Narcan[®]) Pilot was designed to provide users, their family and friends, and service providers with another mechanism in overdose management aimed at reducing drug-related death by training and educating them in basic life support, the treatment of the unconscious patient and the administration of naloxone. Those running the pilot also wanted to assess whether it was possible to deliver an effective training programme covering critical incident management, and safe and effective naloxone administration, and whether clients could demonstrate responsible management of naloxone and effective use in

an overdose situation. So far, approximately 42 people have been trained as a result of this pilot and 34 take-home naloxone kits distributed. Provisional results show 2 successful “saves” by pilot participants and no inappropriate use of naloxone has been reported.

3.127 The Glasgow Naloxone (Narcan[®]) Pilot was conducted in a similar manner over a 1-year period with service users, their families and concerned others. It involved providing family members, carers and service users with their own personal supply of take-home naloxone. As with the naloxone pilot in Lanarkshire, all participants were given training and information on basic life support techniques, overdose awareness (i.e. how to recognise the symptoms and risk factors), and how to administer naloxone safely and responsibly. Take-home naloxone was initially supplied to approximately 250 service users through the Glasgow Drug Crisis Centre. An evaluation of this pilot was carried out involving 2 separate questionnaires: one for drug users and another for their family and carers. The results showed that 251 supplies of take-home naloxone were provided between April 2007 and March 2008, with 12 reported appropriate uses of naloxone in an overdose situation.

3.128 In April 2008 the Medical Research Council approved funding for a UK wide prison research study. The study aims to measure the success of providing naloxone on release from prison in preventing heroin-related overdose. The Research Team have been planning the randomised control study, in consultation with Scottish Prison Service (SPS) and Her Majesty’s Prison Service (HMPS), for 2 years prior to being awarded funding. Although SPS staff may be involved in prisoner training and distribution of naloxone packs on release, there is no financial commitment from SPS required. Roles and responsibilities of both SPS and the Research Team are being clarified and preparatory work must be completed before any research begins later this year.

3.129 In terms of England, Salford DAT and North West Ambulance Service were involved in a national Take-Home Naloxone Project in 2006, which was rolled out to all service users in Tier 3 throughout 2007. A training video was produced as part of this project. Wiltshire DAAT was also involved in a Naloxone Project, run by a service user forum, which involved overdose training for service users and carers.

Ambulance Protocol

3.130 A similar protocol regarding police attendance at overdose incidents to that publicised as part of the Lifeguard Project in Cheshire and Merseyside was introduced in Nottinghamshire in 2000. An agreement was reached between Nottinghamshire Police, the East Midlands Ambulance Service and the local DAATs to ensure that police officers do not routinely attend ambulance call-outs to drug overdoses unless a death has already occurred; there are child protection concerns; and/or the address is identified as one where there could be a threat of violence. Similar protocols have also been established in other parts of England, such as Kirklees, Leicestershire and Avon & Somerset.

Drug-Related Death Partnership

3.131 The Drug-Related Death Partnership (DRD Partnership) is a multi-agency partnership set up in Oxfordshire with the aim of reducing the number of drug-related deaths in this area. The Partnership produced a Drug-Related Death Strategy for 2006 to 2009 in accordance

with the National Treatment Agency's (NTA) treatment effectiveness agenda and national programme in England to reduce drug-related deaths.

3.132 The strategy document contained seven strategic objectives for this area and provided a summary of a number of projects and protocols that have been established by, and inform the work of, the DRD Partnership:

- Communication about Acute Risks
 - This involves an Early Warning System, co-ordinated by Oxfordshire DAAT, to rapidly inform drug users, carers and staff about strong or adulterated drugs in local circulation.
 - It also includes a Communication Protocol to ensure accurate and meaningful information is provided to the public about acute risks of illicit drugs locally. For example, Oxfordshire DAAT, in collaboration with the appropriate communication departments in Oxfordshire's healthcare system, currently co-ordinate the dissemination of warning messages and other information through the local media.
- Police Attendance at Overdose Incidents
 - To encourage drug users to contact the emergency services in case of overdose, Thames Valley Police, Oxfordshire DAAT and Oxfordshire Ambulance Service reached an agreement in March 2004 that police will not routinely attend overdose incidents in Oxfordshire.
- Overdose Prevention and Response Training
 - Oxfordshire User Team and Oxfordshire Ambulance Service have been delivering training on overdose prevention and response to drug users and their carers since 2002. The aim of a series of training workshops being carried out is to improve communication between drug users and the emergency services, provide up-to-date information on risk, and enable users and carers to practice basic life support skills.
- Confidential Inquiries into Drug-Related Deaths
 - The DRD Partnership reviews every drug-related death that occurs in Oxfordshire to identify risk factors. The findings from these Confidential Inquiries are used to inform service provision, improve interventions and reduce potential risks.
- Publications
 - Oxfordshire User Team has produced local publications on overdose prevention and response, safer injecting techniques and hepatitis C.
- Police Trained to use Breathing Apparatus
 - Police working in Oxfordshire have been trained by Oxfordshire Ambulance Service to use breathing apparatus (bag/valve/mask), and breathing apparatus is now kept in police cars.

Joint Working Practices

3.133 Bennett and colleagues (2006) described some examples of good joint working practice introduced in the Brighton & Hove area between 1998 and 2006 in response to the recommendations arising from a Confidential Inquiry into the high drug-death rate in this area. Some examples of innovative co-ordinated practice in Brighton & Hove include:

- Front line ambulance staff are rotated through the substance misuse harm reduction clinic.
- A joint assessment of Drug Treatment and Testing Order (DTTO)/Drug Rehabilitation Requirement (DRR) clients is carried out on the same morning by probation, health and voluntary sector providers.
- The local NHS substance misuse service is responsible for managing the prison substance misuse team.
- The A&E Department substance misuse nurses report on the previous day's admissions and attendances on a daily basis in order to enable plans for hospital discharges and prison releases to be made.
- A nurse has been included on the arrest referral team.

Festive Overdose Awareness Campaigns

3.134 A representative from SPS HQ Addiction Team is a member of the Preventing Overdose Campaign Group in Glasgow. SPS is actively involved in the Festive Overdose Awareness Campaign, ensuring that individuals released over the festive period (between December and January) are offered overdose awareness information using the same methods issued by this group to community services for that year (key rings, red information cards and facemasks). This is carried out within all prisons not just those who release individuals to the Glasgow area. SPS also displays posters promoting the Preventing Overdose Awareness Event held in Glasgow and encourages those being released to the Glasgow area to attend.

Harm Reduction Measures in SPS

3.135 Since October 2005, SPS have provided a Needle and Syringe Pack to prisoners leaving custody (and storing them on entry) in 6 prisons throughout Scotland (HMP Aberdeen, HMP Barlinnie, HMP & YOI Cornton Vale, HMP Dumfries, HMP Glenochil and HMYOI Polmont) in support of the schemes operating in Police Custody Suites. This was piloted in HMP Aberdeen and rolled out to 4 additional prisons. HMP Barlinnie began providing these packs in early 2006 and HMP Edinburgh is currently working to implement this measure.

3.136 In November 2005 HMP Aberdeen piloted the provision of paraphernalia to injecting drug users (IDU) in custody. The pilot ran for 18 months and IDU prisoners were provided with water for injection, citric acid, spoons, filters, pre- and post-injection swabs, information leaflets on local services and the use of equipment, and one-to-one sessions on safer injecting with an addictions nurse; however, needles and syringes were not provided. This measure was re-named the Harm Reduction Protocol and had been rolled out across the entire prison estate by March 2008. Needle and syringe provision to IDU prisoners was recommended as a public health measure in July 2005.

CHAPTER FOUR PRIMARY DATA COLLECTION

4.1 This chapter provides a descriptive analysis of the data collected from the quantitative surveys and qualitative interviews. The first section (4.2 to 4.95) describes the findings gathered from the surveys and interviews with drug users and family members. The second section (4.96 to 4.184) examines the responses from emergency service personnel, including police and ambulance staff (4.96 to 4.137); telephone responders (4.138 to 4.149); and Accident and Emergency Consultants (4.150 to 4.184).

Drug users and family members

4.2 The views and experiences of drug users and family members who had witnessed or experienced an overdose were obtained using qualitative and quantitative methods. Sixty-eight qualitative semi-structured interviews were conducted with drugs users (n=58) and family members (n=10). Quantitative data was gathered from 346 self-completion questionnaires, of which 261 were related to personal overdoses and 85 to witnessed overdose questionnaires. The distribution of questionnaires was targeted primarily at people who had either experienced or witnessed an overdose and, therefore, may not be representative of the opiate-using population as a whole, and views may be biased towards those people who are more likely to be better informed as a result of their contact with treatment services. All study participants were given a standardised description of an overdose: *an overdose is defined as a situation where after using you or another person passed out and couldn't wake up.*

4.3 The qualitative interview participants will be referred to in this chapter as Group A. The quantitative questionnaire respondents will be referred to as Group B. Findings from both samples (Groups A & B) that have been combined will be referred to as the study participants.

4.4 As noted in section 2.6, the aim of the quantitative questionnaires was to obtain information about people's personal experiences and views, and as such was designed to guarantee anonymity. Consequently, no identifiable information was collected from the Group B respondents. However, among the Group A (interviewed) participants basic information on age, gender and drug use was collected. The average age of drug users in Group A was 33 years (range: 17-46), and the majority were male (n=37/58, 64%). Almost all drug users (n=56/58, 96%) were Scottish or British. Two individuals described themselves as mixed race and one was Dutch. The average age of family members was 46 years (range: 30 to 68), and they were all female. Forty-five percent (n=26/58) of the interviewed drug users had used heroin for longer than 10 years while 52% (n=30/58) had used for 10 years or less. The range of heroin use was estimated from just less than one year to 30 years. Eighty-two percent (n=48/58) of the Group A drug users were prescribed methadone of which 6% (n=3/48) had been prescribed methadone for more than 10 years.

Views of people who have experienced an opiate overdose

4.5 Just under half the study participants reported having experienced a personal overdose (see Table 4.1). Forty-four of the 68 interviewees (Group A) and 153 of the 261 questionnaire respondents (Group B) reported having experienced an overdose. The average

number of overdoses was 3 (range: 1 to 40). A minority of Group A could not recall how many times they had overdosed but used terms such as “countless” or “numerous”. The most recent reported overdose was 2 months prior to interview. Among Group A, the drugs most frequently used along with opiates were diazepam and alcohol.

Table 4.1 Study participants reporting a personal overdose

Hospital Attendance	Group A: Drug User Interviewees (n=44)		Group B: Questionnaires (n=153)		Total (n=197)	
	Number	%	Number	%	Number	%
Hospitalised	26 of 44	59	62 of 153	40	88 of 197	45
Given information at hospital	3 of 26	11	21 of 62	34	24 of 88	27
Offered referral to service	4 of 26	15	16 of 62	26	20 of 88	23

4.6 Eighty-eight (n=88/197, 45%) study participants who experienced an overdose were taken to hospital following their last overdose episode, most often by ambulance but also by friends or family. Five drug users were taken to hospital by the police. Just over a quarter (n=24/88, 27%) were given information at the hospital, although a fewer proportion of Group A remembered being given information at discharge on safer drug use or services than Group B. Four Group B (n=4/62, 6%) participants who were hospitalised following overdose recall being given a DVD about overdose awareness. Fifteen percent of Group A were offered referral to other support services compared to 26% of Group B (see Table 4.1).

4.7 Three of the 26 interviewees (Group A) who were hospitalised (11%), described multiple hospital attendance for opiate overdoses over a short period of time (month to couple of months) but only one was referred to a psychologist. According to the remaining 2, no further support was offered prior to or after discharge.

4.8 In Group A, 14 (n=14/44, 32%) participants who overdosed were receiving support from drug services or GPs at the time of their overdose. Of these, 8 said their service providers were made aware of the overdose either through themselves, the hospital or their peers but only 3 said they received additional support.

4.9 One male who reported multiple overdoses said he tried to get additional support:

“I had overdosed 3 times in the space of a fortnight, so I’m going to the doctors and saying, ‘I need help I need detox now’. They’re saying, ‘oh come back in 5, 6 month’ and I mean when you’re telling them you’ve overdosed 3 times in a fortnight and they’re telling you to come back in 5, 6 months I mean that’s no right is it?”

4.10 Ten Group A participants not in services at the time of their overdose (n=10/44, 23%) sought support for their drug use following their overdose. One male attempted to get support for his drug use but said, “it was a long drawn out process of waiting”.

4.11 Three family members who witnessed an overdose sought support from their GPs for either the casualty or themselves.

4.12 Eleven opiate users from Group A (n=11/44, 25%) reported being homeless at the time of their overdose, the remainder lived in their own or parental home. The majority of the overdoses (n=27/44, 61%) took place in a private setting familiar to the casualty. Thirty-six (n=36/44, 82%) interviewees reported the presence of others at their overdose although 8 people reported being alone at the time of the overdose.

Views of people who witnessed overdose

4.13 One hundred and thirty-one (n=131/414, 32%) study participants had witnessed an overdose. The average number of overdoses witnessed across the sample was 3.5 (see Table 4.2). As with personal overdoses, some drug users could not recall precisely how many overdose events they had been present at but the range was recorded between 1 and 20. Almost one third (n=20/61, 32%) of Group A had witnessed an overdose within the last year, with 2 participants reporting a fatal overdose one week prior to the interview. Fourteen Group A participants had witnessed fatal overdoses, 2 of which were family members.

Table 4.2 Participants witnessing an overdose

	Group A: Interviewees (n=61)	Group B: Questionnaire respondents (n=70)	Total (n=131)
Average number of overdoses witnessed	4	3	3.5

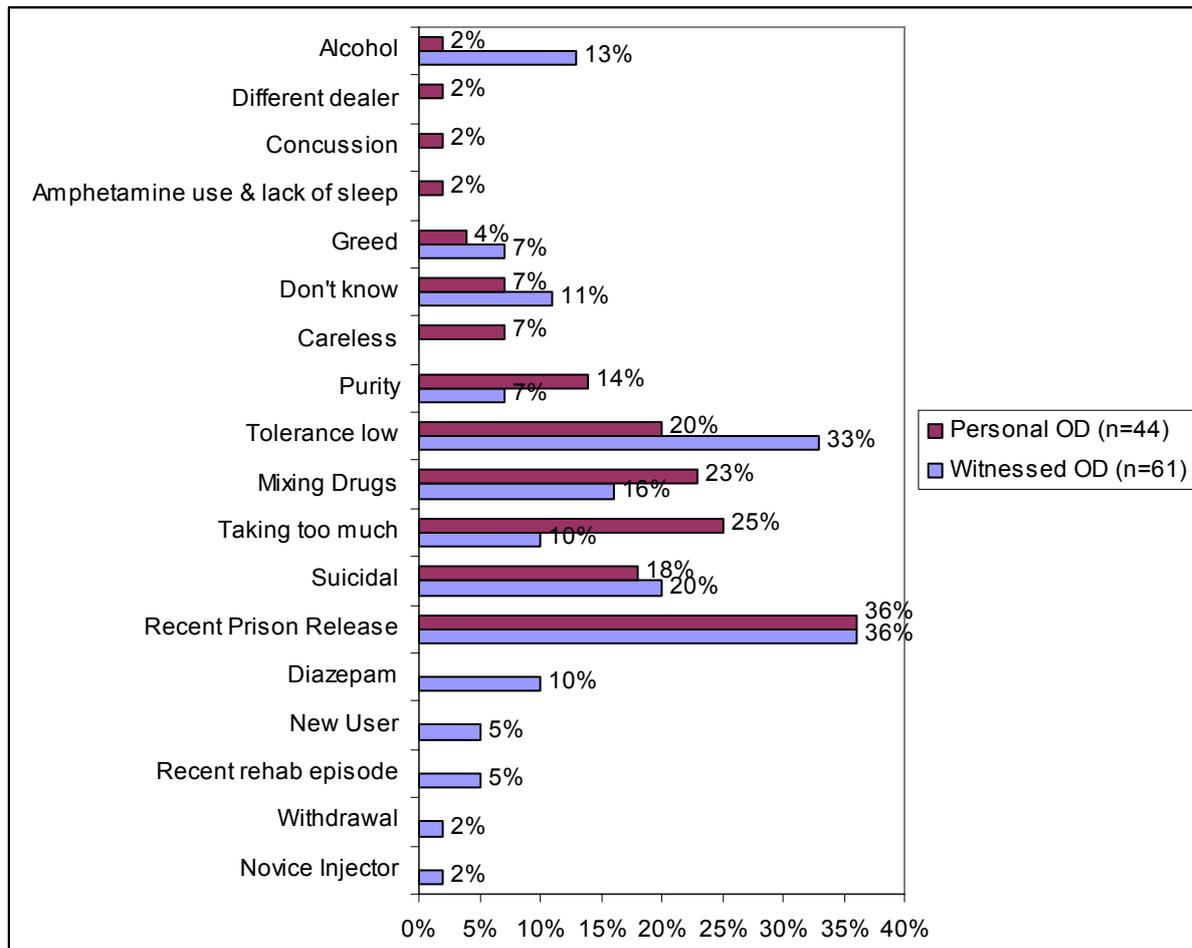
4.14 The majority of witnesses (Group A n=47/61, 77% and Group B n=56/70, 80%) reported the casualty as a close friend or acquaintance with a small minority witnessing the overdoses of strangers (Group A n=4/61, 7% and Group B n=7/70, 1%). As with personal overdoses, the majority of the witnesses in Group A described the casualties as homeless at the time of the overdose (n=40/61, 66%).

4.15 The majority of witnessed overdoses reported by Group A participants occurred within a private and familiar space, such as a house or hostel setting (n=42/61, 69%). Nevertheless, almost one in 6 from Group A reported witnessing overdose events in a public setting, such as parks, stairwells or public toilets.

Reasons for personal and witnessed overdose

4.16 According to the family members and drug users from Group A, the perceived causes of the majority of overdoses they had personally experienced or witnessed were attributable to either recent prison release or low tolerance (see Figure 4.1). Overdoses occurred on the same day or within a “few weeks” of prison release.

Figure 4.1 Group A (Interviewed Participants, n=68): Personal and Witnessed Overdose Causes



4.17 Several of the Group A participants reported suicidal intent both for witnessed (n=9/61, 15%) and personal overdoses (n=6/44, 14%). This was often related to stress factors, particularly family problems, relationship breakdowns and child custody issues.

4.18 Over half of the drug users in Group A (n=23/44, 52%) ascribed their own overdoses to taking “too much” or taking a combination of drugs, including Diazepam and/or alcohol.

Changes in drug use following overdose experiences

4.19 Following a personal or witnessed overdose the majority (n=34/58, 59%) of drug users in Group A reported no significant changes to their drug use; however, 24 (41%) said they did change their drug use in some way. In two cases drug use worsened, but the remainder made specific changes such as:

- Using more carefully
- Stopped injecting
- Stopped using heroin
- Used in company

4.20 One female on a take-home methadone prescription said she would not take her methadone if she was going to use heroin that day. This suggests that she understood the overdose risk associated with using methadone and heroin at the same time.

Overdose risk factors

4.21 In order to assess levels of overdose awareness and knowledge, the study participants were asked what they *thought* were the main risk factors that might lead to an overdose. They were able to identify a number of risk factors leading to overdose, which were attributable to either the individual, the way the drugs were used or the setting in which they were used.

The attributes of the person

4.22 The most common feature mentioned was low tolerance level, which was often directly associated with prison release. Other risk factors included:

- Poor mental state including depression/stress
- Poor physical state
- Not having enough knowledge
- Greed
- Boredom
- Not knowing your own limitations

4.23 A few study participants considered drug users newly initiated into injecting at risk of overdose (n=4), as was injecting per se (n=6). One of the most important myths that needs to be dispelled is that individuals will not overdose if they smoke heroin:

“But you always think ‘I’m a smoker, it’s not going to happen to me’ that it will always happen to the injectors you know.”

The attributes of the setting

4.24 Thirty-three study participants (n=33/414, 8%) cited release from prison as an example of the type of situation where people were at risk of overdose, as well as overdosing following a period of abstinence either in the community or in a residential setting. In terms of service engagement, lack of support was also cited as a situation where people would be more at risk. A small number of interviewees from Group A considered accessing drugs from an unknown source (n=6) and using alone (n=5) as important risk factors.

4.25 There were two specific examples of female users taking extra care following prison release to reduce their risk of overdose:

“Well the boy went and bought 3 bags and he was going to half it with me, and I said to him give me less than half because I was just out of prison.”

“I had been warned in the prison that your tolerance rate goes down but you don’t realise how much it actually goes down when you’ve not been taking a single thing...So it was warnings basically and that’s why I smoked it. I was terrified in case anything happened.”

The attributes of the drug

4.26 Seventy-seven study participants (n=77/414, 19%) stated that mixing drugs would be the biggest risk factor whilst 31 identified the dangers of mixing opiates with alcohol (n=31/414, 7%). “Taking too much” was also considered a major risk factor whilst concerns were raised about the way in which changes in the purity of drugs put people at risk of overdosing. This included the purity being unexpectedly high, getting a “bad batch”, or buying illicitly produced prescription drugs that are of low quality. Other risks mentioned by Group B respondents included:

- Changes in a person’s normal pattern of drug use
- Using on top of their prescription (methadone)
- Using on top of other prescribed medications

Witnesses’ perceptions of the signs of overdose

4.27 Table 4.3 outlines the signs of overdose as identified by the study participants. The most common signs identified were cyanosis in the lips and face (93/329, 28%) and changes in the complexion or colour of the person (84/329, 26%). Other primary observations included loss of consciousness (45/329, 14%), eyes pinned or rolling (22/329, 7%) and abnormalities in breathing (43/329, 14%). This included where people had stopped breathing or where their breathing had become “slowed” or “shallow”.

Table 4.3 Reported overdose signs

Overdose Signs	Group A: Interviewees (n=68)		Group B: Questionnaire Respondents (n=261)		Total (n=329)	
	Number	%	Number	%	Number	%
Cyanosis	42 of 68	62%	51 of 261	20%	93 of 329	28%
Change in complexion	58 of 68	85%	26 of 261	10%	84 of 329	26%
Unconsciousness	13 of 68	19%	32 of 261	12%	45 of 329	14%
Breathing abnormal	14 of 68	21%	29 of 261	11%	43 of 329	13%
Eyes pinned or rolling	16 of 68	24%	6 of 261	2%	22 of 329	7%

4.28 The study participants also identified a number of other signs of overdose including:

- Drug users going “straight over” (overdosing immediately following heroin use)
- Heavy gouch
- Weak or no pulse
- Slow heart rate

- Slurred speech
- Foaming/drooling at the mouth
- Shaking or fitting

4.29 Group A were asked at what point they recognised an overdose had occurred. They mentioned the obvious signs (e.g. blue lips and change in skin colour) but other factors also came into play, such as whether they had witnessed an overdose before; familiarity with the casualty; and instinct.

- Witnessed previous overdose

“Just with the fact, you know, that I had experienced it before with [named person] and I knew the signs to look for, and I, just as I say, one minute he was sitting there, the next you just seen him slipping down and the face going you know, dead, a light colour and his lips started going blue, know wit I mean.”

- Familiar with the overdose casualty

R: “I knew from looking at him it was different from the other times.”

I: “How was it different?”

R: “When I went over to give him a shake, you know to waken him up, he was just so still but his lips were blue and I just knew it was not good, his lips blue.”

- Instinct

“It’s like an instinct, they’re going to go, cause you can see their lips, tongue, their lips going and they just start to fall, do you know what I mean and you can see it a mile away.”

4.30 The presence of other more experienced users was crucial for one witness who said:

“Well it was my man that noticed it, that he had gone over eh, he had noticed the signs and that, cause I did not know the signs at the time cause I was new to it.”

4.31 Nevertheless, one Group A witness noted the main overdose signs and appropriate responses in spite of their inexperience.

“His lips turned purple and he started to gouch. I started to shake him. Put him in the recovery position, gave him mouth-to-mouth and CPR and did that for two minutes, he came round and the ambulance came in. I’d never experienced an overdose before and panicked, so rang an ambulance straight away”

4.32 Sometimes witnesses did not recognise someone had overdosed because the casualty did not exhibit the main signs of an overdose, and appeared to be in what was termed a “heavy gouch”.

“I knew a guy years ago had a hit...and he was okay, he made a cup of tea and about half an hour later he sat down and he didn’t get back up. It kind of like took its time to creep up into his system and so when he just sat down to have a gouch, nobody took the blind bit of notice because they thought he was having a

gouch kind of thing, but he wasn't, he had actually overdosed. But as I say people just assume it happens there and then but not necessarily."

4.33 During the interviews a number of the drug users (n=10/58, 17%) and family members (n=6/10, 60%) described attempts to exert some control over potential overdose situations by adopting a "caretaker/guardian" role.

"If he spends £100 in a day he will come and he will tell me, 'I have had this, I have had that' or he will come in and say, 'mum I am not feeling well I think I have had too much the day' and I ken to watch him."

"I'm just alert all the time, I know that they use, so I'm alert all the time, I know if they've been in the toilet longer than they should be in the toilet, there's something not right."

R: *"I had a lodger staying with us and before and he took that many OD, it was a regular occurrence to him. I always knew when he was about to overdose."*

I: *"So what would you do in those situations then?"*

R: *"Just used to keep talking to him and that, and wouldnae let him go away up the stairs on his own cause if he did he would end up collapsing."*

4.34 Four participants from Group A (n=4/68, 6%) stated they had warned the overdose casualty to be careful prior to injecting because their tolerance was low due to recent prison release or because the casualty had been drinking alcohol.

<p>Finding: Drug users and family members have a reasonable degree of knowledge regarding opiate overdoses both in terms of overdose risks and the signs that would give most concern. Most showed a willingness to intervene and respond appropriately to an overdose, while some witnesses adopted a caretaker/guardian role with drug users.</p>
--

Witness Responses

4.35 Fifty-six percent of the witnesses from Group A (n=34/61) intervened as soon as they realised someone had overdosed. Although a large minority of the drug users interviewed were able to relate anecdotal stories of overdose casualties left outside (n=25/58, 43%), only 2 of the 44 interviewed drug users who overdosed were left alone by witnesses at the scene.

4.36 An overdose casualty who had overdosed quickly after using was often attended to quickly. The onset of overdose symptoms were rapid and quite often more dramatic – several witnesses from Group A (n=10/61, 16%) described people going "straight over" (taking heroin and collapsing immediately).

"He took his injection he ended up falling sort of sideways onto the bed...his lips started to go blue, not straight away but his facial expression everything changed you know. I could tell that right away."

"...he had the needle in his groin right, and he just went, slid right down. Right down the side like that. Right down the side of the cupboards in the kitchen."

4.37 Group A witnesses employed a range of appropriate and inappropriate interventions during an overdose event. Table 4.4 shows the interventions coded as appropriate and inappropriate.

Table 4.4 Group A: Interventions taken by witnesses (n=61) during an overdose event

Appropriate Interventions	Inappropriate Interventions
Ambulance (n=37, 61%) Basic Life Support (n=17, 28%) Ambulance straight away (n=17, 28%) Recovery Position (n=10, 16%) Mouth to Mouth (n=4, 7%) CPR (n=3, 5%)	Walked about (n=12, 20%) Slapping (n=11, 18%) Cold water (n=9, 15%) Put outside (n=5, 8%) Nothing (n=6, 10%) Riffled their pockets (n=3, 5%) Ran away (n=2, 3%)

4.38 Just over half of Group A witnesses (n=34/61, 56%) described identifying an overdose and employing resuscitation methods, such as CPR and mouth-to-mouth, sometimes in combination with inappropriate actions, such as slapping a casualty or putting cold water on them. In a small minority of cases (n=5/58, 9%), the drug users described placing the casualty outside. One participant described overdosing herself and being moved from the flat and into the stairwell. The main reasons for putting a casualty outside were fear of the police and possible prosecution; the overdose occurring in a dealer’s flat; or in a few cases because children were present in the house and witnesses feared repercussions from social services and the police.

4.39 Nevertheless, being placed outside was not necessarily an abdication of responsibility – witnesses described calling emergency services and staying with the casualty until an ambulance arrived; no casualties were left alone by witnesses.

“The person whose house we were in...his girlfriend had a wean [child] so the boy carried him out...because obviously if the ambulance came there then obviously the social worker would have got involved. It was terrible, it was a nightmare actually so we managed to get the boy out to the side alley but we never left him we phoned an ambulance...and we told them what they needed to know basically to get him help know what I mean to get him help without implicating ourselves.”

4.40 In some cases (n=18/68, 26%), Group A participants turned to others for help or described others asking them for help. Deferring responsibility to others is not an uncommon reaction. Two family members called on others to assist with the situation. In both cases, neither had witnessed an overdose and both were in a state of “panic”. In addition to situational anxieties, other reasons for relinquishing control of the situation were fear of the police, children in the house or being in a dealer’s house.

4.41 Thirty-seven (n=37/61, 61%) Group A witnesses called an ambulance at their last witnessed overdose. Seventeen (28%) called the emergency services “straight away” or within 5 minutes, a smaller number called within 15 minutes. A range of interventions were carried out while waiting for the arrival of an ambulance. In many cases, casualties were placed in the recovery position; in fewer cases mouth-to-mouth was performed – 4 people

stated some reservations about this procedure due to the risks of contracting a blood borne virus. In almost all cases, the witnesses stayed with the casualty until the ambulance arrived. Other activities included a range of inappropriate actions, such as walking a casualty about; slapping the casualty; stealing from the casualty; and clearing drug paraphernalia and drugs from the scene.

4.42 The main reason for not calling an ambulance was due to the casualty recovering from the overdose. Other reasons for not calling an ambulance were possible police presence, drugs on the premises, children present and tenancy issues.

4.43 One drug user had successfully resuscitated 2 overdose casualties with naloxone following training.

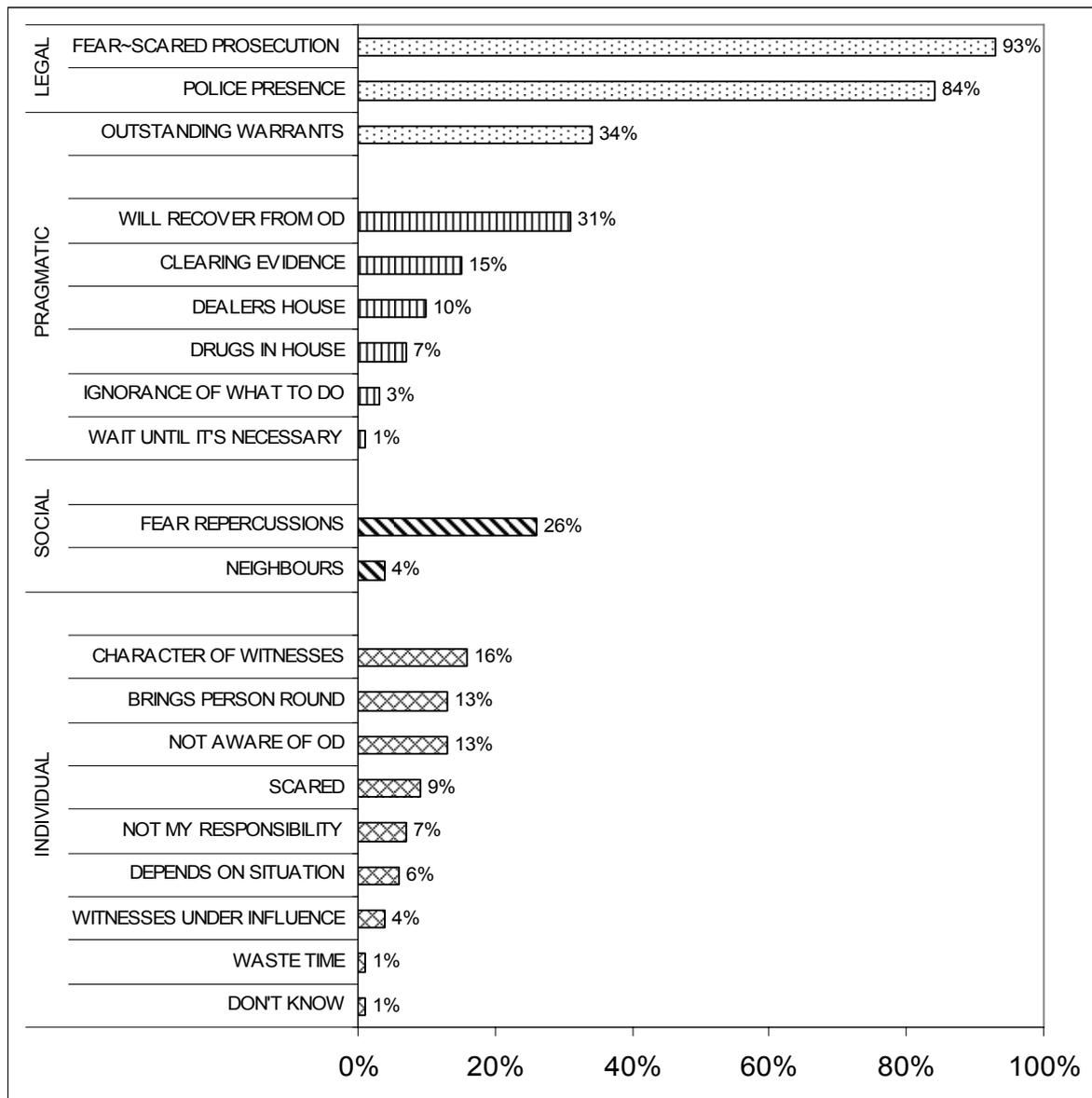
4.44 Among the Group B respondents who witnessed an overdose (n=70), the majority (n=50/70, 71%) stated that the first intervention would be to contact emergency services. Several people (n=14/70, 20%) stated that they would try to revive the casualty themselves before calling an ambulance as they would not want the police to arrive with the ambulance. Other interventions that would be utilised would be putting the casualty in the recovery position, administering first aid and CPR, checking the airways and mouth-to-mouth resuscitation, or trying to get the casualty on their feet.

4.45 There is a danger that overdose casualties resuscitated by their peers may have suffered some degree of morbidity associated with overdose. The challenge is to encourage people to call an ambulance as soon as an overdose is identified.

Barriers to calling emergency services

4.46 Group A were asked why they thought some witnesses might delay calling emergency services. The findings support other research showing that the main barriers are presence of the police and legal repercussions, as shown in Figure 4.2. In addition, there are other social, pragmatic and individual reasons why delays may occur. Other barriers mentioned included neighbours and “fearing repercussions” from the casualty’s family members, friends or others; or more pragmatic reasons, such as the person recovers, the time it takes to clean up any evidence of drug taking, or lack of knowledge regarding appropriate responses. Interviewees also mentioned individual motives for not calling emergency services promptly, such as character of witnesses, or overdose casualty not being the responsibility of witnesses.

Figure 4.2 Group A: Main factors contributing to time delays



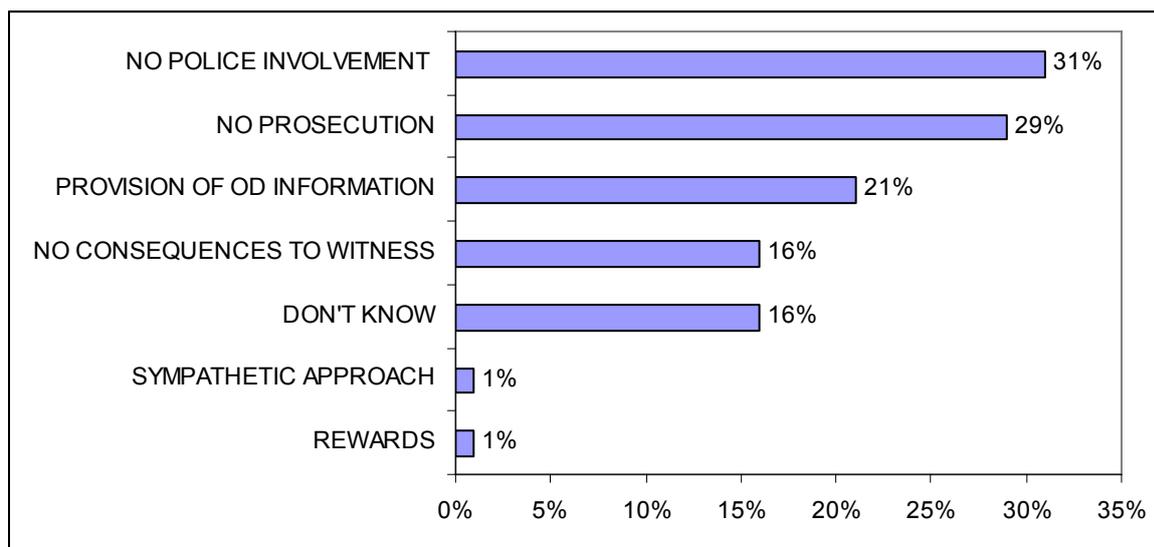
4.47 However, it should be pointed out that 37% of the respondents in Group A (n=25/68) spoke about the importance of preserving life and were adamant that witnesses should put the life of the casualty above their own interests and not leave casualties alone or endanger their lives through fear of the police and possible repercussions. A typical response was as follows:

“At the end of the day ...the most important thing is to get that person seen to and make sure they are alright and then if the police and that come then you can deal with that after the person is safe and well like.”

Encourage calling help sooner

4.48 Both drug users and family members from Group A were clear that removing the police and threat of prosecution arising from overdose events would encourage witnesses to call for help sooner. Providing users and family members with overdose information may also encourage a quicker response.

Figure 4.3 Group A: What do you think would encourage witnesses to call for help sooner?



4.49 In a small number of interviews in Lothian and Fife, drug users were adamant that the police had agreed not to attend overdoses but there was no mention of this policy during interviews with police personnel (see Paragraphs 4.96 to 4.137).

Finding: The main barriers to calling emergency services promptly are similar to those in other studies, namely fear of the police and possible repercussions; particularly if children are present in a house where an overdose has occurred.

Finding: Drug users and family members do not have a clear understanding of the current policy on police attendance at overdose events.

Contact with Emergency Services

4.50 There are a number of professionals that casualties may come into contact with during an overdose: 999 operators, ambulance personnel, police and hospital staff. Group A participants were asked their views on their experiences with emergency service personnel.

999 Operators

4.51 A vital service for witnesses, both families and drug users, is the contact between the caller and the 999 operator (no-one mentioned calling NHS 24). In addition to offering a calming voice that participants described as helpful, most operators also describe to witnesses

how to administer appropriate interventions to the casualty, such as putting the casualty into the recovery position and checking their breathing. However, one witness thought the advice the operator gave conflicted with overdose information he had received; namely the operator told him to tilt the casualty’s “head back” but the witness thought he should have put the casualty in to the recovery position (this was also mentioned in an interview with an ambulance crew member, see Paragraph 4.108). Another witness was sceptical of the role of the operators and seemed to associate them with the police.

Ambulance

4.52 In Table 4.5 below, the phrases or words most commonly used to describe ambulance personnel were associated with attitudes. Descriptions of their professional tasks were positively described; negative descriptions were wholly associated with attitudes rather than tasks.

Table 4.5 Ambulance Personnel – Descriptions

Positive Association	Negative Association
Quick Efficient Professional Thorough First class Polite Sympathetic Kindness Treat everybody equally Genuine Caring	Attitude wasn’t great Stigma Treat you like shite Ignorant Arrogant Stinking Judgemental Harsh Nasty Hoighty toighty Cold Don’t care

4.53 Ambulance personnel were said to have offered overdose or drug service information to 6 participants (none were family members). The majority of Group A participants (n=44/68, 65%) said no information was offered on the occasions ambulances were called.

Police

4.54 Participants perceived the police and fear of arrest as the main barrier to calling emergency services. Fourteen of the 68 (21%) interviewees in Group A described arrests at the scene of an overdose (personal overdoses n=4/44, 9% and witnessed overdoses n=10/61, 16%) but in only one case was a prosecution and sentence administered (5 month sentence for supply).

4.55 The majority of those from Group A at which police attended an overdose (n=33/55, 60%) stated that no information was offered by police at overdose events. One family member and 3 drug users were offered either verbal or written information by the police.

4.56 Of the 55 people in Group A who had come into contact with police at overdose events, 44% (n=24/55) described them negatively; 27% (n=15/55) described them positively and one quarter participants (n=14/55, 25%) held mixed views on police attitudes. Table 4.6 shows that all descriptive terms for the police were concerned with their attitudes; unlike ambulance staff, there were no positive comments regarding the professional conduct of the police.

Table 4.6 Police Personnel – Descriptions

Positive Association	Negative Association
Alright Friendly Caring Sympathetic Nice They're no judgemental Okay	They didn't care Bad attitude Unsympathetic No kindness Cheeky Stinks Treated like a second class citizen Terrible Deplorable Treat you like a bit of shit Not compassionate

Hospital staff

4.57 Twenty-six drug users from Group A (n=26/44, 59%) were taken to hospital following their last opiate overdose, 3 of whom mentioned being coerced into attending hospital by the police on threat of arrest. Over a half (n=14/26, 54%) of those who had attended hospital described staff negatively whilst 27% (n=7/26) described them positively; one participant could not remember too much of his hospital experience and the remainder (n=4/26, 15%) had mixed views on hospital staff attitudes. Nurses were more poorly regarded than doctors.

Table 4.7 Hospital Personnel – Descriptions

Positive/Mixed Association	Negative Association
Friendly Fine Alright Helpful Concerned Nice Pleasant Sympathetic Did their job	Judgemental Bad attitude Unsympathetic Rude Aggressive Cheeky Stinks Treat you like shit Stigma

4.58 As noted earlier in Paragraph 4.5, only 27% of the study participants who reported a personal overdose (n=24/88) reported that they were provided with information about preventing overdose on discharge from hospital.

Finding: The role of 999 operators has been identified as an important component in the management of an overdose situation. They provide an element of reassurance and practical support for witnesses who are quite often in a state of panic.

Finding: There is a missed opportunity regarding information provision for overdose casualties and witnesses. The majority of casualties, who were attended by emergency services including the police, were not offered information on safer drug use or local drug services. Hospital staff rarely offered information or referral to other services, even for those who were attending hospitals on multiple occasions, and again this may be a missed opportunity to help people engage or re-engage with local services and learn how to avoid future overdoses.

Finding: Contact with emergency services including hospital attendance was relatively widespread among the participants. The ambulance and 999 operators were more positively regarded than either the police or hospital staff. In particular, drug users and family members considered police and hospital staff attitudes to be negative toward drug users. The perception of most of those who described negative attitudes was that professionals tended to stigmatise and judge drug users unsympathetically.

Emotional Consequences of Overdose

4.59 Overdose events can be a traumatic experience for witnesses. A number of emotions were expressed by Group A participants throughout the interviews, and these are described within the context of the participants' experiences.

Panic

4.60 The most frequent emotional response described by witnesses at an overdose event was "panic". The emotion was often described in conjunction with other phrases, such as "scared", "terrified" and "angry". There were a number of reasons why people would panic and these were mainly due to children being in the house, the possibility of police arriving on the scene and a lack of knowledge as to the appropriate responses to adopt (sometimes because this was the first witnessed overdose). There appears to be no direct relationship between people panicking and the responses they take; some people "panicked" and called emergency services promptly, others did not. But in most cases where an ambulance was called, telephone operators were crucial in allaying people's fears and providing them with basic life-saving responses.

"It's a horrible thing but at the time all I could think of is, 'oh my god and I'm going to get my wean took, if the social work find out this, if an ambulance comes and I'm going to get reported to the social work and I'm going to end up losing my wee boy over this.'"

"The pal that brought them and had injected them she was worried about the police coming because she had more stuff on her."

"I was really panicky cause I'd never seen it [an overdose] before and it scared the life out of me, so I was on the phone to the operators and she kept speaking to

me for the 15 minutes it took the ambulance to come...she was good on the phone, reassured me that I was doing all the right things and everything else, you know, eh so aye that was good."

Anger

4.61 Six (n=6/61, 10%) Group A participants who had witnessed an overdose spoke about feeling angry with the casualty either due to the casualty frequently overdosing or because the casualty was not able to handle the dose due to intoxication or lying about their tolerance.

4.62 Two family members described feeling angry because they were exasperated with their partner or child's heroin use:

"I couldnae get an answer fae him so I lost the place, so I kicked the door in and I seen him and he was, he wasnae blue, blue, but he was right out it...but I mean I've had this for fifteen years, so my temper gets the better of me, so I lifted him and punched him two or three times on the coupon! On the face! I was that angry, you know what I mean."

"Well I was sort of angry at him...because I was so fed up with it by that point do you know what I mean, I never realised that he was overdosing until his lips started to turn blue and then I realised that he was not breathing"

4.63 One mother said:

"I mean it takes its toll likely somewhere on you along the line, it does take its toll but you've got to be angry and you've got to greet, you've got to go through all the emotions or you would crack at the seams."

Guilt

4.64 Where fatal overdoses had occurred (n=14), some witnesses in Group A (n=6/14, 43%) blamed themselves for the death. They felt they had not done enough for the casualty even though they had responded appropriately in most cases.

"It was a waste of a life he was only a wee boy too, I should have been better...I shouldn't have let him take it."

"I just wish I'd done more though...I just think if I'd noticed sooner ken when he was gouching out, if I had noticed sooner and checked him."

Paranoia

4.65 Feelings of paranoia were an issue for a few drug users on 2 levels. The first was in relation to using with people who had a reputation for overdosing on opiates or who were in an intoxicated state and were at risk of overdosing. On a second level, drug users mentioned paranoia in relation to the police and possible prosecution.

“I was right paranoid cause he had been drinking and stuff.”

“I think a lot of folk are paranoid that if they call an ambulance then the next thing they will be charged.”

Stigma

4.66 Several Group A participants (n=12/68, 18%), both family members and users spoke about the “stigma” associated with heroin use, particularly in relation to professionals such as the police, ambulance and medical staff although neighbours and family were also mentioned. People talked about being “embarrassed”, “judged” or “feeling ashamed”.

“They [family] don’t want knowledge of it; know what I mean they are so ashamed about it...having someone in your family that is using drugs and you know it may be a reflection on you.”

“I think sometimes you worry about getting judged as well. Just the ambulance folk there is a stigma attached to being a drug user.”

“I cringe at times when you’ve got to get the doctor because all the doctors... I know what they’re thinking before they come in the door.”

4.67 It was noted by a small number of participants that counselling would help them to cope with their feelings. One mother said:

“In hindsight speaking to someone would have helped. I would have accepted help or someone to talk to if it had been offered. I’m still very nervous and I will still stand outside his bedroom door and listen to make sure he’s ok.”

Finding: The emotional consequences (such as panic, anger and guilt) following an overdose is often evident, particularly among family members and others who have witnessed a fatal overdose. These emotional reactions, which may have a negative impact on future responses to overdose, raise further policy, research and training questions requiring attention, including psychological support.

Overdose information and training

4.68 Just over half (n=224/414, 54%) of the study participants had received information on opiate overdoses, most often from addiction services. Overdose information was provided in a range of formats, the most frequently cited being leaflets and verbal information. Drug users also mentioned the provision of posters in waiting rooms which they considered useful. Half the family members that were interviewed (n=5/10, 50%) had received information.

4.69 One hundred and thirteen (n=113/224, 50%) study participants thought the information was useful. A small number of interviewees (n=7/68, 10%) from Group A said they knew about overdoses and the information did not provide anything new. Further criticisms centred on the fact that drug users know the risks and will use regardless of information and there is not enough concise information on basic life saving skills.

4.70 Twenty-three (34%) Group A participants had received overdose training with most (n=14/23, 61%) considering the training useful. Of the 23, 3 Glasgow family members had received naloxone training, of the remaining family members one partner from Lanarkshire had been offered training but had missed the session.

4.71 Almost two thirds of Group A (n=44/68, 65%) said they had not been offered training. However, the majority (n=28/44, 64%) stated they would access training if it was offered to them.

4.72 Nineteen (n=19/68, 28%) Group A participants had received general first aid training through various avenues, such as prisons, army, voluntary work, and street workers support services. Both first aid and overdose training were considered useful, not only for the purpose of intervening appropriately during an overdose but also because the learned skills could also be applied in general medical emergency situations. One parent and her children had been taught first-aid by the parent's drug worker.

"It was to teach the girls as well as myself, mainly the girls so that they would know how to deal with me if I became unconscious until help could get to them."

Finding: The provision of overdose information was more widespread than overdose training although almost half the sample (n=190, 46%) had not or could not remember receiving information. Family members were less likely than drug users to receive overdose information.

Naloxone

4.73 Just over a third of Group A participants (n=23/68, 34%) had heard of naloxone, of these participants who were aware of naloxone, almost all (n=21/23, 91%) knew what naloxone was and what it was used for. Ten participants, including 3 family members had received naloxone training via the Glasgow and Lanarkshire naloxone pilots, and one male drug user had used it successfully on 2 separate occasions.

4.74 When the interviewer explained what naloxone was, 9 people who had seen it used by paramedics or experienced it, identified it as "adrenaline".

4.75 Sixty-eight Group A participants were given a standard explanation of naloxone and its affects, and were asked if they would consider using it in an overdose situation.

- Forty-eight (71%) said they would use naloxone – 20 explicitly said they would require training before doing so.
- Seven (10%) said they would not use naloxone.
- Six (9%) were not sure they would use naloxone.

4.76 There were a number of issues that concerned those who would not use naloxone or did not know whether they would. These were:

- Legal implications
- Confidence
- Lack of knowledge

- Depend on the circumstances

4.77 One family member who had been offered naloxone training refused to consider using it under any circumstances. The participant had a number of concerns which related to the legal implications should naloxone not revive the casualty; her concern that her children would engage in riskier heroin consumption if they knew she had naloxone in the house; and finally that it is the “duty” of the emergency services to administer naloxone.

4.78 Four (n=4/346, 1%) Group B respondents were aware of the use of naloxone in some areas and had a number of views on how this should be distributed. These included:

- Making it available to people who live with drug users.
- Making it available in households known to have chaotic users or previous overdose experience.
- Making it available via needle exchanges and Harm Reduction Centres.

Finding: While a sizeable minority of interviewees had heard of naloxone and knew what it was used for, there still remained a majority of study participants who had no knowledge of naloxone, suggesting a need for information on naloxone and its purpose when used in an overdose situation. However, following an explanation of the drug and its affects, most interview participants were generally open to the provision of naloxone although as stated, information and training on its use would need to be addressed.

Raising overdose awareness

4.79 The study participants were asked to suggest ways to raise awareness of opiate overdoses in order to reduce drug users’ risk of overdose. The suggestions from the combined sample of study participants are mainly targeted at three levels:

- Individuals
- Local Services
- Government

Individual

4.80 Nineteen (n=19/68, 28%) Group A participants thought that it was an individual’s responsibility to access overdose information and that some drug users were apathetic about opiate overdoses and information provision. Typical phrases such as, “it goes in one ear and out the other” or “they wouldn’t listen” were used. The 2 main reasons for a lack of interest in overdose information were due to users not considering they could overdose and the “chaotic” nature of heroin addiction. Typical examples of personal responsibility included:

- Don’t use alone
- Don’t take more than usual
- Don’t mix with Benzos and drink
- Don’t inject

Local Services

4.81 The study participants suggested information should be made available about the dangers of mixing opiates with other drugs such as diazepam and/or alcohol. Posters and leaflets in public spaces, such as GP surgeries, pharmacies and community centres, were considered a useful way to raise overdose awareness while targeting drug users in services, such as needle exchanges, methadone clinics, drop-in services, prisons, rehabilitation units and police stations would reach those most in need. It was also felt that it would be beneficial to have first aid and CPR training DVDs playing in waiting areas in drug services and needle exchanges.

4.82 Seven (n=7/68, 10%) Group A participants identified a number of situations where the provision of overdose education should be compulsory. These were before commencing any substitute prescribing programme, following an overdose-related hospital admission, at needle exchange collection, in residential rehabilitation units and in prison.

4.83 Nine (n=9/68, 13%) Group A participants, both family members and drug users, thought the police and ambulance services should provide leaflets or information on local drug services and/or overdose awareness to casualties and witnesses at the scene of an overdose.

4.84 Nine (n=9/68, 13%) Group A participants thought there should be a wide-ranging mail-drop of leaflets to all households, and 8 (n=8/68, 12%) said a targeted campaign via drug services to ensure families were given leaflets through the mail would be appropriate however client confidentiality would have to be carefully considered.

4.85 Thirteen (n=13/68, 19%) Group A participants thought GPs should be responsible for providing information to family members. One parent said:

“I think that the doctor should say, ‘Do you wish your parent to come in with you?’...I think the doctor, he is the only one that could notify the parents but everything is so confidential they won’t let us know. I think that we should know because we are the ones that have all the trouble at home.”

4.86 A drug user stated:

“GP’s could maybe take a wee bit more responsibility with family members because the family members go to GP’s looking for advice and they come away with little or nothing, so maybe it would be a good idea if the practices could hold a day for family members who have you know relatives or whatever, eh, in the throes of addiction, have a day or a half day or whatever training for them.”

4.87 Providing access to overdose information and training through family support groups was recommended as a way to help reach some families (n=17/68, 25%). But the difficulty is that some parents do not know about familial drug use or are not aware of family support groups. All the family members who were interviewed (n=10) felt that drug use and its effects, including overdose required more publicity.

4.88 Further suggestions put forward by a small number of Group B respondents included the creation of one-stop shops where drug users could have all of their needs addressed

without having to access a number of different services at different sites (n=3); having naloxone freely available to users and their families (n=3); and the provision of routine mental health examinations primarily focussed on identifying depressive illness (n=1).

Government

4.89 The most frequent response from Group A was that a national media campaign could be used to raise awareness (n=30/68, 44%). They thought adverts similar to the recent drink-drive campaigns would be useful. Several people thought any campaigns should take a “hard hitting” or “shocking” approach:

“I’d say for the government to put money into advertising in a kind of cruel to be kind way, hard hitting. That’s the best way to get people’s awareness isn’t it, just in their face, shock tactics.”

4.90 Alternatively, a family member said:

“I think information just on what to do, is the best thing you know. What I mean just be quite matter of fact about it...Keep all the drama out of it you know because sometimes you are looking at all the drama and not really thinking about the message.”

4.91 Several Group A participants (n=10/68, 15%) thought the provision of first-aid lessons in school would be a good idea. This would provide all children with basic life-saving skills, and may provide those children living with drug using parents with the necessary skills to help their parents in an overdose situation.³ A number of Group A participants who witnessed an overdose utilised the skills they had learned in general first-aid training during overdose events (n=11/61, 18%).

4.92 Fifteen (n=15/346, 4%) Group B respondents highlighted their concerns regarding the decision to call emergency services for someone who has overdosed because of the risk of arrest. Suggestions on ways to address this issue included providing immunity from prosecution for the person calling 999 and changing the current arrangements regarding police attendance at overdose incidents.

4.93 On a broader issue, Group B respondents felt that the illegality of problem drug use itself increased the likelihood of overdoses and that decriminalising heroin and other drugs would remove many of the risk factors and ensure a consistent, quality-assured and measured supply of the drug.

4.94 Three drug users and one family member suggested the provision of drug consumption rooms in order to reduce the risks associated with injecting heroin use and provide the opportunity for receiving up-to-date education and advice.

4.95 Concern was also raised regarding abuse of over-the-counter (OTC) medications. Many pain relief and cold remedy preparations contain codeine and these can be bought

³ One participant whose mother was an opiate user had witnessed her first opiate overdose at the age of 13

without prescription. It was suggested that there should be tighter controls regarding where and how these can be purchased.

Findings: The study participants offered a range of suggestions to raise awareness of opiate overdoses in order to reduce the risk of overdose. The most popular suggestion was a media campaign, followed by the distribution of information in targeted settings.

Emergency Service Personnel

4.96 Semi-structured interviews were conducted with emergency service personnel to explore their experiences of and views on overdose incidents and other related issues, such as training and information, and the use of naloxone in Scotland. Table 4.8 provides a breakdown of the number of police and ambulance personnel and A&E Consultants interviewed in each of the 4 areas.

Table 4.8 Emergency Service Personnel Interviewed

	Glasgow	Fife	Lanarkshire	Lothian	Total
Police	5	5	6	4	20
Ambulance Staff	5	4	6	5	20
A&E Consultants	1	0	1	3	5

Police and Ambulance Staff

Experiences of attending overdose events

4.97 The first point the Research Team endeavoured to determine from the respondents was the main issues faced by ambulance staff and police when attending an overdose situation. Forty percent of ambulance crew respondents (n=8/20) raised concerns regarding the personal safety of all those at the scene including witnesses, professionals and bystanders. Ambulance staff highlighted the use of a Dynamic Risk Assessment (DRA)⁴ while approaching the scene to establish the safety of the area and any potential dangers for the crew.

4.98 The DRA is a technique employed by the Ambulance Service, Fire Service and Police Service, the Military and commercial airline pilots to effectively assess the level of risk in a dynamic situation prior, during and after the execution of an operation. It involves carefully weighing up the benefits of proceeding with a task against the risk involved in performing that task. As a result of such assessment, it was reported that crews may choose to wait outside the scene of the incident until the police arrive before going in to attend to the casualty. Many respondents (n=10/40, 25%) emphasised that, in general, the overdose incidents they are called to occur in potentially hostile and dangerous environments where there are other people under the influence of drugs and/or alcohol who are not thinking rationally and have the potential to act aggressively towards ambulance staff. Respondents stated that aggression may occur if the casualty is unhappy because ambulance staff have

⁴ The DRA was defined by the HM Fire Service Inspectorate in 1998 as, “The continuous assessment of risk in the rapidly changing circumstances of an operational incident, in order to implement the control measures necessary to ensure an acceptable level of safety.”

ruined his/her hit, or because friends and family are anxious and have unrealistic expectations of the ambulance crew to save their friend/loved one.

“We also come across violence sometimes as a lot of the time you go round and they are angry as you have ruined their hit, they can be aggressive.” (Paramedic, 5 years of experience)

4.99 However, 3 members of the ambulance service interviewed in Glasgow City and one in North Lanarkshire stated that they had never experienced any major issues in terms of violence or aggression,

“But I’ve never had a bad case with any drug user, they’re always pretty helpful and thankful when you get there. There’s never any hassle.” (Technician, 7 years of experience)

Finding: The assessment of risk may result in a delay in responding to and managing overdose situations.

4.100 Another major issue regarding personal safety is the risk of needle-stick injuries and cross infection, in particular, when dealing with intravenous drug users. Both ambulance staff (n=12/20, 60%) and police (n=3/20, 15%) highlighted this issue and stated that one of the most important things they do on arriving at the scene is to look for any uncapped needles or other potentially dangerous drug paraphernalia.

4.101 Six of the police respondents (n=6/20, 30%) stated that when they arrived before the ambulance crews, they would attempt to establish what had happened and take a history, and do whatever they could to preserve the casualty’s life until the ambulance arrives, including performing Cardio-Pulmonary Resuscitation (CPR) if necessary.

4.102 The information that police would attempt to gather in order to provide a history for ambulance crews would include types and amounts of drugs used, how long ago these were taken and whether any other medications are involved.

4.103 The police stated that they would attempt to speak to as many people as they could at the scene in order to build up as accurate a picture of the events preceding the overdose as possible. They recognised that many people would not want to speak to the police because of issues of illegality regarding their drug use, which could sometimes result in hostility and on occasion aggressive behaviour.

4.104 Eight police officers (n=8/20, 40%) stated that if they attend a fatal overdose, they are required to treat it as a crime scene and follow the necessary police protocols. This includes securing the scene and preserving any evidence until the arrival of the Criminal Investigation Department (CID). Three police officers (15%) mentioned that, at this stage, they would also want to try to establish the source of the drugs and whether any others had been involved in supplying or administering them.

Finding: The police officers attending the scene have a vital role to play in gathering information about the overdose that may be useful to the ambulance crews, and in ensuring the safety of all at the scene.

4.105 Many of the police and ambulance staff (n=18/40, 45%) believed that dealing with the emotions of witnesses often detracted from caring for the casualty. They qualified this by stating that there are a number of reasons for this:

- Unfamiliarity of overdose situations among the general public
- Believing that emergency services are not doing enough
- Unrealistic expectations regarding rate of recovery
- Anxiety/panic
- Hysteria, irrational behaviour resulting from fear

4.106 Several respondents (n=10/40, 25%) were concerned that, although witnesses believed they were helping, they were actually “getting in the way” and preventing ambulance staff from doing their job.

4.107 Police (n=17/20, 85%) and ambulance staff (n=18/20, 90%) were consistent in their view that there were almost always other people present at the scene when they arrived. In most cases these were friends or acquaintances rather than the relatives or partner of the casualty. Where overdoses have occurred in hostels or other public places these sometimes “draw a crowd” of curious people. Police and ambulance staff (n=16/40, 40%) stated that in most cases witnesses will do something to try to help, often this is limited to calling emergency services but in other cases they will try to administer basic first aid or CPR. Table 4.9 shows the witness interventions reported by police and ambulance staff.

Table 4.9 Interventions carried out by witnesses at the overdose incident as reported by police and ambulance staff

Intervention	Total
Basic first aid	4
CPR	5
Mouth-to-mouth	4
Put person in the recovery position	9
Put person on their back	2
Slapping or shaking the person	6
Walking the person around	1
Putting the person in a cold bath	2
Injecting milk into their veins	1
Trying to prevent choking	1
Encouraging the person to be sick	3

Notes to table

Multiple responses were provided

4.108 Of the 3 ambulance staff who reported CPR as one of the witness interventions at the scene of the overdose, 2 suggested that it was administered unnecessarily as the person’s breathing had slowed down but they still had a pulse. Two ambulance staff mentioned that when they arrived at the scene witnesses had put the person who had overdosed on their back on the instruction of telephone response staff. One of the ambulance crew members felt that this reflected a change in policy as normally people would be told to put someone who is unresponsive in the recovery position. It was suggested that it could be to enable witnesses to monitor the casualty’s breathing more easily.

Finding: There appears to be inconsistencies in the advice provided by telephone response staff.

4.109 Thirty percent of police and ambulance staff respondents (n=12/40) stated that it was better to do something than nothing; they also commented that the majority of witnesses had the best of intentions in intervening and were doing things to the best of their knowledge and ability. The police and ambulance staff regarded interventions by hostel staff as both helpful and appropriate.

Finding: Where witnesses do intervene this is regarded by police and ambulance crews to be largely helpful and well intentioned.

4.110 Police and ambulance staff cited a number of reasons why there may be a delay between the person overdosing and someone contacting the emergency services:

- Becoming unresponsive is part of the natural, desired effect of taking large amounts of opiates or heroin; therefore, people will not be looking for any adverse reactions at the early stages (police n=2/20, 10% and ambulance staff n=5/20, 25%).
- Often the witnesses will also be using and, therefore, their ability to assess the person's state of consciousness will be adversely effected (police n=3/20, 15% and ambulance staff n=9/20, 45%).
- When witnesses do realise that there has been overdose they will first try to manage it themselves using one or several of the methods stated in Table 4.9 (police n=1/20, 5%).
- Witnesses are concerned about the implications and/or repercussions of contacting the emergency services and possible police involvement (police n=1/20, 5% and ambulance staff n=2/20, 10%).

4.111 The majority of police and ambulance staff (n=26/40, 65%) reported that the ambulance service is almost always the first to arrive at the scene, although they recognised that this can sometimes be influenced by circumstantial factors, such as location, time of day and resource availability. The situations mentioned when police would be first in attendance were:

- If the police happen to find someone in a public place.
- If the person has overdosed in custody.
- If the police are called out to deal with another incident and discover that an overdose has taken place.

4.112 As previously mentioned in 4.98, although ambulance crews almost always arrive first, they may decide to wait outside the scene of the incident until the police arrive due to concerns about safety. Fifteen percent of the ambulance staff interviewed (n=3/20) reported waiting outside for the police to arrive before entering a situation, and 10% of the police interviewed (n=2/20) stated that the ambulance service had waited for their arrival.

4.113 Thirty-five percent of the ambulance personnel interviewed (n=7/20) mentioned their use of the ABC protocol (Airway, Breathing, Circulation) in order to establish what interventions were required, and another 8 (40%) mentioned the need to provide the casualty with assisted ventilation. Most of them (n=14/20, 70%) stated that they would administer naloxone if required and that this would dramatically increase the casualty's chances of recovery, "It reverses it [the overdose] 99.9% of the time" (Paramedic, 15 years of experience). One paramedic mentioned the need to consider how quickly the casualty needs to be brought round in order to decide how much naloxone to administer.

4.114 Almost half of the ambulance staff and police (n=19/40, 48%) interviewed stated that ideally they would always want to take someone who had overdosed to hospital for further assessment and observation. Due to the short therapeutic half-life of naloxone, it was felt to be advisable for the casualty to be taken to hospital in order to minimise the risk of them using further opiates, which may lead to a second overdose. One police officer stated that if somebody was in custody and there was any doubt over whether or not they had taken drugs, they would want to have them assessed by medical staff.

4.115 Eight of the ambulance personnel and police (ambulance staff n=5/20, 25% and police n=3/20, 15%) interviewed were of the opinion that they would only take someone to hospital if this was specifically indicated. Reasons for this would include other injuries, not responding to treatment or being in a state of distress. A few police officers (n=5/20, 25%) stated that they would accompany the casualty to hospital if they or their family/friends were aggressive towards the emergency services (n=1/20), if the ambulance had been delayed (n=2/20) or if the casualty was to be taken into police custody, e.g. for outstanding warrants (n=2/20). However, the majority (ambulance staff n=15/20, 75% and police n=15/20, 75%) reported that once the casualty had recovered consciousness they would almost always refuse to be taken to hospital, *“In general, and this is another nine out of ten, they’ll not go to hospital”* (Paramedic, 36 years of experience). There were a number of reasons stated why this might be the case:

- Unhappiness at having been given naloxone, having their “fix” ruined and wanting to go and take more drugs.
- Suspicion of the police attending at the hospital.
- Perception of being badly treated in hospital.
- Concerns about how they would get back home from hospital, especially in rural areas.
- Previous experience of overdose and self-recovery.

4.116 When the casualty does refuse to be taken to hospital, both police (n=11/20, 55%) and ambulance staff (n=14/20, 70%) stated that they would employ a range of measures to persuade the person that it is in their best interests to go. It was made clear that such efforts would be made with the best interests of the person in mind.

“I think it is a bargaining thing with them...if you say to them, ‘look you have come so far down that you have had to have Narcan then you should be going to hospital’”(Paramedic, 12 years of experience)

“What you generally find is that if the police arrive they would rather go to the hospital than be in a cell.” (Paramedic, 7 years of experience)

“We would try with the best will in the world to make somebody see sense and if there is an opportunity to say that there is maybe a criminal matter here and there are one or two ways that this is going to go, we’re either going to take you to the police station or, what would better suit you, would be if you went to the hospital. We would try to play one situation off against the other to try and get the individual to rationalise that and say maybe where would I rather go and where would I rather not be. In this way you might be able to get them to see a little bit of sense.” (Police, 11 years of experience)

4.117 If the casualty is adamant that they do not want to be taken to hospital despite the advice of the ambulance staff they would be asked to sign an ambulance disclaimer form stating this. If the person is unable or unwilling to do this, ambulance staff would ensure that this decision is recorded and witnessed whenever possible, e.g. documented in police notebook, relayed to ambulance control.

Finding: When the person who has overdosed recovers consciousness at the scene they are often reluctant to be taken to hospital. Police and ambulance crews play a vital role in encouraging the person to seek further medical attention but this is often refused because of negative attitudes towards police and/or health professionals.

4.118 Before leaving the scene the ambulance staff always try to ensure that there is “some type of safety net” in place. This usually involves making sure that there are others around who are willing and able to stay with that person and make sure they are alright. Several ambulance staff (n=5/20, 25%) said they would reassure the casualty that they could call them out again if the situation deteriorated.

4.119 The majority of police (n=19/20, 95%) and ambulance staff (n=15/20, 75%) stated that they do not provide any written information to those present at the scene of the incident. In the minority of cases where police and ambulance staff reported having provided written information, it was generic drug-related information, not specific to overdose situations, in the form of leaflets. Concerns were raised by both police and ambulance crews (n=14/40, 35%) regarding the receptiveness of drug users to such information; however, they still felt that it was worth offering in case it could make a difference.

“Big problem with this is that in every single case they are not interested, you can imagine how receptive a heroin user is about reading a leaflet, family members will take them and pay a bit of attention. However it is better than nothing and if they do read it, it may effectively help save a life.” (Paramedic, 7 years of experience)

4.120 Respondents stated that people’s lack of receptiveness to receiving information may be influenced by a number of factors:

- The perception that they already have this information.
- They want to get away from the situation often to get more drugs.
- They have experience of previous overdoses and an awareness of the risks.

4.121 Four of the police (n=4/20, 20%) believed that it would be beneficial to provide information about the prevention of drug overdose. They qualified this by saying that they provide written information to victims of domestic abuse and, therefore, could not see why they should not do the same in these types of situations. One police officer suggested using a user-friendly format with written information on facts about drugs and phone numbers for local drug services.

4.122 A few police officers (n=3/20, 15%) mentioned that there is a lot of pressure on front line police constables who are already expected to carry a lot of information around with them and, therefore, they felt that it would be “impossible to carry information about everything”.

Finding: The scene of an overdose presents an opportunity to provide factual information about overdose prevention and management.

4.123 None of the ambulance staff and only 2 of the police officers interviewed stated that they had been given specific training on drugs and drug users. However, 50% of the police (n=10/20) and 50% of the ambulance staff interviewed (n=10/20) stated that some mention of drugs and their effects was provided in their basic training. The 2 police officers who had received training had done so because they were working in the drugs squad, and another 2 stated that they had completed drugs courses through their own initiative. Many of the police and ambulance staff (n=14/40, 35%) stated that they learned about dealing with drug users from their own experience and that of colleagues.

4.124 Although only 3 of the ambulance staff interviewed stated that they had received training in the use of naloxone, almost all (n=19/20, 95%) felt that they had adequate information about administering the drug. One of the ambulance staff stated that the guidelines were produced and updated by the Royal College of Surgeons and were available to all ambulance staff but it was up to the individual to access these.

4.125 All of the ambulance staff except the Community First Responder⁵ confirmed that they carry naloxone.

4.126 Twelve of the police officers interviewed (n=12/20, 60%) stated that they had learned about naloxone from seeing it being used and speaking to ambulance crews; however, many felt that they would benefit from having more formal information about its use and effects. Although 3 police officers stated that this was the job of ambulance staff, one police officer expressed the view that there was scope for police officers to administer naloxone to casualties in police custody prior to the arrival of the ambulance crew.

4.127 In 2005 there was an amendment to the [Medicines Act](#) allowing the administration of naloxone by anyone to an overdose casualty for the purpose of saving a life. Thirteen ambulance staff (n=13/20, 65%) stated that they were aware of the recent changes in the law regarding naloxone and were able to explain what these changes involved.

4.128 Sixty-five percent of ambulance staff (n=13/20) and 35% of police interviewed (n=7/20) agreed that naloxone should be made available to drug users to have in case of overdose. A number of these (n=9/20, 45%) felt that it should be made available to family members or be available in safe environments. There were parallels made between this and the use of other life-saving equipment, such as defibrillators and EpiPens. Respondents suggested a number of reasons why providing naloxone to drug users was a good idea: it is reasonably safe to administer; drug users could administer it themselves; and, from the perspective of the drug user, it negates the need to call the emergency services.

4.129 However, several of those interviewed (police n=6/20, 30% and ambulance staff n=3/20, 15%) disagreed that this was good idea for a number of reasons:

- It is difficult to identify the risk group to target the intervention at.

⁵ According to the Scottish Ambulance Service's definition, a Community First Responder is a local volunteer who has undertaken training to be able to provide life-saving treatment in the first few minutes, prior to the arrival of an ambulance, to people within the community who are critically injured or ill.

- It is their choice to take drugs.
- It is unnecessary because the ambulance always arrives on time.
- It is a waste of money.
- It may be used inappropriately by users and family members.
- It does not address the other dangers involved in overdoses, such as polydrug use.
- Users do not like taking it leading to a violent response.

“Drug addicts hate being resuscitated from opiate overdoses, they never, almost never, acknowledge that they were in danger of dying, they’re completely unaware of it and it destroys their hit so they can be quite nippy about you doing it, so whoever was giving it would be exposed to that potential danger”(Paramedic, 25 years of experience)

4.130 Other concerns raised by both police and ambulance staff included the need for adequate training; the possibility of naloxone being abused or sold; the view that users would use more drugs as they would regard naloxone as a fall-back, described by one respondent as *“pushing the boundaries”*; and that it could be perceived as condoning problem drug use. Finally, it was mooted that providing naloxone may be seen as an alternative to engaging with treatments, *“you’re driving the problem away from a service that can help them”*.

Finding: According to those interviewed, specific training on the management of overdose situations and the use of naloxone is not routinely provided to police and ambulance personnel. Police and ambulance crews stated that their views and beliefs regarding drugs and drug users are influenced by their own experiences and that of colleagues rather than through research and audit evidence.

4.131 Three quarters of the sample (n=30/40, 75%: police n=18/20, 90% and ambulance n=12/20, 60%) felt that the police should always attend an overdose incident where an ambulance is called. The primary reason for this was the need to ensure the safety of ambulance staff, the general public and any other people present at the scene, including children. Of these, 54% (n=16/30) felt that the police should always attend overdose incidents as they are potential crime scenes, and police attendance could help identify “bad batches” early in order to alert drug services and other users. It was also mentioned that police should attend because they have a duty of care towards drug users.

4.132 Of those who thought it unnecessary for the police to attend every overdose situation where an ambulance is called (n=10), 3 thought the perception of an overdose as a violent situation was not what ambulance crews were experiencing and, in some cases, police attendance was thought to be “counterproductive” as it increases tension and often reduces the likelihood that witnesses will communicate with ambulance crews (n=7/10).

4.133 Only one police officer had had input to training for drug users and their families.

Views on ways to reduce overdose

4.134 One quarter of the ambulance and police respondents (n=10/40, 25%) felt that there was little that could be done to change the current situation as drug use is so embedded into people’s culture and society. It was also felt that drug users have the information and are aware of the risks but continue to use drugs and inevitably overdose as a result of this.

4.135 Increased knowledge and awareness of drugs and their effects, and training on managing overdose situations were thought to be among the best ways of countering this problem. It was reported by police and ambulance respondents (n=14/40, 35%) that these should be provided through media campaigns, school talks by ex-users, and direct targeting of information to drug users and their families.

4.136 Several of those interviewed (n=8/40, 20%) believed that the solutions did not lie in criminalising drug use and drug users, and they spoke of their experience of drug users who had been dealt with through the courts and prisons without any change in their risk behaviours. They also felt that the illicit nature of drug use meant that there was no way of ensuring the purity of the drug, increasing the risk of overdose. It was suggested by 6 respondents (15%) that decriminalising heroin and making it available on prescription would reduce many of these risks. Further, the use of safer injecting rooms (SIRs) was put forward by 2 respondents as a way of safely monitoring people's drug use.

4.137 Six respondents (15%) questioned the reliance on current treatment options, such as methadone prescribing, stating that in their experience this often added to the problem rather than solving it and re-emphasised their support for the wider use of naloxone.

Telephone Responders

4.138 The following section presents findings from questionnaires completed by NHS 24 staff (n=41) and emergency service control room staff – hereafter known as 999 operators (n=26). The response rates to the postal questionnaires were 41/1000 (4%) and 26/200 (13%) respectively. These are relatively low response rates for postal questionnaires and therefore cannot be viewed as representative of the views of the staff groups involved. They can however provide informative insights into the levels of activity, awareness and education relating to the management of overdose of people working in these critical services.

Number of calls

4.139 While 54% (n=22/41) of NHS 24 staff reported receiving between 0 and 10 calls in an average month relating to drug overdose, 50% (n=13/26) of 999 operators reported receiving between 0 and 40 calls, with 46% (n=12/26) stating that they received more than 40 calls in a month. On average NHS 24 staff receive a mean number of 8 calls regarding overdoses per month while 999 operators receive a mean of 45.

Care Pathway for the management of opiate overdose

4.140 The majority of NHS 24 staff (n=30/41, 73%) and 999 operators (n=18/26, 69%) stated that their organisation does have a procedure or Care Pathway in place for the management of opiate overdose. Of those who stated that their organisation did not have such a care pathway in place (n=17/67, 25%), less than a third (n=5/17, 27%) believed that this was something that should be considered in the future.

Training on managing an overdose situation

4.141 Fifty one percent of NHS 24 staff (n=21/41) and 38% of 999 operators (n=10/26) stated that they had been given specific training on managing an overdose situation. Of these (both NHS 24 and 999 staff), 39% (n=12/31) mentioned that this had been during initial/induction training and one 999 respondent stated that it had been covered during Advanced Medical Priority Dispatch System (AMPDS) training.

4.142 Two of the 999 operators (8%) mentioned that they receive ongoing refresher training, which deals with managing overdose situations. One 999 operator stated that they had received standard training on post-dispatch and pre-arrival instructions for airway management and CPR instructions but nothing specifically focussed on overdoses.

Finding: There appears to be little emphasis given to the management of overdose situations in either induction training or in continuing professional development programmes for telephone response staff.

Naloxone

4.143 Most telephone response staff (n=51/67, 76%) felt they did not have adequate information about the use of naloxone and almost all (n=60/67, 90%) were unaware of the changes in the law regarding naloxone.

Finding: Most telephone response staff stated that they required further information regarding the management of overdose including guidance on the use of naloxone.

Information or advice relayed to the caller

4.144 Twenty-four percent of NHS 24 staff (n=10/41) stated that they would refer the caller to the A&E department, and 17% (n=7/41) stated that they would contact 999 emergency services. NHS 24 respondents also mentioned that they would talk the caller through basic CPR and provide information on airway maintenance. In addition, 19% of respondents (n=13/67) reported that they would follow the advice provided on TOXBASE, the National Poisons Information Service's online database used by telephone responders, or other service protocols, such as AMPDS and Pro QA.

Issues and challenges for the caller

4.145 Twenty-eight percent of telephone response staff (n=19/67) stated that one of the main challenges for the caller in dealing with an overdose situation is the need to provide accurate information, for example about the drugs that the person has taken. The respondents felt that the difficulties callers experience in providing this information arise from the fact that they may be under the influence of drugs and/or alcohol; they may be distressed, confused, anxious or in a state of panic; they may be abusive or aggressive; they may have complex mental health problems; or they may be unwilling to provide information or refuse to attend A&E as they do not want to speak to an "authoritative figure" about illicit drug use. One NHS 24 respondent, who stated that they would refer the caller to the A&E department,

believed that a potential barrier to attending A&E may be if the caller lives alone or has no form of transport.

4.146 A few respondents (n=3/67, 4%) felt that another important issue was the need for callers to follow the ABC protocol (Airway, Breathing, Circulation) to establish whether or not the casualty is breathing and get help quickly.

Resources

4.147 The majority of NHS 24 and 999 operators (n=42/67, 63%) felt that they did not have all the resources (i.e. knowledge, experience and time) required to deal with drug overdoses.

4.148 Twenty five percent (n=17/67) felt that this situation could be improved if they were given more training on drugs and overdose. One respondent believed that telephone responders would benefit from training on how to “stay calm” and how to ask the right questions to establish whether or not a casualty is in immediate danger. Another felt there was a need for training on how to deal with people with mental health problems. Ten percent of NHS 24 and 999 staff (n=7/67) highlighted the importance of receiving regular updates from specialists to ensure telephone responders have all the latest information and knowledge about drugs, their effects and how to treat drug users.

4.149 A few respondents (n=3/67, 4%) mentioned the need for clearer information on TOXBASE, as well as clearer guidelines on the provision of immediate care advice. In addition, one respondent believed that more resources should be made available to telephone response staff, and another two felt that it would be beneficial to have more time allocated for studying and continuing professional development.

Accident and Emergency Consultants

4.150 Five Consultants working in A&E Departments or related areas were interviewed, 2 were Consultants in A&E Medicine, one an Emergency Medicine Consultant, one a Consultant in Liaison Psychiatry and one a Consultant in Psychological Medicine. Three were from the Royal Infirmary of Edinburgh (RIE), one from the Western Infirmary in Glasgow and one from Monklands General Hospital in Lanarkshire. Despite being granted approval by Research and Development Committees to conduct research in each of the four health board areas, no A&E Consultant in Fife was willing to participate in the study.

Nature and extent of the problem

4.151 According to one of the Consultants interviewed, RIE treated 2677 overdose incidents in 2007, averaging 223 per month. Of these roughly a quarter are thought to be patients with drug dependency. In Monklands Hospital, they see about 10 overdoses per day including alcohol and other drugs, this can vary between 3 and 30.

4.152 It was stated by one of the consultants at the RIE that Edinburgh has historically higher rates of self harm and overdose than any other area of the country. The same consultant stated that RIE and Aberdeen Royal Infirmary, with about 2000 overdose incidents

per year, handle more overdoses than any other hospital in the U.K. These figures relate to all overdoses, including those relating to paracetamol and prescribed medications, as well as drug-dependent patients.

Finding: Managing opiate overdose is a regular occurrence in many A&E Departments in Scotland.

4.153 All those interviewed stated that they see people returning several times to A&E as a result of overdose. In Glasgow this is not thought to be very common and onward referral is not usually made to drug services. However, in Edinburgh clinicians stated that repeat presenters are over-represented in the statistics in that they account for a disproportionate number of attendances. They are always offered referral to drug services unless they are already engaged with services, as many are. There are often co-occurring medical problems with the repeat presenters. In Monklands, the consultant felt that many people who repeatedly overdose experience problems, such as mental illness, obesity or respiratory arrest. Many appear to have poor social networks.

Finding: People who repeatedly present with opiate overdose often have other health and social care needs. Onward referrals to community drug services are not always made.

4.154 Three of those interviewed stated that, in their view, alcohol is the most common drug seen in overdose, “by a long way”. In Glasgow heroin is thought to be the most common followed by methadone and then alcohol. Benzodiazepines are frequently implicated in overdose; these were thought to be the second most commonly found in both Edinburgh and Lanarkshire.

4.155 Few cocaine related overdoses are seen by any of the consultants interviewed. In their experience, where stimulants do occur the consultants interviewed thought that these are usually younger patients presenting with chest pain.

4.156 The consultants were of the view that more than half of all overdose patients arrive at hospital unaccompanied. In Edinburgh it was felt that when they were accompanied it was usually by the people that they were using with or, occasionally, by family members. In Lanarkshire the situation was described as variable, often when people are accompanied it would be by the police or, on a few occasions, their friends.

4.157 At RIE clinicians have studied monthly figures for overdoses and there appears to be no obvious pattern. In common with the other areas, overdoses appear to occur in a random manner with a number of small variations to this:

- Sometimes more overdoses occur on the day that people get their benefits, “Thursday is Giro day”.
- There is an increase in presentations involving primarily recreational drugs (stimulants and hallucinogenics) and alcohol at the weekends.
- There is a perception that there are fewer overdoses in the summer months in Glasgow.
- Admissions as a result of self-harm tend to increase at Christmas and New Year.
- More people present with overdose in the evenings or at night than during the day.

Use of protocols for managing overdose

4.158 None of the clinicians were aware of the development or use of an identified protocol or Integrated Care Pathway for managing drug-dependent patients presenting with opiate overdose. In Edinburgh there is a protocol for managing withdrawal with naloxone and information from TOXBASE, is used to assist in the management of overdoses. At the Western Infirmary in Glasgow there is some scoping work being carried out by one of the medical staff to identify the use of such protocols in other A&E Departments around the U.K. In Monklands Hospital it was felt that the nursing and medical staff are well used to dealing with these situations but that developing a protocol would provide a more consistent approach.

<p>Finding: Identified protocols or Integrated Care Pathways for the management of opiate overdose are not routinely used in A&E departments.</p>
--

Drug liaison nurses

4.159 In Monklands Hospital there are two full-time substance liaison nurses based in the A&E Department. In Glasgow there are plans to fund a drug liaison nurse post in the near future. In RIE clinicians recognise the crucial role that such posts would play and have previously produced funding bids for these which have thus far been unsuccessful. Although there are two alcohol liaison nurses, they do not currently have any drug liaison nurses. Instead, overdose patients are transferred from A&E to the toxicology ward when they are medically stable. The Consultant Toxicologist will then liaise with mental health liaison nurses regarding onward referral as appropriate.

Admission to hospital

4.160 In Glasgow, overdose patients are admitted overnight if they are thought to be at risk of further medical problems, such as head injuries, or if they are drunk. It is estimated that about 90% of drug overdose patients are admitted. In Lanarkshire the decision about whether to admit the patient to a ward is taken by the physician. Prior to this, the patient will have been administered naloxone intravenously, followed by intramuscular doses as required. There is then a dialogue between the professionals involved in the care of the overdose patient on the best way forward. They always try to ensure that the patient can sleep off the effects before being discharged.

4.161 In RIE there is a policy of 100% admission in cases of overdose. All overdose patients will be admitted to the ward overnight for further observation unless they decide not to stay. It is estimated that about 15% of those who present at A&E with a drug overdose will not be admitted to the ward for a variety of different reasons, the most common being self-discharge. This policy is currently under review. The Combined Assessment Bay at RIE is staffed by nurses who are “dual trained” that is registered general nurses (RGN) as well as registered mental nurses (RMN). Following assessment, 5% of patients will be transferred to psychiatric wards.

Information and onward referral

4.162 Prior to discharge, overdose patients are not routinely given information about overdose prevention. This largely depends on where they are in the hospital at that point, and who they are being seen by, *“It depends on the individual doctor”*. When information is given, it is predominately verbal although leaflets are given out occasionally if patients are seen by specialist staff (drug liaison nurses, psychiatric liaison nurses).

4.163 The consultants stated that overdose patients are not systematically offered referral to a drug service. One consultant responded, *“Not always [referred] but they should be.”* Another commented,

“Not always [offered referral] there is room from improvement here, particularly with the recreational users. They are usually embarrassed and are keen to get out as soon as they can.”

4.164 However in Monklands Hospital the substance liaison nurses, based in the A&E Department, would facilitate onward referral for someone presenting with overdose and also provide advice and information to family members or others accompanying the patient. In RIE, the psychiatric liaison nurses offer onward referral but they would not always see every overdose patient in A&E as they are based in the Combined Assessment Unit next door.

4.165 If someone is already in contact with a drug service, all consultants stated that details of the overdose treatment would be passed on to the relevant agency or, at the very least, a letter would be sent to the GP. Some interviewees indicated an urgency in passing on this information, and recognised that there is sometimes a delay in getting these letters typed and therefore they would phone services as well, *“Always, absolutely, by phone and in writing”*.

<p>Finding: The opportunity presented by attendance at A&E or hospital admission to engage people in drug treatment is not often acted on by health professionals.</p>

4.166 Consultants felt that staff dealing with overdoses have the resources required to deal with the medical emergency; however, they pointed out that people are often motivated to make some changes to their drug using behaviour at that time and staff do not have the time or the experience to deal with these issues, *“What we really lack is a drug liaison nurse”*. Drug liaison nurse posts are not widespread in Scotland. When employed in general hospital, they can provide a vital service in engaging patients in a process of behaviour change and helping them to access appropriate health and social care services in the community.

4.167 There is also a need for specialist training for new staff. It was stated that overdoses are often dealt with by “middle grade medics”, many of whom have had little experience in managing such situations; however, it was felt that the nurses in the department are well experienced and support medical staff.

4.168 One consultant suggested that sometimes people will lie about their drug use and run away from treatment because of fear of repercussions. He/she stated that doctors and nurses need to be able to talk with patients about their drug use and the problems that it causes them, and if appropriate, refer to the psychiatric liaison team.

4.169 Doctors dealing with an opiate overdose rarely have all the information that they would want. If overdose patients are unaccompanied often little is known about what they took, how much and how long ago. Even when someone is with them, information is not easy to obtain. One consultant pointed out the dangers that this presents.

“We can be reasonably confident the person has had an opiate overdose but not knowing what else they have taken means that sometimes we are flying blind a bit administering Narcan.”

4.170 All of the consultants were of the view that A&E departments were the most appropriate setting for dealing with opiate overdose and saw no situations where that should not be the case. They described the function of A&E as “*being there to keep people alive*”, to deal with “*all-comers*” quickly and safely, and described the role of A&E as being unique in this respect.

4.171 There were some suggestions about how best treatment should be delivered in the aftermath of the medical emergency. One consultant stated that adolescents do not benefit from being treated like adults and should be referred to the child liaison service once their physical state has stabilised. They described difficulties in being able to secure a bed in the wards for the overdose patient, attributing this to the negative attitudes of some nursing staff in charge of these wards and suggested that protocols for opiate overdose casualties across the hospital would help.

How to provide overdose prevention information

4.172 Although A&E departments were seen as appropriate settings for managing the medical emergency, it was noted that overdose patients are only in the department for a few hours and this time was not necessarily conducive to providing information. It was however recognised as an opportunity to start to explore people’s receptiveness to engage in a dialogue about their overdose experience.

“It is one area where we probably could do better. If someone is coming in either after a recreational or a methadone overdose, I’m not sure that we use to the full the opportunity that it gives us to say, look we’re not giving you a hard time about this but this is the kind of thing that you might want to know to stop this happening again.”

4.173 There were contrary views on the effectiveness of providing information leaflets to overdose patients. While one consultant believed that they should “flood” the department with leaflets another observed that, “They all smoke and it says on the packet smoking kills so putting a leaflet about drugs in their pocket won’t help.” Other suggestions included asking them about what they know and dispelling the myths, training in the use of naloxone and providing safer injecting rooms in the hospital.

4.174 In Glasgow an overdose awareness campaign is run every Christmas and a variety of methods are used to provide patients admitted for drug overdose with information. In previous years this has been done through issuing key rings with contact details of services, a “little red card” with overdose information and service contact details and more recently, facemasks for administering mouth-to-mouth.

Finding: Providing information about overdose prevention and overdose management to drug users is not widespread although there are examples of innovative practice in Glasgow and Lanarkshire.

4.175 Families and friends of drug users were thought to be more receptive to information leaflets. It was also suggested by one of the consultants that families need access to a “well constructed website containing information on drugs and drug overdose”.

4.176 The key messages to convey to family members were summed up by one of the consultants:

- People can overdose by smoking heroin and using alcohol.
- If you think they have overdosed call an ambulance.
- Put them in the recovery position.

4.177 The substance misuse nurses based in Monklands Hospital will give out mobile phone numbers to families and friends in the A&E waiting area and invite them to call in a few days if they want further information about drugs and overdose.

Finding: Families of drug users are often receptive to receiving information about overdose and overdose management but this is not routinely offered or displayed in waiting areas.

4.178 None of the consultants knew whether ambulance staff provided information on local drug services. It was suggested that this would be a positive measure and that it is important to make best use of opportunistic situations such as this to try to engage people in treatment services.

4.179 The consultants identified a number of possible reasons why people might delay before calling an ambulance:

- The witness may also be using drugs at the time and are therefore unaware of the situation.
- They fear police intervention.
- They fear “getting their heads kicked in” by the person who has overdosed.
- They are used to seeing people gouching and do not recognise it as an overdose.
- They think they can handle the situation themselves.
- No-one has ever told them they should phone an ambulance.
- They think the person will come out of it himself/herself (described as “wishful thinking”).
- Mortification or embarrassment at the ambulance and/or police turning up at their door.
- Lack of awareness about what an overdose is.

“It’s only when they’re sure they need help that they are willing to take the risk of police attendance.”

4.180 In addition, it was suggested that reasons for a person not calling an ambulance at all might include:

- Thinking that the person is already dead.
- Not caring about the person.

- Fear of getting into trouble for having delayed the phone call.

4.181 The consultants were keen to encourage people to call for help sooner and suggested that there needs to be a fundamental change in people's perception of the consequences of phoning emergency services. It was asserted that this needs to be a positive experience in order to support that person in their efforts to maintain life on this occasion and in similar situations in the future. Two consultants mentioned the need for non-judgemental attitudes at every step of the process from the person that answers the phone call through to doctors and nurses working on the hospital wards.

4.182 In addition, the consultants re-iterated that one of the main problems they face in managing overdoses is the use of "grossly excessive amounts of alcohol as a matter of routine" in addition to opiates and other drugs. This was felt to be a common issue and one that required to be addressed through targeted post-overdose awareness raising. As overdose patients are either transferred to a ward or discharged from hospital, the consultants felt that following up these patients was a role for a drug liaison nurse.

4.183 Even in cases where people are presenting with opiate-only overdoses, the variations in the strength and purity of street heroin significantly increases the risk of accidental overdose. One possible solution mooted by one of the consultants was for doctors to be able to prescribe pharmaceutical heroin to repeat overdosers as a harm reduction strategy. It was also suggested that having "shooting galleries" or safer injecting rooms would reduce the risk of overdose occurring and provide effective overdose management when it does.

4.184 Consultants also noted that many overdose patients had concurrent psychiatric problems and that better liaison and joint working was required between A&E departments, community drug services and mental health teams to better support these patients.

<p>Finding: Better liaison and joint working is required between A&E departments, community drug services and mental health teams to better support patients with mental health and substance misuse problems</p>
--

CHAPTER FIVE CONCLUSIONS

Estimating the size of the problem

5.1 The rate of drug deaths in Scotland is higher than other parts of the UK and Europe (EMCDDA, 2006). Most of these deaths (66%) occurred in people who were drug dependent (GROS, 2008), in their late twenties or thirties with a history of drug use and overdose (Zador et al, 2005).

5.2 Evidence gathered during the course of this study suggests that non-fatal overdoses amongst drug users in Scotland may be more common than currently thought and that these often occur in the presence of others.

5.3 Lenton and Hargreaves (2000) stated that approximately 60% of deaths happen in the company of others and instant death only occurs in approximately 15% of cases and, therefore, in theory, there is an opportunity for potentially life-saving intervention. However, in practice, the authors found that that overdose witnesses only call an ambulance in about 10% of cases and, as a result, there is no opportunity for health professionals to intervene before death in the vast majority of cases.

5.4 Reports from drug users, their families and A&E Consultants tell us that these incidents are not uniformly spread throughout this population. Most people who overdose have done so several times (mean 3.26, range 1-20). Case records of people who died of a drug-related death in 2003 (Zador et al, 2005) provide histories of multiple overdoses and hospital attendance prior to death which support these findings.

5.5 Drug overdose is a major cause of death and morbidity amongst young adults in Scotland. Every day people are presenting at health and social care services across the country having experienced overdose and rarely are these opportunities to intervene acted upon effectively. This section provides a model for preventing and managing overdose and sets out a range of recommendations to reduce harm and prevent death resulting from overdose based on the evidence and findings from the report.

Cycle of overdose management

5.6 In order to reduce the risk of overdose, and minimise the harm caused by such incidents, overdose management should be regarded as a cyclical process and one that offers a number of opportunities for individuals and agencies to intervene effectively at different points.

5.7 Figure 5.1 sets out the cycle of overdose management that has been constructed from the evidence provided by people who have experienced overdose, overdose witnesses, police, ambulance staff and A&E Consultants. It sets out the process and action points which represent both the optimal overdose survival pathway and a learning cycle to prevent future overdose.

Figure 5.1: The cycle of overdose management



Recognise overdose

5.8 People who had witnessed overdose were asked to describe the signs of overdose that would most concern them. There was a high degree of consistency and accuracy in the answers provided, suggesting that those who have witnessed an overdose can recognise the signs and symptoms. What is not clear is if they were able to do this before their experience of witnessing an overdose incident or not. The significance of this information relates to whether their learning has been a direct result of having that experience or whether they have been taught or informed by another person. What is clear is that they are now able to recognise when someone is overdosing and are in a unique position to begin to manage that situation in the future and potentially save the life of that person.

Manage situation

5.9 The vast majority of drug users and family members stated that they would intervene to try to revive the person who had overdosed. This evidence is contrary to popular belief that people would flee the scene without offering assistance. In most cases, the intervention would focus on ensuring that the person is breathing, carrying out cardio-pulmonary resuscitation (CPR) and putting the person in the recovery position. A number of people had learned these basic life saving skills through first aid training provided by a range of sources rather than specific overdose training from drug services.

Confidence to intervene

5.10 Gaining and retaining information about the steps involved in recognising and managing an overdose situation is, by itself, not going to save lives. The people present at the scene of an overdose must have confidence in their own abilities to intervene and a willingness to take on that responsibility. In some situations where there is more than one

person present at the scene, there may be disagreements about whether to intervene at all and, if so, about the best way to do so.

5.11 They must also be assured that their well-intentioned actions will not adversely affect them by leaving them open to criticism from others and feelings of guilt and remorse if the person does not survive. Services should do more to ensure the psychological wellbeing of those who witness fatal overdoses.

Phoning for assistance

5.12 The majority of drug users and family members said they would phone for emergency services; however, some drug users said that they would either not phone at all or would try everything else first to revive the person. The perception that the police will attend the overdose scene and either arrest and charge witnesses is a real concern for people; particularly if children are present in the house where the overdose has occurred. The difficulty that this perception presents is that it may delay or, at worst, prevent people from calling for help.

5.13 It would be impractical to suggest that the police never attend the scene of an overdose because clearly the police are duty bound to do everything they can to preserve life and ensure the safety of all involved. Discussions with police officers and ambulance crews highlighted these objectives as being the primary reason for attendance at overdose scenes. In rural and remote areas, police officers are often the first emergency service on the scene and are uniquely placed to offer assistance to the person who has overdosed and to those with them.

5.14 There is a need to address current practice regarding police attendance at ambulance call-outs for overdose and question whether or not it is the most effective way of dealing with overdose situations. In addition, an awareness-raising campaign is required to change drug users' perceptions of such police protocols.

5.15 It is the responsibility of all concerned to challenge these negative perceptions in order to minimise any delays in calling for help.

Innovative Practice: A protocol regarding police attendance at overdose incidents was introduced in Nottinghamshire in 2000. An agreement was reached between Nottinghamshire Police, the East Midlands Ambulance Service and the local DAATs to ensure that police officers do not routinely attend ambulance call-outs to drug overdoses unless a death has already occurred; there are child protection concerns; and/or the address is identified as one where there could be a threat of violence. Similar protocols have also been established in other parts of England, such as Oxfordshire, Kirklees, Leicestershire and Avon & Somerset.

5.16 Witnesses who have personal experience of overdose may feel more confident in competently dealing with an overdose, whilst perceptions of the effectiveness of emergency medical services may diminish an individual's likelihood of calling an ambulance (Tobin, 2005). It is possible that fears about medical care and police involvement at overdose events, which are common barriers to seeking help, are in fact less acute among those who have already experienced an overdose and subsequent hospitalisation (Tracy et al, 2005).

5.17 Lenton and Hargreaves (2000) identified the probability that users and their peers are less likely to call an ambulance if they are provided with naloxone and, therefore, fewer casualties of non-fatal overdose would be medically reviewed and any associated morbidity would remain undetected and untreated. The take-home message from this work and similar studies is that follow-up medical care should always be sought for any overdose.

5.18 Another finding from the literature review was that the presence of other bystanders was likely to decrease the probability of calling an ambulance. To reduce the potential for “diffusion of responsibility”, drug users should be trained to direct someone present to be responsible for calling an ambulance while others attempt resuscitation (Tobin et al, 2005). The findings from this study suggest diffusion of responsibility also arises when witnesses have little confidence in their ability to manage an overdose or are anxious about the perceived consequences arising from contact with emergency services.

5.19 The role of 999 operators has been identified as an important component in the management of an overdose situation. They provide an element of reassurance and practical support for witnesses who are quite often in a state of panic.

5.20 Although many drug users and their families are aware of how to respond in an overdose situation, there appears to be inconsistencies in the advice provided by telephone response staff. Telephone responders should provide information on interventions (e.g. recovery position) consistent with current opiate overdose information.

5.21 Most telephone response staff stated that they required further information regarding the management of overdose including guidance on the use of naloxone.

Prepare for help to arrive

5.22 There is much that can be done while waiting for the emergency services to arrive. As well as ensuring that the person is still breathing and putting them in the recovery position, witnesses can monitor any changes in the person’s state of consciousness, temperature, colour and breathing.

5.23 In addition, they can ensure that ambulance crews have access to the unconscious person, clearing floor space around them, moving items of furniture that may get in the way, as well as ensuring that there are no uncapped needles lying around.

5.24 Often, if overdose happens in communal building such as a hostel, the scene can become very busy with people who are helping, as well as curious bystanders. Making attempts to limit the number of non-essential people at the scene would help ambulance crews to get to where they need to be and speak to the right people.

5.25 Some witnesses talked of staying with the person until the arrival of the ambulance and then fleeing the scene due to fear of prosecution. Those who witness overdose have information that may prove vital to the emergency services in establishing the nature and seriousness of the overdose, what measures have been taken and how the person has responded to these.

5.26 Where witnesses do intervene this is regarded by police and ambulance crews to be largely helpful and well intentioned.

5.27 Best (2002) found that remaining with an overdose casualty may be beneficial to prevent choking or to provide a level of sensory stimulation that may prevent the victim falling too far into an overdose state. Thus the continued presence of witnesses attempting a range of resuscitation methods may play a critical role in the prevention of many fatalities even if some of the techniques employed are individually ineffective.

5.28 The assessment of risk by ambulance staff may result in a delay in responding to and managing overdose situations.

5.29 Police officers attending an overdose scene have a vital role to play in gathering information about the overdose that may be useful to ambulance crews, and in ensuring the safety of all those present at the scene.

5.30 The scene of an overdose presents the first, and sometimes only, opportunity to provide factual information about overdose prevention and management. Findings from professional staff and witnesses in this study suggest information is not routinely provided.

5.31 Specific training on the management of overdose situations and the use of naloxone is not routinely provided to police and ambulance personnel. Police and ambulance crews stated that their views and beliefs regarding drugs and drug users are influenced by their own experiences and that of colleagues rather than through research and audit evidence. These findings appear contrary to those of Lenton and Hargreaves (2000) who found that no significant problems have arisen following hundreds of administrations of naloxone in both the UK and Australia.

Innovative Practice: In 2003 Brighton & Hove DAAT distributed 3,000 copies of a leaflet on overdose and emergency calls. The leaflet provided information for drug users on what would happen if they called the emergency services; why the police might attend; the treatment provided by the ambulance crew; the use of crack and other stimulant drugs; and the recovery position. It also provided useful telephone numbers for services and overdose aid training. The leaflet has since been updated and redistributed.

Innovative Practice: The Lifeguard: Act Fast Save a Life campaign in Cheshire and Merseyside was aimed at three target groups: opiate users, the general public (including family and friends of opiate users), and practitioners, urging them to “Act Fast, Save a Life” by calling an ambulance at the first sign of overdose. It also endeavoured to publicise the policy of the police not automatically attending drug overdose incidents when emergency medical help is requested unless exceptional or specific circumstances are identified, such as a threat of violence or evidence of harm being caused to children.

Get person to hospital

Persuade patient to go to hospital

5.32 When the person who has overdosed recovers consciousness at the scene they are often reluctant to be taken to hospital. Police and ambulance crews play a vital role in

encouraging that person to seek further medical attention; however, this is often refused because of negative attitudes towards police and/or health professionals.

5.33 Seal et al (2003) found that almost half of injecting drug users stated that they might not be able to persuade the casualty from using more heroin following naloxone administration and a small number of drug users in this study noted heroin use either by themselves or by an overdose casualty following hospital discharge or naloxone revival by ambulance personnel.

Manage medical emergency

5.34 Managing opiate overdose is a regular, if not daily, occurrence in many A&E Departments in Scotland.

Protocol for management

5.35 Evidence from A&E Consultants suggests that identified protocols or Integrated Care Pathways for the management of opiate overdose are not routinely used in A&E departments. The development of these would assist clinicians to provide consistent, evidence based care and facilitate the monitoring and audit of activity.

Drug liaison nurse

5.36 Liaison between emergency departments, clinical toxicology services and community drug based addiction services may therefore help increase the number of drug users engaging with community treatment services (Thanacoody et al, 2007). The need for the development of drug liaison nurse posts is recognised by clinicians and the current use of such posts demonstrates the additional benefits that they would bring to people who overdose, their families, and hospital and community services.

Assessment of needs

5.37 People who repeatedly present with opiate overdose often have other health and social care needs.

5.38 The progressive disease burden of heroin users, which makes them more susceptible to overdose as they get older, suggests a need for regular medical examinations and liver function tests in order to identify and offer appropriate support to those most at risk (Darke et al, 2006; Warner-Smith et al, 2002; Warner-Smith et al, 2001). Regular health screening of problem drug users who have been in treatment over a long period of time would also be beneficial.

5.39 Drug users who also use alcohol on a regular basis should be targeted as a high risk group. This would require improved screening, identification and treatment options.

5.40 There is a clear need for caution and effective communication between GPs, community health teams and other clinicians regarding prescribing practices.

5.41 Due to the risks associated with varying tolerance levels among users entering or returning to treatment, there is a need for accurate assessments, tolerance reviews and continuous tolerance testing, in particular during the first few days of treatment.

Opportunistic intervention

5.42 There is a missed opportunity regarding information provision for overdose casualties and witnesses. The majority of casualties, who were attended by emergency services including the police, were not offered information on safer drug use or local drug services. Hospital staff rarely offered information or referral to other services, even for those who were attending hospitals on multiple occasions, and again this may be a missed opportunity to help people engage or re-engage with local services as well as learn how to avoid future overdose incidents.

5.43 Increased awareness of and screening for overdose-related morbidity symptoms at A&E departments would allow staff to offer problem drug users support and/or information about overdose risks and prevention strategies. Full advantage should be taken of contact with drug users after an overdose incident to provide information about overdose prevention strategies and referrals to appropriate treatment programmes. In addition, there is a clear opportunity to offer information and support, aimed at reducing overdose risk, to patients being treated for problems associated with injecting practices.

5.44 Families of drug users are receptive to receiving information about overdose and overdose management but this is not routinely offered or publicised appropriately.

<p>Innovative Practice: In Monklands Hospital in Lanarkshire the substance misuse nurses, based in the A&E Department, would facilitate onward referral for someone presenting with overdose and also provide advice and information to family members or others accompanying the patient.</p>

Staff attitudes

5.45 Contact with emergency services including hospital attendance was relatively widespread among the participants. The ambulance and 999 operators were more positively regarded than either the police or hospital staff. In particular, drug users and family members considered police and hospital staff attitudes to be negative toward drug users. The perception of most of those who described negative attitudes was that professionals tended to stigmatise and judge drug users unsympathetically.

Harm reduction strategies

Refer to drug service

5.46 Onward referrals to community drug services are shown to reduce the risk of overdose and death. The evidence set out in this report suggests that these referrals are not always made.

5.47 Darke (2005) found that the number of users who overdosed declined by half following enrolment in treatment. This study found that this risk was further reduced the longer patients remained in treatment; however, in contrast, it identified that a greater number of separate treatment episodes lead to an increase in overdose risk. This highlights the fact that treatment stability is extremely important with longer retention in services and less treatment episodes giving the best chance of success

5.48 Drug users should be engaged in treatment for as long as possible by providing appropriate support according to individual needs and circumstances and not simply discharging patients when they fail to comply with treatment regulations. When this is not possible, every effort should be made to follow-up and assess disengaged drug users and offer them the chance to re-enter or enrol in more suitable types of treatment.

5.49 Fugelstad (2007) found that different treatment policies and inclusion rules lead to different mortality patterns and that strict inclusion rules increase the risk of discharge resulting in a high mortality rate. Furthermore, results from a study into the mortality rate after one year among opiate-dependent patients in a methadone treatment programme was that the death rate of discharged patients was eight times that of those who remained in treatment (Zanis and Woody, 1998).

5.50 Zanis and Woody (1998) identified the need for more tolerant programmes to increase the retention of minimally compliant, active drug using patients.

5.51 Bartu (2004) found that opiate users were eight times more at risk of fatal overdose six months after withdrawing from treatment. Consequently, the authors emphasise the need for clinicians to stress that clients who withdraw from treatment can return at any time in order to minimise the risk of death should they relapse.

Information

5.52 There is a need for an awareness-raising campaign targeting heroin users that does not simply focus on reducing drug use but on key risk factors, such as polydrug use, including the concomitant consumption of alcohol, and treatment exposure. It is important that any such campaigns are continually reviewed in order to ensure that their impact is not reduced over time.

5.53 As the presence of witnesses attempting a range of resuscitation techniques has been identified as playing a crucial role in preventing overdose deaths, there is a need to provide people likely to witness an overdose situation (peers, family and friends) with information and training about several different prevention strategies, focusing on the need to remain with the casualty.

5.54 The study participants offered a range of suggestions to raise awareness of opiate overdoses in order to reduce the risk of overdose. The most popular suggestion was a media campaign, followed by the distribution of information in targeted settings.

5.55 The dissemination of health messages and information about overdose prevention strategies among peer networks may be an effective way of educating drug users and reducing high-risk behaviours.

5.56 Fitzgerald (2000) states that health officials need to understand how public health messages are perceived and processed by drug users. The study findings suggest that other drug users and friends are considered the main sources for reliable information.

5.57 Communication between ambulance and other services should be explored in relation to their responses to overdose episodes.

Naloxone training and distribution

5.58 Participants were generally open to the provision of naloxone although information and training on its use would need to be addressed.

<p>Innovative Practice: Lanarkshire and Glasgow are currently providing naloxone Programmes that include comprehensive training on the management of overdose situations, comprising basic life saving skills and naloxone packs for drug users and significant others.</p>
--

5.59 The provision of overdose information was more widespread than overdose training although family members were less likely to receive overdose information. There is a clear gap in the dissemination of overdose awareness materials and training and the lack of verbal information may suggest a gap in workers' knowledge.

Reduce risks

Change practice

5.60 McGregor et al (1998) found that most users believed that the main reason for overdose was the quantity or strength of the heroin and were aware that this risk could be reduced by having a trial taste of a new batch. The findings in this study suggested some drug users will take precautions when using, e.g. after a prison sentence or overdose event, although this is not always sustained. Witnesses or those who have experienced an overdose may also seek support for their drug use and it is crucial that services can offer some form of engagement during this window of opportunity.

Provide safe environment

5.61 GPs and other members of the primary care team have a vital role to play in screening for overdose risk factors, such as mental health problems, polydrug use, etc., and providing health education aimed at overdose prevention. Greater awareness of the fact that increasing

rates of attendance may be an indicator of overdose risk and an opportunity for intervention is also required.

5.62 Many drug users continue to use unsafe practices, based on learned behaviours and poor information. There is currently little or no opportunity for reducing the risk of overdose for people that are not ready to engage in structured treatment modalities.

CHAPTER 6 RECOMMENDATIONS

6.1 This chapter sets out a range of recommendations aimed at reducing drug users' risk of overdose based on the evidence collected in this report. These recommendations are grouped under the following 5 key recommendations:

- Improving the quality of existing responses.
- Improving the assessment of needs.
- Improving and extending current care provision.
- Information and training for emergency service staff, clinical staff and service professionals.
- Information and training for drug users and significant others.

Recommendation 1: Improving the quality of existing responses

6.2 Recommendation 1 is to **improve the quality of existing responses** to overdose incidents.

- Police forces and ambulance services should regularly review their policy of police presence at overdose scenes. Such reviews should acknowledge the evidence presented in this report about the negative effect that fear of prosecution has on people's decision-making regarding calling for an ambulance.
- Scottish ministers and service commissioners should consider the need for drug liaison nurses in all Health Board areas.
- Patients admitted to hospital following an opiate overdose should be routinely provided with written information on overdose prevention and details of local drug services and harm reduction services.
- Ambulance staff should carry information about overdose management and contact details of local drug services. These should be routinely distributed to people who overdose and to witnesses at the scene.
- Drug services and primary care should be able to provide a rapid response to those seeking support following an overdose incident. This may range from support and advice to engagement with structured treatment programmes.
- The Scottish Government and NHS Boards should develop an information system that accurately collects and collates overdose related calls, ambulance attendances and A&E activity. This should be able to categorise fatal and nonfatal overdose using ICD-10 codes and be used to inform local service planning processes.
- Integrated Care Pathways for the management of opiate overdose should be developed and utilised in General Hospitals.

Recommendation 2: Improving the assessment of needs

6.3 Recommendation 2 is to **improve the assessment of needs**.

- Long-term drug users should be offered regular medical examinations and liver function tests.
- Regular screening for harmful or dependent drinkers should form part of regular reviews for drug users in treatment programmes.
- Structured suicide-risk assessments using validated instruments should be carried out as part of routine assessments of drug users in treatment in order to identify suicidal ideation and moderate to severe depression and, consequently, provide more effective treatment interventions for this high-risk group.
- GPs and other members of the primary care team should be able to facilitate the screening for overdose risk factors and provide onward referral as appropriate.

Recommendation 3: Improving and extending current care provision

6.4 Recommendation 3 is to **improve and extend current care provision** for drug users.

- If the Lanarkshire and Glasgow pilots prove successful, naloxone distribution should be more widely offered in combination with a range of other strategies to prevent fatal and non-fatal overdose, such as syringe exchanges and user education on overdose risk and prevention strategies. This would also enable services to contact and target vulnerable and hard-to-reach groups. The development of any further naloxone programmes should be carefully monitored and evaluated.
- GPs and other prescribers should be made aware of the risks of polypharmacy in drug users and patients should be screened for problem drug use and their prescription history should be examined before antidepressants are prescribed. Other therapy interventions to treat depression, such as counselling, should be carefully considered as alternatives to antidepressants.
- To ensure that drugs provided at any one time do not exceed the patient's therapeutic requirement, prescribers and pharmacists should be extremely vigilant and study a patient's prescription history, ensuring that unused medications are returned to the pharmacy for disposal.
- Health and social care services should recognise the psychological impact that can be caused by witnessing or experiencing an opiate overdose and offer support and counselling when required.
- Methadone treatment programmes should seek to reduce the number of service users they expel due to on-going illicit drug use, explore alternative ways to reduce drug use among service users, and follow-up and assess discharged service users, providing them with opportunities to re-enter treatment or enrol in other kinds of programmes.

- The care of people with co-morbidity issues should be co-ordinated to include all relevant services.
- A dialogue should be established with service providers and service users to consider the merits of introducing safer injecting rooms in Scotland.

Recommendation 4: Information and training for emergency service staff, clinical staff and service professionals

6.5 Recommendation 4 is to provide **information and training for emergency service staff, clinical staff and service professionals**.

- Drug workers should receive updated overdose information and training as part of their continuous professional development. This may allow for improvement in cascading information to client groups and those most at risk.
- Telephone response staff should be provided with information regarding the management of overdose including guidance on the use of naloxone.
- Overdose awareness training should be made available to all police, ambulance staff and clinical staff working in primary care and hospitals. This should cover the prevention and management of overdose as well as the principles of harm reduction.
- Overdose awareness training should include guidance on how to manage an overdose situation and reduce the potential for diffusion of responsibility.

Recommendation 5: Information and training for drug users and significant others

6.6 Recommendation 5 is to provide **information and training for drug users and significant others**.

- Local Police Drug Co-ordinators should play an active role in overdose awareness training for drug users and significant others, and develop links with A&E departments and local drug services.
- Consideration should be given to engaging with peer training networks to deliver some aspects of overdose prevention training.
- Action should be taken at national and local level to ensure that information about the prevention and management of drug overdose is made available to drug users and their families.
- Information should be made available to drug users and family members regarding the current policy on police attendance at overdose events and the positive benefits that this can bring. Drug services have a key role in providing clear factual information on such policy to drug users and family members, and in helping to address relevant concerns.

REFERENCES

- Anoro, M, Lundain, E and Santisteban, O (2003) 'Barcelona's Safer Injection Facility - Eva: A Harm Reduction Program Lacking Official Support', *The Journal of Drug Issues*, Vol. 33, No. 3, pp 689-712
- Association of Drug Action Teams (2005) *Drug Related Deaths Short Life Information Sharing Sub-Group: Final Report*
- Baca, CT and Grant, KJ (2005) 'Take-home naloxone to reduce heroin death', *Addiction*, Vol. 100, No. 12, pp1823-1831
- Barrow, SM, Herman, DH, Cordova, P and Struening, EL (1999) 'Mortality Among Homeless Shelter Residents in New York City', *American Journal of Public Health*, Vol. 89, No. 4, pp 529-534
- Bartu, A, Freeman, NC, Gawthorne, GS, Codde, JP and Holman, CD (2004) 'Mortality in a cohort of opiate and amphetamine users in Perth, Western Australia', *Addiction*, Vol. 99, No. 1, pp 53-60
- Beletsky, L, Ruthazer, R, Macalino, GE, Rich, JD, Tan, L and Burris, S (2007) 'Physicians' knowledge of and willingness to prescribe naloxone to reverse accidental opiate overdose: challenges and opportunities', *Journal of Urban Health*, Vol. 84, No. 1, pp 126-36
- Bell, J and Zador, D (2000) 'A risk-benefit analysis of methadone maintenance treatment drug safety', Vol. 22, pp 179-190
- Bennett, GA and Higgins, DS (1999) 'Accidental overdose among injecting drug users in Dorset, UK', *Addiction*, Vol. 94, No. 8, pp 1179-1190
- Bennett, J, Stevens, G, Walker, A, Williams, H, Winter, A and Hamilton-Deeley, V (2006) 'A coordinated response to the high drug death rate in Brighton & Hove', *Probation Journal*, Vol. 53, No. 3, pp 265-277
- Bernstein, KT, Bucciarelli, A, Markham Piper, T, Gross, C, Tardiff, K and Galea, S (2007) 'Cocaine- and opiate-related fatal overdose in New York City, 1990-2000', *BMC Public Health*, Vol. 7, No. 31, available from <http://www.biomedcentral.com/1471-2458/7/31>
- Best, D, Gossop, M, Man, LH, Stillwell, G, Coomber, R and Strang, J (2002) 'Peer overdose resuscitation: multiple intervention strategies and time to response by drug users who witness overdose', *Drug and Alcohol Review*, Vol. 21, No. 3, pp 269-274
- Bird, S and Hutchinson, S (2003) 'Male drugs-related deaths in the fortnight after release from prison: Scotland, 1996-99', *Addiction*, Vol. 98, pp 185-190
- Buster, MCA, van Brussel, GHA and van den Brink, W (2002) 'An increase in overdose mortality during the first 2 weeks after entering or re-entering methadone treatment in Amsterdam', *Addiction*, Vol. 97, No. 8, pp 993-1001

- Canning, UP, Kennell-Webb, SA, Marshall, EJ, Wessely, SC and Peters, TJ (1999) 'Substance misuse in acute general medical admissions', *QJM*, Vol. 92, No. 6, pp 319-326
- Cheeta, S, Schifano, F, Oyefeso, A, Webb, L and Ghodse, AH (2004) 'Antidepressant-related deaths and antidepressant prescriptions in England and Wales, 1998-2000', *British Journal of Psychiatry*, Vol. 184, pp 41-47
- Coffin, PO, Galea, S, Ahern, J, Leon, AC, Vlahov, D and Tardiff, K (2003) 'Opiates, cocaine and alcohol combinations in accidental drug overdose deaths in New York City', 1990-98, *Addiction*, Vol. 98, No. 6, pp 739-747
- Cook, S, Moeschler, O, Michaud, K and Yersin, B (1998) 'Acute Opiate Overdose: Characteristics of 190 Consecutive Cases', *Addiction*, Vol. 93, No. 10, pp 1559-1565
- Cullen, W, Bury, G and Langton, D (2000) 'Experience Of Heroin Overdose Among Drug Users Attending General Practice', *British Journal of General Practice*, Vol. 50, No. 456,
- Darke, S and Ross, J (2001) 'The relationship between suicide and heroin overdose among methadone maintenance patients in Sydney, Australia', *Addiction*, Vol. 96, No. 10, pp 1443-1453
- Darke, S and Ross, J (2002) 'Suicide among heroin users: rates, risk factors and methods', *Addiction*, Vol. 97, No. 11, pp 1383-1394
- Darke, S, Kaye, S and Dufloy, J (2006) 'Systemic disease among cases of fatal opioid toxicity', *Addiction*, Vol. 101, No. 9, pp 1299-1305
- Darke, S, Williamson, A, Ross, J and Teesson, M (2005) 'Non-fatal heroin overdose, treatment exposure and client characteristics: findings from the Australian treatment outcome study (ATOS)', *Drug and Alcohol Review*, Vol. 24, No. 5, pp 425-432
- Davoli, M, Bargagli, AM, Perucci, CA, Schifano, P, Belleudi, V, Hickman, M, Salamina, G, Diecidue, R, Vigna-Taglianti, F and Faggiano, F (2007) 'Risk of fatal overdose during and after specialist drug treatment: the VEdeTTE study, a national multi-site prospective cohort study', *Addiction*, Vol. 102, pp 1954-1959
- Degenhardt, L, Day, C, Dietze, P, Pointer, S, Conroy, E, Collins, L and Hall, W (2005) 'Effects of a sustained heroin shortage in three Australian States', *Addiction*, Vol. 100, pp 908-920
- Degenhardt, L, J, Conroy, E, Gilmour, S and Hall, W. D (2005) 'The effect of a reduction in heroin supply on fatal and drug overdoses in New South Wales Australia', *Medical Journal of Australia*, Vol. 182, No. 1, pp 20-23
- Dietze, P, Cantwell, K and Burgess, S (2002) 'Bystander resuscitation attempts at heroin overdose: does it improve outcomes?', *Drug and Alcohol Dependence*, Vol. 67, No. 2, pp 213-218

Dietze, P, Jolley, D, Fry, C and Bammer, G (2005) 'Transient changes in behaviour lead to heroin overdose: results from a case-crossover study of non-fatal overdose', *Addiction*, Vol. 100, No. 5, pp 636-642

Dietze, PM, Cvetkovski, S, Rumbold, G and Miller, P (2000) 'Ambulance attendance at heroin overdose in Melbourne: the establishment of a database of Ambulance Service records', *Drug and Alcohol Review*, Vol. 19, No. 1, pp 27-33

Digiusto, E, Shakeshaft, A, Ritter, A, O'Brien, S and Mattick, RP (2004) 'Serious adverse events in the Australian National Evaluation of Pharmacotherapies for Opioid Dependence (NEPOD)', *Addiction*, Vol. 99, No. 4, pp 450-460

European Monitoring Centre for Drugs and Drug Addiction, *Number of acute drug-related deaths recorded in EU member states (25 members and candidates) according to national definitions, 1990 to 2005*, available at <http://www.emcdda.europa.eu/html.cfm/index39703EN.html>

Farrell, M, Neeleman, J, Griffiths, P and Strang, J (1996) 'Suicide and overdose among opiate addicts', *Addiction*, Vol. 91, No. 3, pp 321-323

Fiddler, C, Squires, T, Sherval, J, Busuttil, A and Gorman, D (2001) 'A review of GP records relating to methadone-associated deaths in the Lothian region of Scotland 1997-9', *Journal of Substance Use*, Vol. 6, No. 2, pp 96-100

Fischer, B, Brissette, S, Brochu, S, Bruneau, J, el-Guebaly, N, Noël, L, Rehm, J, Tyndall, M, Wild, C, Mun, P, Haydon, E and Baliunas, D (2004) 'Determinants of overdose incidents among illicit opioid users in 5 Canadian cities', *Canadian Medical Association Journal*, Vol. 171, No. 3, pp 235-239

Fitzgerald, J, Dovey, K, Dietze, P and Rumbold, G (2004) 'Health outcomes and quasi-supervised settings for street injecting drug use', *International Journal of Drug Policy*, Vol. 15, No. 4, pp 247-257

Fitzgerald, J, Hamilton, M and Dietze, P (2000) 'Walking Overdoses: A Re-Appraisal of Non-Fatal Illicit Drug Overdose', *Addiction Research*, Vol. 8, No. 4, pp 327-355

Freeman, R. C and French, J. F (1995) 'What is the addicts' grapevine when there's 'bad dope?': An investigation in New Jersey', *Public Health Reports*, Vol. 110, No.5, pp 621-624

Fry, C, Fox, S and Rumbold, G (1999) 'Establishing Safe Injecting Rooms in Australia: Attitudes of Injecting Drug Users', *Australian and New Zealand Journal of Public Health*, Vol. 23, No. 5, pp 501-504

Fugelstad, A, Stenbacka, M, Leifman, A, Nylander, M and Thiblin, I (2007) 'Methadone maintenance treatment: the balance between life-saving treatment and fatal poisonings', *Addiction*, Vol. 102, No. 3, pp 406-412

General Register Office for Scotland (2007) *Drug-related Deaths in Scotland in 2006*

General Register Office for Scotland (2008) *Drug Related Deaths in Scotland 2007*

Gibbs, G. R. (2002) *Qualitative Data Analysis: Explorations with Nvivo*. Open University Press

Gibson, A, Degenhardt, L, Mattick, RP, Ali, R, White, J and O'Brien, S (2008) 'Exposure to opioid maintenance treatment reduces long-term mortality', *Addiction*, Vol. 103, No. 3, pp 462-468

Gossop, M, Stewart, D, Treacy, S and Marsden, J (2002) 'A prospective study of mortality among drug misusers during a 4-year period after seeking treatment', *Addiction*, Vol. 97, No. 1, pp 39-47

Hall, W (1999) 'Reducing the toll of opioid overdose deaths in Australia', *Drug and Alcohol Review*, Vol. 18, No. 2, pp 213-220

Hargreaves, K, Lenton, S, Phillips, M and Swensen, G (2002) 'Potential impacts on the incidence of fatal heroin-related overdose in Western Australia: a time-series analysis', *Drug and Alcohol Review*, Vol. 21, No. 4, pp 321-327

Hay, G, Gannon, M, McKeganey, N, Hutchinson, S and Goldberg, D (2005) 'Estimating the National and Local Prevalence of Problem Drug Misuse in Scotland', Centre for Drug Misuse Research, University of Glasgow, Scottish Centre for Infection and Environmental Health

Hickman, M, Carrivick, S, Paterson, S, Hunt, N, Zador, D, Cusick, L and Henry, J (2007) 'London audit of drug-related overdose deaths: characteristics and typology, and implications for prevention and monitoring', *Addiction*, Vol. 102, No. 2, pp 317-323

Hulse, GK, Tait, RJ, Comer, SD, Sullivan, MA, Jacobs, IG and Arnold-Reed, D (2005) 'Reducing hospital presentations for opioid overdose in patients treated with sustained release naltrexone implants', *Drug Alcohol Dependence*, Vol. 79, No. 3, pp 351-357

Hunt, N (2006) 'The Evaluation Literature on Drug Consumption Rooms' (Paper B) Report published as supporting evidence to 'The Report of the Independent Working Group on Drug Consumption Rooms' *Joseph Rowntree Foundation* (www.jrf.org.uk)

Jones, R, Gruer, L, Gilchrist, G, Seymour, A, Black, M and Oliver, J (2002) 'Recent contact with health and social services by drug misusers in Glasgow who died of a fatal overdose in 1999', *Addiction*, Vol. 97, No. 12, pp 1517-1522

Kaye, S and Darke, S (2004) 'Non-fatal cocaine overdose among injecting and non-injecting cocaine users in Sydney, Australia', *Addiction*, Vol. 99, No.10, pp 1315-1322

Kerr, D, Dietze, P and Kelly, AM (2008) 'Intranasal naloxone for the treatment of suspected heroin overdose', *Addiction*, Vol. 103, pp 379-386

Kerr, T, Wood, E, Grafstein, E, Ishida, T, Shannon, K, Lai, C, Montaner, J and Tyndall, MW (2005) 'High rates of primary care and emergency department use among injection drug users in Vancouver', *Journal of Public Health*, Vol. 27, No. 1, pp 62-66

Latkin, CA, Hua, W and Tobin, K (2004) 'Social network correlates of self-reported non-fatal overdose', *Drug and Alcohol Dependence*, Vol. 73, No. 1, pp 61-67

Lenton, S and Hargreaves, K (2000) 'A trial of naloxone for peer administration has merit, but will the lawyers let it happen?' *Drug and Alcohol Review*, Vol. 19, No. 4, pp 365-369

Martyres, RF, Clode, D and Burns, JM (2004) 'Seeking drugs or seeking help? Escalating "doctor shopping" by young heroin users before fatal overdose', *Medical Journal of Australia*, Vol. 180, No. 5, pp 211-214

McGregor, C, Darke, S, Ali, R and Christie, P (1998) 'Experience of non-fatal overdose among heroin users in Adelaide, Australia: circumstances and risk perceptions', *Addiction*, Vol. 93, No. 5, pp 701-711

Neale, J (2000) 'Methadone, methadone treatment and non-fatal overdose', *Drug and Alcohol Dependence*, Vol. 58, No. 1, pp 117-124

Neale, J (2000) 'Suicidal intent in non-fatal illicit drug overdose', *Addiction*, Vol. 95, No. 1, pp 85-93

Neale, J and Robertson, M (2005) 'Recent life problems and non-fatal overdose among heroin users entering treatment', *Addiction*, Vol. 100, No. 2, pp 168-175

Oliver, P, Horspool, M, Rowse, G, Parry, M, Keen, J and Mathers, N (2007) 'A psychological autopsy study of non-deliberate fatal opiate-related overdose', *National Treatment Agency for Substance Misuse*

Oliver, P and Keen, J (2003) 'Concomitant drugs of misuse and drug using behaviours associated with fatal opiate-related poisonings in Sheffield, UK, 1997-2000', *Addiction*, Vol. 98, No. 2, pp 191-197

Oxfordshire DAAT, *Oxfordshire Drug Related Death Strategy 2006-2009*, available at <http://www.oxfordshiredaat.org/DRD%20Strategy%202006-9.pdf>

Oyefeso, A, Ghodse, H, Clancy, C and Corkery, JM (1999) 'Suicide among drug addicts in the UK', *British Journal of Psychiatry*, Vol. 175, pp 277-282

Oyefeso, A, Valmana, A, Clancy, C, Ghodse, H and Williams, H (2000) 'Fatal antidepressant overdose among drug abusers and non-drug abusers', *Acta Psychiatrica Scandinavica*, Vol. 102, No. 4, pp 295-299

Piper, TM, Rudenstine, S, Stancliff, S, Sherman, S, Nandi, V, Clear, A and Galea, S (2007) 'Overdose prevention for injection drug users: Lessons learned from naloxone training and distribution programs in New York City', *Harm Reduction Journal*, Vol. 4, No. 3

Pollini, RA, McCall, L, Mehta, SH, Celentano, DD, Vlahov, D and Strathdee, SA (2006) 'Response to overdose among injection drug users', *American Journal of Preventative Medicine*, Vol. 31, No. 3, pp 261-264

Pollini, RA, McCall, L, Mehta, SH, Vlahov, D and Strathdee, SA (2006) 'Non-fatal overdose and subsequent drug treatment among injection drug users', *Drug and Alcohol Dependence*, Vol. 83, No. 2, pp 104-110

Pottieger, AE, Tressell, PA, Inciardi, JA and Rosales, TA (1992) 'Cocaine use patterns and overdose', *Journal of Psychoactive Drugs*, Vol. 24, No. 4, pp 399-410
pp 546-549.

Preti A, Miotto P and De Coppi, M (2002) 'Deaths by unintentional illicit drug overdose in Italy', 1984-2000, *Drug and Alcohol Dependence*, Vol. 66, No. 3, pp 275-282

Rehm, J, Frick, U, Hartwig, C, Gutzwiller, F, Gschwend, P and Uchtenhagen, A (2005) 'Mortality in heroin-assisted treatment in Switzerland 1994-2000', *Drug and Alcohol Dependence*, Vol. 79, pp 137-143

Reitox National Focal Point (2007) *2007 National Report (2006 data) United Kingdom New Developments, Trends and In-depth Information on Selected Issues*, European Monitoring Centre for Drugs and Drug Addiction (EMCDDA)

Rossow, I and Lauritzen, G (1999) 'Balancing on the edge of death: suicide attempts and life-threatening overdoses among drug addicts', *Addiction*, Vol. 94, No. 2, pp 209-219

Scottish Advisory Committee on Drug Misuse (2005) *SACDM Working Group on Drug Related Deaths: Report and Recommendations*, Scottish Executive

Scottish Executive (2005) *Taking Action to Reduce Scotland's Drug-Related Deaths: The Scottish Executive Response to the SACDM Drug-Related Deaths Working Group, Report and Recommendations*

Seal, KH, Downing, M, Kral, AH, Singleton-Banks, S, Hammond, JP, Lorvick, J, Ciccarone, D and Edlin, BR (2003), 'Attitudes About Prescribing Take-Home naloxone to Injection Drug Users for the Management of Heroin Overdose: a Survey of Street-Recruited Injectors in the San Francisco Bay Area', *Journal of Urban Health*, Vol. 80, No. 2, pp 291-301

Seal, KH, Kral, AH, Gee, L, Moore, LD, Bluthenthal, RN, Lorvick, J and Edlin, BR (2001) 'Predictors and Prevention of Nonfatal Overdose Among Street-Recruited Injection Heroin Users in the San Francisco Bay Area', *American Journal of Public Health*, Vol. 91, No. 11, pp 1842-1846

Seidler, D, Schmeiser-Rieder, A, Schlarp, O and Laggner, AN (2000) 'Heroin and opiate emergencies in Vienna: analysis at the municipal ambulance service', *Journal of Clinical Epidemiology*, Vol. 53, No. 7, pp 734-741

Sheedy, DL, Garrick, TM, Fortis, AH and Harper, CG (2003) 'Changing Trends in Heroin-Related Deaths in Sydney, Australia-1995 to 1999', *The American Journal on Addictions*, Vol. 12, No. 1, pp 52-59

Social Work Inspection Agency (2007) *Multi-agency inspection: Substance Misuse Services in Grampian 2007*

Staikowsky, F, Theil, F and Candella, S (2005) 'Trends in the pharmaceutical profile of intentional drug overdoses seen in the emergency room', *Presse Med*, Vol. 34, No. 12, pp 842-846

Stewart, D, Gossop, M and Marsden, J (2002) 'Reductions in non-fatal overdose after drug misuse treatment: results from the National Treatment Outcome Research Study (NTORS)' *Journal of Substance Abuse Treatment*, Vol. 22, No. 1, pp 1-9

Strang, J, Kelleher, M, Best, D, Mayet, S and Manning, V (2006) 'Emergency naloxone for heroin overdose', *British Medical Journal*, Vol. 333, pp 614-615

Strang, J, Manning, V, Mayet, S, Kelleher, M, Semmler, C, Offor, L, Titherington, E, Santana, L, Best, D (2007) 'The naloxone programme: Investigation of the wider use of naloxone in the prevention of overdose deaths in pre-hospital care' *National Treatment Agency for Substance Misuse*

Strang, J, Powis, B, Best, D, Vingoe, L, Griffiths, P, Taylor, C, Welch, S and Gossop, M (1999) 'Preventing opiate overdose fatalities with take-home naloxone: pre-launch study of possible impact and acceptability', *Addiction*, Vol. 94, No. 2, pp 199-204

Taylor, A, Cusick, L, Kimber, J, Hickman, M and Rhodes, T (2006) 'The social impact of public injecting' (Paper D)
Report published as supporting evidence to 'The Report of the Independent Working Group on Drug Consumption Rooms' *Joseph Rowntree Foundation* (www.jrf.org.uk)

Thanacoody, R, Jay, J and Sherval, J (2007) 'The association between drug-related deaths and prior contact with hospital based services' (Unpublished to date)

Thiblin, I, Eksborg, S, Petersson, A, Fugelstad, A and Rajs, J (2004), 'Fatal intoxication as a consequence of intranasal administration (snorting) or pulmonary inhalation (smoking) of heroin', *Forensic Science International*, Vol. 139, No. 3, pp 241-247

Tobin, KE, Davey, MA and Latkin, CA (2005) 'Calling emergency medical services during drug overdose: an examination of individual, social and setting correlates', *Addiction*, Vol. 100, No. 3, pp 397-404

Tracey, M, Piper, TM, Ompad, D, Bucciarelli, A, Coffin, PO, Vlahov, D and Galea, S (2005) 'Circumstances of witnessed drug overdose in New York City: implications for intervention', *Drug and Alcohol Dependence*, Vol. 79, No. 2, pp 181-190

van Dorp, E, Yassen, A, Sarton, E, Romberg, R, Olofsen, E, Teppema, L, Danhof, M and Dahan, A (2006) 'naloxone Reversal of Buprenorphine-induced Respiratory Depression', *Anesthesiology*, Vol. 105, No. 1, pp 51-57

Warner-Smith, M, Darke, S and Day, C (2002) 'Morbidity associated with non-fatal heroin overdose', *Addiction*, Vol. 97, No. 8, pp 963-967

Warner-Smith, M, Darke, S, Lynskey, M and Hall, W (2001) 'Heroin overdose: causes and consequences', *Addiction*, Vol. 96, No. 8, pp 1113-1125

Weatherburn, D, Jones, C, Freeman, K and Makkai, T (2003) 'Supply control and harm reduction: lessons from the Australian heroin 'drought'', *Addiction*, Vol. 98, No. 1, pp 83-91

Webb, L, Oyefeso, A, Schifano, F, Cheeta, S, Pollard, M and Ghodse, AH (2003) 'Cause and manner of death in drug-related fatality: an analysis of drug-related deaths recorded by coroners in England and Wales in 2000', *Drug Alcohol Dependence*, Vol. 72, No. 1, pp 67-74

Witton, J and Ashton, M (2004) 'Methadone dose and methadone maintenance treatment. Research into practice: 3', *National Treatment Agency for Substance Misuse*

Wolff, K (2002) 'Characterization of methadone overdose: clinical considerations and the scientific evidence', *Therapeutic Drug Monitoring*, Vol. 24, No. 4, pp 457-470

Wood, E, Tyndall, MW, Qui, Z, Zhang, R, Montaner, JSG and Kerr, T (2006) 'Service uptake and characteristics of injection drug users utilizing North America's first medically supervised safer injecting facility', *American Journal of Public Health*, Vol. 96, No. 5, pp 770-773

Wood, E, Tyndall, MW, Spittal, PM, Li, K, Anis, AH, Hogg, RS, Montaner, JSG, O'Shaughnessy, MV and Schechter, MT (2003) 'Impact of supply-side policies for control of illicit drugs in the face of the AIDS and overdose epidemics: investigation of a massive heroin seizure', *Canadian Medical Association Journal*, Vol. 168, No. 2, pp 165-169

Worthington, N, Piper, TM, Galea, S and Rosenthal, D (2006) 'Opiate users' knowledge about overdose prevention and naloxone in New York City: a focus group study', *Harm Reduction Journal*, Vol. 3, No. 19

Wright, N, Oldham, N, Jones, L (2005) 'Exploring the relationship between homelessness and risk factors for heroin related death - a qualitative study', *Drug and Alcohol Review*, Vol. 24, No. 3, pp 245-251

Zador, D, Sunjic, S and Darke, S (1996) 'Heroin-related deaths in New South Wales: Toxicological findings and circumstances', *Medical Journal of Australia*, Vol. 164, pp 204-207

Zador, D, Kidd, B, Hutchinson, S, Taylor, A, Hickman, M, Fahey, T, Rome, A and Baldacchino, A (2005) *National Investigation into Drug Related Deaths in Scotland, 2003*, Substance Misuse Research, Scottish Executive

Zanis, DA and Woody, GE (1998) 'One-year mortality rates following methadone treatment discharge', *Drug and Alcohol Dependence*, Vol. 52, No. 3, pp 257-260

APPENDICES

Appendix 1 Literature Review methods

Databases

- Health Scotland Library,
- Scottish Executive Website,
- NHS National Institute for Health and Clinical Excellence,
- The Society for the Study of Addiction,
- ASSIA,
- Psycinfo,
- Sociological Abstracts,
- Medline,
- British Nursing Index,
- CINAHL,
- Pubmed

Keywords

General Term (A)	General Term (B)	Specific Term	Intervention Term
	And	And	And/Or
Overdose	*fatal	Heroin	naloxone
(or) Mortality	(or) Death	(or) Opiate	(or) Narcan
		(or) Benzodiazepine	
		(or) Methadone	
		(or) Drug	

Search Limits

- Adult
- Human
- English Language
- 1987 - 2007
- Abstract available

Search strategy

Search No.	General Term (A)	General Term (B)	Specific Term	Intervention Term
		And	And	And
1	Overdose	*fatal	Heroin	
2	Overdose	*fatal	Heroin	naloxone
3	Overdose	*fatal	Opiate	
4	Overdose	*fatal	Opiate	naloxone
5	Overdose	*fatal	Benzodiazepine	
6	Overdose	*fatal	Benzodiazepine	naloxone
7	Overdose	*fatal	Methadone	
8	Overdose	*fatal	Methadone	naloxone

9	Overdose	*fatal	Drug	
10	Overdose	*fatal	Drug	naloxone
11	Overdose	*fatal	Heroin	
12	Overdose	*fatal	Heroin	Narcan
13	Overdose	*fatal	Opiate	
14	Overdose	*fatal	Opiate	Narcan
15	Overdose	*fatal	Benzodiazepine	
16	Overdose	*fatal	Benzodiazepine	Narcan
17	Overdose	*fatal	Methadone	
18	Overdose	*fatal	Methadone	Narcan
19	Overdose	*fatal	Drug	
20	Overdose	*fatal	Drug	Narcan
21	Overdose	Death	Heroin	
22	Overdose	Death	Heroin	naloxone
23	Overdose	Death	Opiate	
24	Overdose	Death	Opiate	naloxone
25	Overdose	Death	Benzodiazepine	
26	Overdose	Death	Benzodiazepine	naloxone
27	Overdose	Death	Methadone	
28	Overdose	Death	Methadone	naloxone
29	Overdose	Death	Drug	
30	Overdose	Death	Drug	naloxone
31	Overdose	Death	Heroin	
32	Overdose	Death	Heroin	Narcan
33	Overdose	Death	Opiate	
34	Overdose	Death	Opiate	Narcan
35	Overdose	Death	Benzodiazepine	
36	Overdose	Death	Benzodiazepine	Narcan
37	Overdose	Death	Methadone	
38	Overdose	Death	Methadone	Narcan
39	Overdose	Death	Drug	
40	Overdose	Death	Drug	Narcan
41	Mortality	*fatal	Heroin	
42	Mortality	*fatal	Heroin	naloxone
43	Mortality	*fatal	Opiate	
44	Mortality	*fatal	Opiate	naloxone
45	Mortality	*fatal	Benzodiazepine	
46	Mortality	*fatal	Benzodiazepine	naloxone
47	Mortality	*fatal	Methadone	
48	Mortality	*fatal	Methadone	naloxone
49	Mortality	*fatal	Drug	
50	Mortality	*fatal	Drug	naloxone
51	Mortality	*fatal	Heroin	
52	Mortality	*fatal	Heroin	Narcan
53	Mortality	*fatal	Opiate	
54	Mortality	*fatal	Opiate	Narcan
55	Mortality	*fatal	Benzodiazepine	
56	Mortality	*fatal	Benzodiazepine	Narcan
57	Mortality	*fatal	Methadone	
58	Mortality	*fatal	Methadone	Narcan
59	Mortality	*fatal	Drug	
60	Mortality	*fatal	Drug	Narcan
61	Mortality	Death	Heroin	
62	Mortality	Death	Heroin	naloxone
63	Mortality	Death	Opiate	
64	Mortality	Death	Opiate	naloxone
65	Mortality	Death	Benzodiazepine	
66	Mortality	Death	Benzodiazepine	naloxone

67	Mortality	Death	Methadone	
68	Mortality	Death	Methadone	naloxone
69	Mortality	Death	Drug	
70	Mortality	Death	Drug	naloxone
71	Mortality	Death	Heroin	
72	Mortality	Death	Heroin	Narcan
73	Mortality	Death	Opiate	
74	Mortality	Death	Opiate	Narcan
75	Mortality	Death	Benzodiazepine	
76	Mortality	Death	Benzodiazepine	Narcan
77	Mortality	Death	Methadone	
78	Mortality	Death	Methadone	Narcan
79	Mortality	Death	Drug	
80	Mortality	Death	Drug	Narcan

Appendix 2 Review Article Table

Paper	Country of Origin and Sample size	Key findings	Statistical significance
Bartu, A, Freeman, NC, Gawthorne, GS, Codde, JP and Holman, CD (2004) 'Mortality in a cohort of opiate and amphetamine users in Perth, Western Australia', <i>Addiction</i> , Vol. 99, No. 1, pp 53-60	Perth, Australia n=4280	<ul style="list-style-type: none"> Retrospective study showed that people currently in drug treatment had a lower hazard of death compared with non-clients and those who had ceased treatment. Treatment protected clients from premature death compared with people who did not receive or had ceased treatment. 	Significance levels varied
Bennett, GA and Higgins, DS (1999) 'Accidental overdose among injecting drug users in Dorset, UK', <i>Addiction</i> , Vol. 94, No. 8, pp 1179-1190	UK n=212	<ul style="list-style-type: none"> 30% of interviewees had overdosed and 58% had witnessed another do so. Most (79%) had had a personal acquaintance die from an accidental overdose. Interviewees commonly attributed their own most recent overdose(s) to excessive consumption of drugs, mixing drugs and low tolerance Interviewees described a repertoire of protective behaviours. Virtually all who had witnessed another's overdose described peoples' attempts to help: many were appropriate, some dangerous. Avoiding seeking medical help was common. Half (52%) demonstrated the rudiments of putting people into the recovery position, and a minority (31%) cardio-pulmonary resuscitation. Most interviewees (55%) said that they would probably or definitely attend a workshop on Overdose Aid. 	Mann Whitney <i>U</i> -tests or Chi Square test $P < 0.01$
Bernstein, KT, Bucciarelli, A, Markham Piper, T, Gross, C, Tardiff, K and Galea, S (2007) 'Cocaine- and opiate-related fatal overdose in New York City, 1990-2000', <i>BMC Public Health</i> , Vol. 7, No. 31, available from http://www.biomedcentral.com/1471-2458/7/31	US n=8,774	<ul style="list-style-type: none"> Among decedents ages 15-64, 2,392 (27.3%) were attributed to cocaine only and 2,825 (32.2%) were attributed to opiates-only. During the interval studied, the percentage of drug overdose deaths attributed to cocaine only fell from 29.2% to 23.6% while the percentage of overdose deaths attributed to opiates only rose from 30.6% to 40.1%. Fatal overdose attributed to cocaine-only was associated with 	Multinomial logistic regression

		<p>being male (OR=0.71, 95% CI 0.62-0.82), Black (OR=4.73, 95% CI 4.08-5.49) or Hispanic (OR=1.51, 95% CI 1.29-1.76), an overdose outside of a residence or building (OR=1.34, 95% CI 1.06-1.68), having alcohol detected at autopsy (OR=0.50, 95% CI 0.44-0.56) and older age (55-64) (OR=2.53 95% CI 1.70-3.75)</p> <ul style="list-style-type: none"> As interventions to prevent fatal overdose become more targeted and drug specific, understanding the different populations at risk for different drug-related overdoses will become more critical. 	Significance levels varied
<p>Best, D, Gossop, M, Man, LH, Stillwell, G, Coomber, R and Strang, J (2002) 'Peer overdose resuscitation: multiple intervention strategies and time to response by drug users who witness overdose', <i>Drug and Alcohol Review</i>, Vol. 21, No. 3, pp 269-274</p>	<p>UK n=135</p>	<ul style="list-style-type: none"> One hundred and four (77%) had witnessed a mean of 11.5 overdoses, of whom 41 (30.4% of the study sample) had witnessed an average of 4.2 fatal overdoses. A wide range of actions was reported at the most recent witnessed overdose, the most common being slapping or shaking the victim (an average of 2.5 minutes after overdose was first recognised) or walking the person around the room (3.2 minutes after recognizing overdose). There was no consistent relationship between the time taken to acting and the number of actions taken. Successful resolution of last witnessed overdose was associated more strongly with immediate onset of overdose, while those that led to death were more often those that involved slow onset of overdose. There is clear evidence of the opportunity and willingness of witnesses to intervene, particularly when overdose onset is immediate, with a wide range of strategies adopted to encourage recovery, although these may often be inappropriate and wrongly prioritized. 	Significance levels varied
<p>Bird, S & Hutchinson, S. (2003) 'Male drugs-related deaths in the fortnight after release from prison: Scotland, 1996-99', <i>Addiction</i>, Vol. 98, pp 185-190</p>	<p>UK n=19,486</p>	<ul style="list-style-type: none"> Drugs-related mortality in 1996-99 for males aged 15-35 years was 7 times higher in the 2 weeks after release than at other times at liberty and 2.8 times higher than prison suicides who had been imprisoned for 14+ days. The authors estimated 1 drugs-related death in the 2 weeks after release per 200 adult male injectors released from 14+ days incarceration. 	P Values (95% CI)

<p>Buster, MCA, van Brussel, GHA and van den Brink, W (2002) 'An increase in overdose mortality during the first 2 weeks after entering or re-entering methadone treatment in Amsterdam', <i>Addiction</i>, Vol. 97, No. 8, pp 993-1001</p>	<p>Holland n=5200</p>	<ul style="list-style-type: none"> • Non-drugs related deaths in the 12 weeks after release were 4.9 times the 4.3 deaths expected. • Low OD mortality rates for heroin users in Amsterdam thought to be due to the high proportion of users inhaling rather than injecting heroin. • Factors identified to increase the risk of OD mortality upon entering treatment; accumulation of methadone, inadequate assessment of tolerance, concurrent periods of extreme stress. 	<p>P<0.05</p>
<p>Canning, UP, Kennell-Webb, SA, Marshall, EJ, Wessely, SC and Peters, TJ (1999) 'Substance misuse in acute general medical admissions', <i>QJM</i>, Vol. 92, No. 6, pp 319-326</p>	<p>UK n=2988</p>	<ul style="list-style-type: none"> • Of 2988 acute admissions, 609 (20%) were identified as misusing alcohol and/or drugs. • The majority 437 (72%) of the identified patients had an alcohol problem. A smaller proportion, 116 (19%) were currently using illegal drugs and 56 (9%) were polydrug users. • Compared with patients who misused either drugs or alcohol, alcohol misusers were more likely to be older and Irish, whereas users of illegal drugs were more likely to be younger and Black. • Significantly more 'at risk' drinkers were identified by the AUDIT questionnaire than by the admitting doctor. • This study supports the policy of routine screening for health-damaging behaviours and the implementation of health promotion strategies in general hospitals. 	<p>Significance levels varied</p>
<p>Coffin, PO, Galea, S, Ahern, J, Leon, AC, Vlahov, D and Tardiff, K (2003) 'Opiates, cocaine and alcohol combinations in accidental drug overdose deaths in New York City', 1990-98, <i>Addiction</i>, Vol. 98, No. 6, pp 739-747</p>	<p>USA (New York) n=7451 Between 1990-1998 Switzerland n=134</p>	<ul style="list-style-type: none"> • Opiates, cocaine and alcohol were the three drugs most commonly attributed as the cause of accidental overdose death, accounting for 97.6% of all deaths. 57% of those deaths were attributed to two or more of these three drugs in combination. • This population of drug users was characterized by an over-representation of men (73%), by young age (27.4 years), by a high rate of multi-drugs use (90%) and by a high rate of multiple previous overdoses (2.6). • Average length of stay was 20.1 hours but 41% of cases stayed less than 8 hours. • Only one patient was readmitted within an 8-hour period. • When discharged, 78% returned home. 	<p>Significance levels varied</p>
<p>Cook, S, Moeschler, O, Michaud, K and Yersin, B (1998) 'Acute Opiate Overdose: Characteristics of 190 Consecutive Cases', <i>Addiction</i>, Vol. 93, No. 10, pp 1559-1565</p>			

<p>Cullen, W, Bury, G and Langton, D (2000) 'Experience Of Heroin Overdose Among Drug Users Attending General Practice', <i>British Journal of General Practice</i>, Vol. 50, No. 456,</p>	<p>Ireland n=24</p>	<ul style="list-style-type: none"> • Unexpectedly, 67% of patients were not referred to any therapeutic programme for drug addiction. • This study shows the low mortality of acute opiate overdoses (AOO) when treated but also demonstrates the need to improve psychosocial evaluation and referral of drug addicts admitted with AOO. 	<p>Significance levels varied</p>
<p>Darke, S, Kaye, S and Dufrou, J (2006) 'Systemic disease among cases of fatal opioid toxicity', <i>Addiction</i>, Vol. 101, No. 9, pp 1299-1305</p>	<p>Sydney, Australia n=841</p>	<ul style="list-style-type: none"> • A total of 23 (96%) had witnessed an overdose, with 10 (42%) having been victims of overdose themselves. • Twenty-two (92%) knew a victim of fatal overdose, with four (17%) having been present at a fatal overdose. • The interviews revealed high levels of activity associated with overdose and poor use of preventive measures. • The authors conclude that the issue of prevention and management of overdose should become a priority for GPs caring for opiate-dependent patients. 	<p>P<0.05</p>
<p>Darke, S and Ross, J (2001) 'The relationship between suicide and heroin overdose among methadone maintenance patients in Sydney, Australia', <i>Addiction</i>, Vol. 96, No. 10, pp 1443-</p>	<p>Australia n=223</p>	<ul style="list-style-type: none"> • Systemic disease, most prominently liver disease, is common among fatal opioid toxicity cases. • For example cirrhosis was present in 25.3% of those aged >44yrs, ventricular hypertrophy was present in 5.9% of cases and severe coronary artery atherosclerosis in 5.7%. • Forty percent of methadone maintenance patients in this survey reported a history of at least one suicide attempt. • Significant differences between 'attempted suicide' to 'other' groups were found for: sex, social factors, drug use history, current functioning. 	<p>Significance levels varied</p>
<p>Darke, S, Williamson, A, Ross, J, Teesson, M (2005) 'Non-fatal heroin overdose, treatment exposure and client characteristics: Findings from the Australian treatment outcome study', <i>Drug and Alcohol Review</i>, Vol. 24, pp 425-432</p>	<p>Australia n=495 heroin users, re-interviewed at 12 months</p>	<ul style="list-style-type: none"> • There were significant reductions in overdose among those who entered maintenance therapies and residential rehabilitation at baseline, but not among those who entered detoxification or were not entering treatment. • The total number of treatment days was associated with a reduced risk of overdose, but more treatment episodes were associated with an increased risk of overdose. 	<p>Significance levels varied</p>
<p>Davoli, M, Bargagli, AM, Perucci, CA, Schifano, P, Belleudi, V, Hickman, M, Salamina, G, Diecidue, R, Vigna-Taglianti, F and Faggiano, F (2007) 'Risk of fatal overdose during and after specialist drug treatment: the VEdeTTE study, a national</p>	<p>Italy n=10,258</p>	<ul style="list-style-type: none"> • A range of specialist drug treatments can serve as protective factors against risk of fatal overdose; however special attention should be given to the period immediately after treatment. 	<p>P<0.05</p>

<p>multi-site prospective cohort study', <i>Addiction</i>, Vol. 102, pp 1954-1959</p>	<p>Australia</p>	<ul style="list-style-type: none"> • Both fatal and non-fatal heroin overdoses decreased significantly after heroin supply reduced • The reductions were greater among younger age groups than older age groups. • There were no clear increases in non-fatal overdoses with cocaine, methamphetamines or benzodiazepines recorded at hospital emergency departments after the reduction in heroin supply. • Data on drug-related deaths suggested that heroin use was the predominant driver of drug-related deaths in NSW, and that when heroin supply was reduced overdose deaths were more likely to involve a wider combination of drugs. • A reduction in heroin supply reduced heroin-related deaths, and did not result in a concomitant increase, to the same degree, in deaths relating to other drugs. • Younger people were more affected by the reduction in supply. 	<p>ARIMA (autoregressive integrated moving-average) - model time series with intervention terms $p < 0.01$</p>
<p>Degenhardt, L, Day, C, Dietze, P, Pointer, S, Conroy, E, Collins, L and Hall, W (2005) 'Effects of a sustained heroin shortage in three Australian States', <i>Addiction</i>, Vol. 100, pp 908-920</p>	<p>Australia</p>	<ul style="list-style-type: none"> • After the reduction in heroin supply, fatal and non-fatal heroin overdoses decreased by between 40% and 85%. • Despite some evidence of increased cocaine, methamphetamine and benzodiazepine use and reports of increases in harms related to their use, there were no increases recorded in the number of either non-fatal overdoses or deaths related to these drugs. • There was a sustained decline in injecting drug use in NSW and VIC, as indicated by a substantial drop in the number of needles and syringes distributed. • There was a short-lived increase in property crime in NSW followed by a sustained reduction in such offences. • SA and VIC did not show any marked change in the categories of property crime examined in the study. • A reduction in heroin availability had an aggregate positive impact in that it was associated with: reduced fatal and non-fatal heroin overdoses; reduced the apparent extent of injecting drug use in VIC and NSW; and may have 	<p>Significance levels varied</p>

<p>Dietze, P, Cantwell, K and Burgess, S (2002) 'Bystander resuscitation attempts at heroin overdose: does it improve outcomes?', <i>Drug and Alcohol Dependence</i>, Vol. 67, No. 2, pp 213-218</p>	<p>Australia</p>	<ul style="list-style-type: none"> contributed to reduced crime in NSW. All these changes provide substantial benefits to the community and some to heroin users. Documented shifts to other forms of drug use did not appear sufficient to produce increases in deaths, non-fatal overdoses or treatment seeking related to those drugs. <ul style="list-style-type: none"> CPR was administered prior to ambulance arrival in 579 heroin overdose cases (9.4% of total heroin overdose cases attended) between 1/12/98 and 31/7/2000. A greater proportion of female overdose cases were administered CPR than males and CPR administrations were evenly distributed across attendances occurring in private and public locations. Bystander administration of CPR prior to ambulance attendance resulted in a significantly lower rate of heroin user hospitalisation (14.5%) compared to cases where bystander CPR was not administered (18.8%). While CPR administration prior to ambulance attendance at heroin overdose events is relatively uncommon, such administration was associated with a statistically significant improvement in clinical outcomes in cases of non-fatal heroin overdose. These findings suggest that the provision of CPR training to people likely to come into contact with heroin overdose events may be an effective strategy at minimising consequent overdose-related harm. 	<p>Chi Square test for independence, and <i>t</i>-tests</p> <p>Significance levels varied</p>
<p>Dietze, PM, Cvetkovski, S, Rumbold, G and Miller, P (2000) 'Ambulance attendance at heroin overdose in Melbourne: the establishment of a database of Ambulance Service records', <i>Drug and Alcohol Review</i>, Vol. 19, No. 1, pp 27-33</p>	<p>Australia n=388</p>	<ul style="list-style-type: none"> The majority of victims were male (74 %) with an estimated mean age of 27.1 years. The overdoses occurred most commonly during the afternoon and evening, with Thursdays and Fridays most prominent. Police attendance was low (12%) and the vast majority of victims were not transported to hospital. An analysis by postcode revealed that the overdoses tended to be concentrated around a number of locations which have identified street heroin markets. 	<p>Significance levels varied</p>

<p>Dietze, P, Jolley, D, Fry, C and Bammer, G (2005) 'Transient changes in behaviour lead to heroin overdose: results from a case-crossover study of non-fatal overdose', <i>Addiction</i>, Vol. 100, No. 5, pp 636-642</p>	<p>Australia n=155</p>	<ul style="list-style-type: none"> The findings are discussed in relation to the utility of the data as an indicator of heroin-related harm within the community and for informing overdose prevention initiatives. A dose-response relationship was observed between the self-reported amount of heroin used and likelihood of overdose The use of benzodiazepines or alcohol during the hazard period was related to overdose risk but the effect of alcohol was attenuated by the effect of benzodiazepines. Shifting from private to public locations between control and hazard periods was also related to increased risk of overdose overdose prevention messages need to highlight the impact of these transient changes in behaviour and to emphasize the risks of using higher doses of heroin as well as continuing to emphasize the risks of combining heroin with other central nervous system (CNS) depressants. 	<p>A case-crossover design</p>
<p>Digiusto, E, Shakeshaft, A, O'Brien, S, Mattick, R and the NEPOD Research Group (2004), 'Serious adverse events in the Australian National Evaluation of Pharmacotherapies for Opioid Dependence (NEPOD)', <i>Addiction</i>, Vol .99, pp 450-460</p>	<p>Australia n=1,244 heroin users and methadone patients</p>	<ul style="list-style-type: none"> Individuals who leave pharmacotherapies for opioid dependence experience higher overdose and death rates compared with those in treatment. This might be due partly to a participant self-selection effect rather than entirely to pharmacotherapy being protective. 	<p>Significance levels varied</p>
<p>Fischer, B, Brissette, S, Brochu, S, Bruneau, J, el-Guebaly, N, Noël, L, Rehm, J, Tyndall, M, Wild, C, Mun, P, Haydon, E and Baliunas, D (2004) 'Determinants of overdose incidents among illicit opioid users in 5 Canadian cities', <i>Canadian Medical Association Journal</i>, Vol. 171, No. 3, pp 235-239</p>	<p>Canada n=651</p>	<ul style="list-style-type: none"> One hundred and twelve (17.2%) of the 651 respondents reported an overdose episode in the previous 6 months. In the logistic regression analysis, homelessness, no injection use of hydromorphone in the past 30 days and involvement in drug treatment in the past 12 months were predictors of overdose ($p < 0.05$). Overdose poses a considerable health risk for illicit opioid users. A diverse set of factors was associated with overdose episodes. Prevention efforts will likely be more effective if they can be directed to specific causal factors. 	<p>Chi Square test for independence, and <i>t</i>-tests Marginally significant variables were examined with logistic regression to determine independent effects $P < 0.05$</p>
<p>Fitzgerald, J, Dovey, K, Dietze, P and Rumbold, G (2004) 'Health outcomes and quasi-supervised settings for street</p>	<p>Australia</p>	<ul style="list-style-type: none"> There is a complex relationship between the setting of drug use and acute health outcomes. 	<p>Multidisciplinary design with</p>

<p>injecting drug use', <i>International Journal of Drug Policy</i>, Vol. 15, No. 4, pp 247-257</p>		<ul style="list-style-type: none"> • Over the period of displacement to quasi-supervised settings, there was a specific reduction in the rate of non-fatal overdose per 1000 syringes used in the CBD. • The change in setting of drug use was coincident with a change in the location of non-fatal overdose incidents, with limited evidence of differential changes in the number of overdoses in indoor and outdoor settings. • This limited evidence of a differential reduction in overdose according to setting suggests the possibility that a blanket reduction in heroin purity does not solely account for the observed changes in the rate of non-fatal overdose. • The findings suggest that there is a complex relationship between better health outcomes and the context of injecting in street drug use locations. • Given this complex relationships caution should be exercised when projecting the likely impacts of police displacement and public health strategies to reduce harm in street drug markets. 	<p>an interpretative cultural anthropology orientation</p>
<p>Fitzgerald, J, Hamilton, M and Dietze, P (2000) 'Walking Overdoses: A Re-Appraisal of Non-Fatal Illicit Drug Overdose', <i>Addiction Research</i>, Vol. 8, No. 4, pp 327-355</p>	<p>Australia n=48</p>	<ul style="list-style-type: none"> • The harm related to drug overdose and factors that contribute to the risk of overdose in a street using/dealing environment may be significantly underestimated. • The clinical definition of drug overdose may underestimate the harm associated with illicit drug use. • Significant opportunities to intervene may be lost. 	<p>Qualitative Multidisciplinary design</p>
<p>Freeman, R. C and French, J. F (1995) 'What is the addicts' grapevine when there's 'bad dope?': An investigation in New Jersey', <i>Public Health Reports</i>, Vol. 110, No.5, pp 621-624</p>	<p>US n=160</p>	<ul style="list-style-type: none"> • The results of the investigation suggest that the drug users learn about severe threats to health from a variety of sources. • The frequency with which some of these sources are reported differs significantly according to the sex of the drug user and, even when sex is controlled, the frequency may vary substantially from city to city in a relatively limited geographic area. • Although television was, for this population, a more important source of information about the outbreak than was any other formal means of communication, drug users did not regard TV as a reliable source of good information about "bad dope." 	<p>Significance levels varied</p>

<p>Gibson, A, Degenhardt, L, Mattick, RP, Ali, R, White, J and O'Brien, S (2008) 'Exposure to opioid maintenance treatment reduces long-term mortality', <i>Addiction</i>, Vol. 103, No. 3, pp 462-468</p>	<p>Australia n=405</p>	<ul style="list-style-type: none"> • Moreover, it does not appear that broadcasts of public warning messages about such substances are a guarantee that addicts will not search for the drug. • The data reported in this study point up a need for health officials' greater understanding of the channels through which drug users receive information on threats to their health. • The study also provides an understanding of how public health messages are perceived and processed by needle users. • The final lesson is the need for close collaboration among drug enforcement personnel, testing laboratories and health officials to clarify the public health message. 	
<p>Gossop, M, Stewart, D, Treacy, S and Marsden, J (2002) 'A prospective study of mortality among drug misusers during a 4-year period after seeking treatment', <i>Addiction</i>, Vol. 97, No. 1, pp 39-47</p>	<p>UK Prospective cohort study n=1075</p>	<ol style="list-style-type: none"> 1. Risk of death in opioid-dependent people can be reduced with increased exposure to opioid maintenance treatment. 2. Increased exposure to opioid treatments lasting longer than 7 days reduced the risk of mortality 3. No differential reduction between treatment types (buprenorphine and methadone) <ul style="list-style-type: none"> • The annual mortality rate was 1.2%, about six times higher than that for a general, age-matched population. • Fourteen per cent of the deaths were due to self-inflicted injuries, accidents or violence and 18%, were due to medical causes. • The majority of deaths (68%) were associated with drug overdoses. • Opiates were the drugs most commonly detected during post-mortem examinations. • In the majority of cases, more than one drug was detected. • Polydrug use and, specifically, heavy drinking, and use of benzodiazepines and amphetamines, were identified as risk factors for mortality. • Anxiety and homelessness were also predictive of increased mortality. • The authors suggest that drug misusers and those working with drug misusers need to be more alert to the risks of polydrug use, including the combined use of alcohol with 	<ol style="list-style-type: none"> 1. p<.05 2. p<.05 3. p=non-significant <p>Significance levels varied</p>

<p>Hargreaves, K, Lenton, S, Phillips, M and Swensen, G (2002) 'Potential impacts on the incidence of fatal heroin-related overdose in Western Australia: a time-series analysis', <i>Drug and Alcohol Review</i>, Vol. 21, No. 4, pp 321-327</p>	<p>Western Australia n= Intervention analysis</p>	<ul style="list-style-type: none"> The study revealed inconsistencies in the recording of drug-related deaths on death certificates. The routine recording of all substances detected during toxicological examination would improve the accuracy of death certification. 	<p>Significance levels varied (all significant)</p>
<p>Hickman, M, Carrivick S, Patterson, S, Hunt, N, Zador, D, Cusick, L & Henry, J (2006) 'London audit of drug-related overdose deaths: Characteristics and typology, and implications for prevention and monitoring', <i>Addiction</i>, Vol. 102, pp 317-323</p>	<p>UK n=148 drug overdose deaths</p>	<ul style="list-style-type: none"> Poly or multiple drug use was detected in the majority of deaths with at least 69 different combinations. A witness was present and the death was not instantaneous in 61% of cases, although in most cases the overdose went unnoticed until too late to intervene. Cocaine was detected in more drug overdose deaths than methadone. 	<p>Significance levels varied</p>
<p>Hulse, G, Tait, R, Comer, S, Sullivan M, Jacobs, I, Arnold-Reed, D (2005) 'Reducing hospital presentations for opioid overdose in patients treated with sustained release naltrexone implants', <i>Drug and Alcohol Dependence</i>, Vol. 79, pp 351-357</p>	<p>Australia n=361, 218 males</p>	<ul style="list-style-type: none"> A reduced number of opioid overdoses were observed at 6 months and 7-12 months post-implant. The study also found a significant increase in sedative "overdoses" that were likely associated with opioid withdrawal and/or implant treatment Overall, the findings support the clinical efficacy of this sustained release naltrexone implant in preventing opioid overdose; however, there should also be focus on preventing, detecting and managing poly-substance use. 	<p>P<0.01</p>
<p>Jones, R, Gruer, L, Gilchrist, G, Seymour, A, Black, M and Oliver, J (2002) 'Recent contact with health and social services by drug misusers in Glasgow who died of a fatal overdose in 1999', <i>Addiction</i>, Vol. 97, No. 12, pp 1517-1522</p>	<p>UK n=87</p>	<ul style="list-style-type: none"> Retrospective case analysis: Common factors among individuals who died of an overdose were; previous suicidal ideation, attempted suicide, depression and recent release from prison. Almost all had been in contact with health or addiction services in their last weeks or months, highlighting numerous opportunities for intervention and the challenge of using them to prevent death. 	<p>Significance levels varied</p>

<p>Latkin, CA, Hua, W and Tobin, K (2004) 'Social network correlates of self-reported non-fatal overdose', <i>Drug and Alcohol Dependence</i>, Vol. 73, No. 1, pp 61-67</p>	<p>US n=742</p>	<ul style="list-style-type: none"> • This study examined the relationship between history of self-reported drug overdoses and social network characteristics among cocaine and opiate users. • Several social network variables were found to be significantly associated with drug overdose, including larger number of network members who were injection drug users and a larger number of conflictual ties among the network members. • After controlling for age, gender, frequency of injection drug and alcohol use, and health status, network variables continued to have a strong association with history of recent overdose. • These data suggest that large drug networks should be targeted for drug overdose prevention interventions. 	<p>Bivariate chi-square test, Fisher's exact test, bivariate <i>t</i>-tests <i>p</i><0.1</p>
<p>Martyres, RF, Clode, D and Burns, JM (2004) 'Seeking drugs or seeking help? Escalating "doctor shopping" by young heroin users before fatal overdose', <i>Medical Journal of Australia</i>, Vol. 180, No. 5, pp 211-214</p>	<p>Australia n=202</p>	<ul style="list-style-type: none"> • Polydrug use was reported in 90% of toxicology reports, and prescription drugs were present in 80% of subjects. • Subjects accessed medical services six times more frequently than the general population aged 14–24 years, and more than half of all prescribed drugs were those prone to misuse, such as benzodiazepines and opioid analgesics. • A pattern of increasing drug-seeking behaviour in the years before death was identified, with doctor-visitation rates, number of different doctors seen and rates of prescriptions peaking in the year before death. • An apparent increase in "doctor shopping" in the years before heroin related death may reflect the increasing misuse of prescription drugs, but also an increasing need for help. • Identification of a pattern of escalating doctor shopping could be an opportunity for intervention, and potentially, reduction in mortality. 	<p>Huynh–Feldt corrected repeated-measures <i>P</i>< 0.01</p>
<p>McGregor, C, Darke, S, Ali, R and Christie, P (1998) 'Experience of non-fatal overdose among heroin users in Adelaide, Australia: circumstances and risk perceptions', <i>Addiction</i>, Vol. 93, No. 5, pp 701-711</p>	<p>Australia n=218</p>	<ul style="list-style-type: none"> • 48% had experienced at least one non-fatal overdose their life-time (median: two overdoses), and 11% had overdosed in the previous 6 months. • At some time, 70% had been present at someone else's overdose (median: three overdoses). • At the time of their own most recent overdose, 52% had been 	<p><i>t</i>-tests <i>P</i><0.05</p>

		<p>using central nervous system depressants in addition to heroin, principally benzodiazepines (33%) and/or alcohol (22%)</p> <ul style="list-style-type: none"> • The majority of overdoses occurred in a private home (81%) and in the presence of other people (88%). • Unrealistic optimism regarding the risk of overdose was evident across the sample. Despite almost half the sample reporting having had an overdose, and the belief expressed by respondents that on average about 50% of regular heroin users would overdose during their life-time 73% had, during the previous 6 months, 'rarely' or 'never' worried about possibly overdosing. • Optimism regarding the possibility of future overdose was reduced in those with recent experience of overdose in comparison to the rest of the sample. • A targeted intervention aimed at the reduction of overdose among heroin users is outlined. 		
Neale, J (2000) 'Methadone, methadone treatment and non-fatal overdose', <i>Drug and Alcohol Dependence</i> , Vol. 58, No. 1, pp 117-124	UK n=33	<ul style="list-style-type: none"> • Four overdose situations were identified related to methadone/methadone treatment. These were: (1) topping up a legitimate methadone prescription; (2) abusing another's methadone prescription; (3) preferring illegal drugs to prescribed methadone; and (4) failing to obtain prescribed methadone. 	Qualitative	
Neale, J (2000) 'Suicidal intent in non-fatal illicit drug overdose', <i>Addiction</i> , Vol. 95, No. 1, pp 85-93	UK n=77	<ul style="list-style-type: none"> • A high incidence of suicidal intent was found in drug users before overdosing. <ol style="list-style-type: none"> 1. No significant relationship was found between various characteristics of individuals and expression of suicidal intent. 2. Suicidal actions were significantly associated with a self-reported history of mental health problems 	<ol style="list-style-type: none"> 1. $P=ns$ 2. $P<0.05$ 	
Neale, J and Robertson, M (2005) 'Recent life problems and non-fatal overdose among heroin users entering treatment', <i>Addiction</i> , Vol. 100, No. 2, pp 168-175	UK n=793	<ul style="list-style-type: none"> • Recent drug use and recent life problems were associated independently with recent overdosing. However, recent life problems were not associated independently with recent overdosing among clients entering prison, clients entering 	Univariate and stepwise multivariate logistic regression	

	<ul style="list-style-type: none"> residential rehabilitation or with multiple recent overdosing. Associations between recent life problems and recent overdose were evident, but varied by treatment setting. Treatment providers should identify and address heroin users' life problems as part of a broad strategy of overdose prevention. 	<p>$P < 0.05$</p>
<p>Oliver, P., Horspool, M., Rowse, G., Parry, M., Keen, J. and Mathers, N. (2007) 'A psychological autopsy study of non-deliberate fatal opiate-related overdose', <i>National Treatment Agency for Substance Misuse</i></p>	<ul style="list-style-type: none"> Being in a relationship is a protective factor for fatal non-deliberate (ND) overdose. Higher proportion of the cases lived alone and experienced an isolated or disrupted social network. Overdose fatalities were more likely to have been diagnosed with a mental health problem and in receipt of psychotropic medication. Overdose fatalities were more likely to have 2 or more personality difficulties. Occurrences of negative life events in the week before death were more common among those who died of an overdose. The case group were more likely to have ongoing chronic life stressors of severe impact at the time of death. 27% of overdose fatalities had recently been released from prison compared to 7% of the control group. 	<p>Odds ratios estimated using conditional logistic regression.</p> <p>McNemar's Chi squared test for matched pairs.</p>
<p>Oyefeso, A, Ghodse, H, Clancy, C and Corkery, JM (1999) 'Suicide among drug addicts in the UK', <i>British Journal of Psychiatry</i>, Vol. 175, pp 277-282</p>	<ul style="list-style-type: none"> Over the 25 year period, suicide rates declined. Drug overdose was the most common method of suicide. A significant increase in suicide overdoses using antidepressants and methadone. Concludes that addicts are still at greater risk of suicide than the general population, with prescribed drugs, notably antidepressants and methadone heighten this risk. 	<p>$P < 0.05$</p>
<p>Oyefeso, A, Valmana, A, Clancy, C, Ghodse, H and Williams, H (2000) 'Fatal antidepressant overdose among drug abusers and non-drug abusers', <i>Acta Psychiatrica Scandinavica</i>, Vol. 102, No. 4, pp 295-299</p>	<ul style="list-style-type: none"> The overall fatal antidepressant overdose rate was 10%, FAO twice as likely to occur among cases aged 45yrs and over and eight times more likely to occur in cases with no history of problem drug use. 	<p>Significance levels varied</p>
<p>Piper, TM, Rudenstine, S, Stanciliff, S, Sherman, S, Nandi, V, Clear, A and Galea, S (2007) 'Overdose prevention for injection drug users: Lessons learned from naloxone training and distribution programs in New York City', <i>Harm Reduction Journal</i>, Vol. 4, No. 3</p>	<ul style="list-style-type: none"> Key challenges and lessons for the SKOOP Naloxone administration training for service users: (a) political climate surrounding Naloxone distribution; (b) extant prescription drug laws; (c) initial low levels of recruitment; (d) development of participant appropriate training methodology; (e) designing a formal evaluation; and (f) 	<p>Qualitative</p>

<p>Pollini, RA, McCall, L, Mehta, SH, Celentano, DD, Vlahov, D and Strathdee, SA (2006) 'Response to overdose among injection drug users', <i>American Journal of Preventative Medicine</i>, Vol. 31, No. 3, pp 261-264</p>	<p>US n=924</p>	<p>evolution of programme response to Naloxone.</p> <ul style="list-style-type: none"> • Most IDUs (69.7%) reported ever witnessing an overdose. • The most common responses were walking the victim around (70.8%), shaking them (64.9%), and inflicting pain (62.6%). One in four (25.8%) injected the victim with salt water. Two thirds (63.4%) called 911, but more than half delayed the call by 5 or more minutes. • The most common reason cited for delaying or foregoing the 911 call was the belief that they could revive the victim themselves, followed by fear of police involvement. • Most IDUs had received information on how to prevent or respond to an overdose, but most (73.2%) received this information from friends or other drug users. • IDUs who got overdose information solely from lay sources were less likely to call 911 and more likely to inject the victim with salt water than IDUs who received no information at all. • Injection drug users who received information from medical and social services providers only were less likely to delay the 911 call • Inappropriate overdose responses are widespread and interventions that provide overdose education and reduce police response to overdose events may improve witness response and reduce mortality associated with drug overdose. 	<p>Multiple regression $P < 0.05$</p> <p>logistic</p>
<p>Pollini, RA, McCall, L, Mehta, SH, Vlahov, D and Strathdee, SA (2006) 'Non-fatal overdose and subsequent drug treatment among injection drug users', <i>Drug and Alcohol Dependence</i>, Vol. 83, No. 2, pp 104-110</p>	<p>US n=924</p>	<ul style="list-style-type: none"> • 39.7% reported at least one non-fatal drug overdose. Most (96.2%) used heroin on the day of their last overdose and almost half (42.6%) used heroin and alcohol but few (4.1%) used tranquilizers or benzodiazepines. • Five percent were in drug treatment when the overdose occurred and 7.1% had been incarcerated 2 weeks prior. • One in four IDUs (26.2%) sought drug treatment within 30 days after their last overdose of whom 75% enrolled. • Speaking with someone about drug treatment after the overdose was associated with treatment seeking. Family members were the most commonly cited source of treatment information (53.7%) but only those who spoke with spouses, 	<p>Univariate regression $P < 0.1$ & multiple regression $P < 0.05$</p> <p>logistic</p>

		<p>crisis counsellors and hospital staff were more likely to seek treatment.</p> <ul style="list-style-type: none"> • Not being ready for treatment (69.6%) and not viewing drug use as a problem (30.7%) were the most common reasons for not seeking treatment and being placed on a waiting list was the most common reason for not subsequently enrolling in treatment (66.7%). • Of the IDUs treated by emergency medical technicians, ER staff or hospital staff, only 17.3%, 26.2% and 43.2% reported getting drug treatment information from those sources, respectively. • Interventions that provide drug treatment information and enhance motivation for treatment in the medical setting and policies that reduce barriers to treatment entry among motivated drug users are recommended. 	
<p>Pottinger, AE, Tressell, PA, Inciardi, JA and Rosales, TA (1992) 'Cocaine use patterns and overdose', <i>Journal of Psychoactive Drugs</i>, Vol. 24, No. 4, pp 399-410 pp 546-549.</p>	<p>US n=699</p>	<ul style="list-style-type: none"> • Among this sample of cocaine and crack users a history of cocaine overdose was extremely common • Overdose episodes do not commonly motivate treatment entry and in some populations are relatively unlikely to result in an emergency room visit • Cocaine overdose is less associated with crack smoking than with snorting or intravenous (IV) use, whereas IV use is especially likely to result in overdose • The street and treatment samples are strikingly different in regard to drug use patterns, overdose history, changes some users made to use patterns as a result of overdose experiences, and reasons given by other users for not making such changes. 	<p>Qualitative</p>
<p>Preti, A, Miotto, P, De Coppi, M (2001) 'Deaths by unintentional illicit drug overdose in Italy, 1984-2000', <i>Drug and Alcohol Dependence</i>, Vol. 66, pp. 275-282</p>	<p>Italy Database analysis</p>	<ul style="list-style-type: none"> • There has been a steady increase in the number of deaths by overdose in Italy over recent 15 years (trend more evident among males). • Drop-out from addiction treatment is a commonly observed antecedent of fatal opioid overdose. 	<p>Significance levels varied</p>
<p>Rehm, J, Frick, U, Hartwig, C, Gutzwiller, F, Gschwend, P and Uchtenhagen, A (2005) 'Mortality in heroin-assisted treatment in Switzerland 1994-2000', <i>Drug and Alcohol</i></p>	<p>Switzerland Longitudinal data used over</p>	<ul style="list-style-type: none"> • Mortality in heroin-assisted treatment was low compared to the mortality rates of opioid users in other maintenance treatments in other countries. 	<p>$P < 0.05$</p>

<p><i>Dependence</i>, Vol. 79, pp 137-143</p>	<p>7 year period. n=6281</p>	<p>The SMR (Standardized Mortality Ratio) was also lower than that reported in the only meta-analysis in the literature.</p> <ul style="list-style-type: none"> • Heroin-assisted treatment in Switzerland included only refractory opioid addicts with existing severe somatic and/or mental problems, thus the low mortality rate was considered surprising. 	<p>Significance levels varied</p>
<p>Rosow, I and Lauritzen, G (1999) 'Balancing on the edge of death: suicide attempts and life-threatening overdoses among drug addicts', <i>Addiction</i>, Vol. 94, No. 2, pp 209-219</p>	<p>Norway n=2051</p>	<ul style="list-style-type: none"> • There appears to be shared causal factors contributing to both life-threatening overdoses and suicide attempts among drug addicts, specifically these seem related to heavy drug use and poor social integration. 	<p>Qualitative</p>
<p>Seal, KH, Downing, M, Kral, AH, Singleton-Banks, S, Hammond, JP, Lorvick, J, Ciccarone, D and Edlin, BR (2003) 'Attitudes About Prescribing Take-Home Naloxone to Injection Drug Users for the Management of Heroin Overdose: a Survey of Street-Recruited Injectors in the San Francisco Bay Area', <i>Journal of Urban Health</i>, Vol. 80, No. 2, pp 291-301</p>	<p>USA n=82 injection drug users</p>	<ul style="list-style-type: none"> • 89% of respondents had witnessed an overdose. Only 51% reported soliciting emergency assistance (calling 911), with most hesitating due to fear of police involvement. 87% were strongly in favour of participating in an overdose management training programme to receive take-home Naloxone and training in resuscitation techniques. Nevertheless, respondents expressed a variety of concerning attitudes (e.g. using more heroin, not calling 911 etc.). 	<p>Logistic regression and stepwise logistic regression $P<0.1$</p>
<p>Seal, KH, Kral, AH, Gee, L, Moore, LD, Bluthenthal, RN, Lorvick, J and Edlin, BR (2001) 'Predictors and Prevention of Nonfatal Overdose Among Street-Recruited Injection Heroin Users in the San Francisco Bay Area', <i>American Journal of Public Health</i>, Vol. 91, No. 11, pp 1842-1846</p>	<p>US n= 1427</p>	<ul style="list-style-type: none"> • 48% had had an overdose, 33% had experienced 2 or more overdose events, and 13% had had a recent overdose. • In multiple logistic regression, being younger, having been arrested 3 or more times in the past year, drinking 4 or more alcoholic drinks per day, and having participated in methadone detoxification during the past year were independently associated with recent overdose. • Being homeless; identifying as gay, lesbian, bisexual, or transgender; having spent 5 or more years in prison or jail; and having engaged in sex work also were associated with recent overdose. • Targeted interventions that decrease risk for overdose are urgently needed. 	<p>Chi-square test</p>
<p>Seidler, D, Schmeiser-Rieder, A, Schlarp, O and Laggner, AN (2000) 'Heroin and opiate emergencies in Vienna: analysis at</p>	<p>Austria</p>	<ul style="list-style-type: none"> • The run records from the ambulance service demonstrated a large number of non-fatal emergencies due to opioids, 	

<p>the municipal ambulance service', <i>Journal of Clinical Epidemiology</i>, Vol. 53, No. 7, pp 734-741</p>	<p>n=707</p>	<ul style="list-style-type: none"> • involving 528 men and 179 women in 1087 emergencies. These emergencies were on the average 6.8 times as prevalent as drug-fatalities. • A group of 189 persons could be identified, who caused 52.2% of all emergencies and showed a threefold mortality rate during the observation period. • The records of the municipal ambulance service provided valuable insights on opioid-abuse. • The authors suggest local analysis of non-fatal emergencies due to opioids, as this might lead to a new source of information on illicit abuse of these drugs. 	<p>P<0.05</p>
<p>Sheedy, DL, Garrick, TM, Fortis, AH and Harper, CG (2003) 'Changing Trends in Heroin-Related Deaths in Sydney, Australia-1995 to 1999', <i>The American Journal on Addictions</i>, Vol. 12, No. 1, pp 52-59</p>	<p>Sydney, Australia n=293</p>	<ul style="list-style-type: none"> • Found that 10% of coronial cases were considered accidental illicit drug deaths, compared to 4% in a previous study by the same authors. Heroin was associated with 90% of all of these deaths, however only as the single drug in 17%. This large increase in deaths in this period could in part be due to the increase in concomitant drug use. 	<p>Significance levels varied</p>
<p>Stewart, D, Gossop, M and Marsden, J (2002) 'Reductions in non-fatal overdose after drug misuse treatment: results from the National Treatment Outcome Research Study (NTORS)' <i>Journal of Substance Abuse Treatment</i>, Vol. 22, No. 1, pp 1-9</p>	<p>UK n=753</p>	<ul style="list-style-type: none"> • A relatively high rate of overdose (15%) was reported during the 3 months prior to treatment. • Variables predictive of overdose at intake to treatment included injecting, frequency of benzodiazepine and cocaine use, quantity of alcohol consumption, and levels of anxiety. • At 1 year follow-up, the rate of non-fatal overdose had fallen to 6%. • Reduced rates of non-fatal overdose were found for clients treated in both residential and community treatment settings. • Reductions in overdose were linked to improvements in frequency of drug use and lower rates of injecting. • Clients who overdosed at follow-up showed no improvements in their substance use, except for frequency of crack cocaine use. • The risk of non-fatal overdose at 1 year was associated with injecting and multiple drug use. • The findings support the view that treatment can play an important role in reducing deaths among drug misusers. 	<p>Logistic regression P<0.05</p>

<ul style="list-style-type: none"> • Strang, J., Manning, V., Mayet, S., Kelleher, M., Semmler, C., Offor, L., Titherington, E., Santana, L., Best, D. (2007) 'The naloxone programme: Investigation of the wider use of naloxone in the prevention of overdose deaths in pre-hospital care', <i>National Treatment Agency for Substance Misuse</i> 	<p>UK</p> <p>The target populations for this survey fell into 4 groups; (1) Tier 3 and 4 drug services (2) ambulance services (3) Police services and (4) Carers' organisations. (5) Drug Users</p>	<ul style="list-style-type: none"> • The drug service survey highlighted a substantial training need with around two-thirds of service managers interested in staff training and strong support (40%) for 'take-home' naloxone provision. • The ambulance survey indicated wide variability in practice across ambulance services in England. Naloxone is available in most services however, there are restrictions with its use - both the cause of the overdose (therapeutically induced overdose and not self-induced) and the availability of ambulance personnel to administer the injection (i.e. paramedics and not Emergency Medical Technicians). This is an important issue since ambulances frequently attend call outs without a paramedic on board, this preventing the use of naloxone as an effective resuscitation tool. • The poor response rate from police services prevented any meaningful analysis on current status of naloxone and overdose in custody suites, but the indications were that there are low levels of basic life support training among police officers and inconsistent protocols for management of overdoses by forensic medical examiners, custody suite nurses and for involving the ambulance service. • A substantial proportion of carers had witnessed overdoses, and they consistently expressed the need for training to empower parents, and to allow them to intervene in an overdose situation. • Outcome data from 186 clients who had been followed up, showed that in the 10 weeks following THN training and provision, 10% of clients had either witnessed or personally experienced an overdose. There were 20 overdose incidents in total. Of the 18 witnessed overdoses clients administered their supply of take naloxone on 10 occasions resulting in 10 survivals. In the 6 overdoses where naloxone was not used, there were five survivals and one fatality. In addition two clients attending drug services participating in the study survived an overdose when trained staff administered a naloxone injection. Whilst the outcome of all incidents might have been survival without the aid of naloxone, it is likely that effective overdose management resulting from the 	<p>Significance levels varied</p>
--	---	--	-----------------------------------

<p>Strang, J, Powis, B, Best, D, Vingoe, L, Griffiths, P, Taylor, C, Welch, S and Gossop, M (1999) 'Preventing opiate overdose fatalities with take-home naloxone: pre-launch study of possible impact and acceptability', <i>Addiction</i>, Vol. 94, No. 2, pp 199-204</p>	<p>UK n=454 (312 community sample, 142 treatment sample)</p>	<p>training would have had some impact on the actions taken and subsequent outcome.</p> <ul style="list-style-type: none"> • Substantial proportions of both community and treatment samples of drug users reported witnessing an overdose death. • Estimated that at least two thirds of witnessed overdose fatalities could be prevented by administration of home-based supplies of naloxone. • On the basis of these findings an argument is made for a carefully constructed trial of naloxone distribution. 	<p>Qualitative</p>
<p>Taylor, A, Cusick, L, Kimber, J, Hickman, M and Rhodes, T (2006) 'The social impact of public injecting' (Paper D) Report published as supporting evidence to 'The Report of the Independent Working Group on Drug Consumption Rooms' <i>Joseph Rowntree Foundation</i> (www.jrf.org.uk)</p>	<p>UK n=100</p>	<p>Drug use was reported in open areas (e.g. alleyways, car parks and derelict open spaces); neglected property (e.g. squatted and seldom used parts of buildings); and publicly accessible residential or commercial property (e.g. specific houses, cafes, toilets, gardens and stairwells).</p> <ul style="list-style-type: none"> • The sample expressed some sympathy towards public drug users and some understanding of why drug use occurs in public. • Nevertheless, every participant reported at least one negative response to DRL or drug use in public view or close to their own homes. • They were intimidated by groups of drug users and were routinely offended, worried and fatigued by living or working in areas where public drug use occurs. • Their ideas for solutions to the problems of public drug use ranged across the spectrum from severe penalties and violence to ending poverty and legalising drugs. • A significant minority (42%) signalled awareness of DCRs as a potential solution to the problems of public drug use. 	<p>Significance levels varied</p>
<p>Thiblin, I, Eksborg, S, Petersson, A, Fugelstad, A and Rajis, J (2004), 'Fatal intoxication as a consequence of intranasal administration (snorting) or pulmonary inhalation (smoking) of heroin', <i>Forensic Science International</i>, Vol. 139, No. 3, pp 241-247</p>	<p>Sweden n=239</p>	<ul style="list-style-type: none"> • Snorting or smoking heroin probably involves a reduced risk of obtaining high blood concentrations of morphine but still constitutes a high risk of lethal outcome due to high variability in blood concentrations. • After a period of abstinence tolerance levels may be reduced, this combined with heroin addicts inaccurately assuming these routes of administration are safe may significantly 	<p>$P < 0.05$</p>

<p>Tobin, KE, Davey, MA and Latkin, CA (2005) 'Calling emergency medical services during drug overdose: an examination of individual, social and setting correlates', <i>Addiction</i>, Vol. 100, No. 3, pp 397-404</p>	<p>US n=397</p>	<p>contribute to heroin overdosing by snorting or smoking.</p> <ul style="list-style-type: none"> • Participants reported calling an ambulance in 23% of the overdose cases. • Results from multivariate logistic regression indicate that having ever overdosed and having four or more bystanders present independently decreased the likelihood of calling 911. • Having ever witnessed a fatal overdose and having any female bystanders present increased the likelihood of calling 911. • There was a significant interaction between fear of arrest and prior exposure to the police. • Setting of the overdose (public versus private) was not associated with calling 911 after controlling for other factors. • The findings suggest that in addition to personal characteristics of witnesses, social factors influence calling 911. • Intervention at the social level may be a viable means to increase bystander helping behaviours. 	<p>Univariate statistics Significance levels varied</p>
<p>Tracey, M, Piper, TM, Ompad, D, Bucciarelli, A, Coffin, PO, Vlahov, D and Galea, S (2005) 'Circumstances of witnessed drug overdose in New York City: implications for intervention', <i>Drug and Alcohol Dependence</i>, Vol. 79, No. 2, pp 181-190</p>	<p>US n=1184</p>	<ul style="list-style-type: none"> • Drug users frequently witness the nonfatal and fatal drug overdoses of their peers, but often fail to intervene effectively to reduce morbidity and mortality. • Among 1184 heroin, crack, and cocaine users interviewed between, 56.8% had witnessed at least one nonfatal or fatal heroin-related overdose. • Of those, 444 (67.7%) reported that they or someone else present called for medical help for the overdose victim at the last witnessed overdose. • In multivariable models, the respondent never having had an overdose her/himself and the witnessed overdose occurring in a public place were associated with the likelihood of calling for medical help. • Fear of police response was the most commonly cited reason for not calling or delaying before calling for help (52.2%). • Attempts to revive the overdose victim through physical stimulation were reported by 59.7% of respondents, while first aid measures were attempted in only 11.9% of events. 	<p>Two-tailed significance tests $P < 0.2$</p>

	<ul style="list-style-type: none"> • Efforts to equip drug users to manage overdoses effectively, including training in first aid and the provision of naloxone, and the reduction of police involvement at overdose events may have a substantial impact on overdose-related morbidity and mortality. 		
<ol style="list-style-type: none"> 1. NS 2. Sig varies 3. Sig varies 	<ul style="list-style-type: none"> • Reversal of buprenorphine is possible but depends on dose and the correct naloxone dose window. • Respiratory depression from buprenorphine may outlast the effects of naloxone boluses or short infusions, therefore a continuous infusion of naloxone may be required to maintain reversal of respiratory depression. • Appears to be extensive morbidity associated with non-fatal overdose, 79% had experienced at least one overdose-related morbidity symptom. 	<p>The Netherlands</p> <ol style="list-style-type: none"> 1. n=16 2. n=24 3. n=32 	<p>van Dorp, E, Yassen, A, Sarton, E, Romberg, R, Olofsen, E, Teppema, L, Danhof, M and Dahan, A (2006) 'Naloxone Reversal of Buprenorphine-induced Respiratory Depression', <i>Anesthesiology</i>, Vol. 105, No. 1, pp 51-57</p>
<p>Treatment vs. non-treatment groups =NS</p>		<p>Sydney, Australia n=198</p>	<p>Warner-Smith, M, Darke, S and Day, C (2002) 'Morbidity associated with non-fatal heroin overdose', <i>Addiction</i>, Vol. 97, No. 8, pp 963-967</p>
<p>P<0.01</p>	<ul style="list-style-type: none"> • Heroin price increased, while purity, consumption and expenditure on the drug decreased as a result of the shortage. • The fall in overall heroin use was accompanied by a significant reduction in the rate of overdose in NSW. • However, the health benefits associated with the fall in overdose may have been offset by an increase in the use of other drugs (mainly cocaine) since the onset of the heroin shortage. • There does not appear to have been any enduring impact on crime rates as a result of the heroin 'drought'. • Supply control has an important part to play in harm reduction; however, proponents of supply-side drug law enforcement need to be mindful of the unintended adverse consequences that might flow from successfully disrupting the market for a particular illegal drug. 	<p>Australia n=165</p>	<p>Weatherburn, D, Jones, C, Freeman, K and Makkai, T (2003) 'Supply control and harm reduction: lessons from the Australian heroin 'drought'', <i>Addiction</i>, Vol. 98, No. 1, pp 83-91</p>
<p>Significance levels varied</p>	<ul style="list-style-type: none"> • Study confirms the high risk of overdose associated with heroin and polydrug use, whilst highlighting other high fatality risk factors such as contracting an acute infection leading to septicemia or endocarditis or contracting a chronic infection such as HIV, HBV or HCV. These findings highlight the 'masked' manner of death in cases 	<p>UK n=1037 Retrospective cohort study</p>	<p>Webb, L, Oyefeso, A, Schifano, F, Cheeta, S, Pollard, M and Ghodse, AH (2003) 'Cause and manner of death in drug-related fatality: an analysis of drug-related deaths recorded by coroners in England and Wales in 2000', <i>Drug Alcohol Dependence</i>, Vol. 72, No. 1, pp 67-74</p>

<p>Wood, E, Tyndall, MW, Spittal, PM, Li, K, Anis, AH, Hogg, RS, Montaner, JSG, O'Shaughnessy, MV and Schechter, MT (2003) 'Impact of supply-side policies for control of illicit drugs in the face of the AIDS and overdose epidemics: investigation of a massive heroin seizure', <i>Canadian Medical Association Journal</i>, Vol. 168, No. 2, pp 165-169</p>	<p>Canada n=261</p>	<p>commonly recorded as overdose and demonstrate the need for improved recording of drug-related deaths.</p> <ul style="list-style-type: none"> The 138 participants seen before the seizure were similar to the 123 participants seen after the seizure with respect to age, sex, ethnic background, education, HIV serostatus, neighbourhood residence, instability of housing, employment status, use of methadone maintenance therapy and all other measured potential confounders (all $p > 0.10$). The authors found no difference in the extent to which participants in the 2 groups reported daily use of heroin, frequency of nonfatal overdoses, or whether law enforcement had affected their source of drugs or the types of drugs available on the street (all $p > 0.10$). Although the research detected no difference in the price of cocaine, the median reported price of heroin went down after the seizure ($p=0.034$), which suggests that other shipments compensated for the seizure. External evaluations of deaths from overdoses and heroin purity indicated that the seizure had no impact, nor was any impact seen when the periods of analysis were extended. The massive heroin seizure appeared to have no measurable public health benefit. Closer scrutiny of enforcement efforts is warranted to ensure that resources are delivered to the most efficient and cost-effective public health programs. 	<p>Pearson's chi-squared test, Fisher's exact test, Wilcoxon rank-sum test Significance levels varied</p>
<p>Worthington, N, Piper, TM, Galea, S and Rosenthal, D (2006) 'Opiate users' knowledge about overdose prevention and naloxone in New York City: a focus group study', <i>Harm Reduction Journal</i>, Vol. 3, No. 19</p>	<p>USA n=13 opiate users (2 focus groups)</p>	<ul style="list-style-type: none"> Analyses suggests that there is both support for and resistance to take-home Naloxone, marked by enthusiasm for its potential role in reviving an overdosing individual, numerous misconceptions and negative views of its impact and use. 	<p>Qualitative</p>
<p>Wright, N, Oldham, N, Jones, L (2005) 'Exploring the relationship between homelessness and risk factors for heroin related death - a qualitative study', <i>Drug and Alcohol Review</i>, Vol. 24, No. 3, pp 245-251</p>	<p>UK n=27</p>	<ul style="list-style-type: none"> Different types of accommodation for homeless people have differing social cultures which have an impact upon the amount of heroin used, likelihood of injecting alone or likelihood of achieving abstinence. Hostel accommodation appeared to be linked with a culture of group injecting, which tends to increase the amount of heroin taken. Those with experience of rough sleeping described heroin 	<p>Qualitative</p>

<p>Zador, D, Sunjic, S and Darke, S (1996) 'Heroin-related deaths in New South Wales: Toxicological findings and circumstances', <i>Medical Journal of Australia</i>, Vol. 164, pp 204-207</p>	<p>Australia n=152</p>	<p>use to ameliorate the uncomfortable realities of outdoor sleeping, although the overall amount used tended to be less due to having less money to spend on drugs.</p> <ul style="list-style-type: none"> • The prison setting was described as a setting where heroin use was reduced or stopped. • Moving away from homelessness towards sustaining an independent tenancy appeared to be associated with a move towards solitary use. • The authors hypothesize that a progression towards solitary use in a housed environment is one explanation for previous research findings showing the average age of heroin-related death to be increasing despite a decrease in the average age of initiation into heroin use. • Hostel accommodation should form a priority setting for future health promotion interventions aimed to reduce heroin related death. They appear to be linked with an increase in heroin use in the presence of a third party. • Drug users sleeping rough in cold climates need to be made aware of the dangers of medicating with heroin to address problems of insomnia due to cold weather. 	
<p>Zanis, D & Woody, G, (1998) 'One-year' mortality rates</p>	<p>USA</p>	<ul style="list-style-type: none"> • Subjects had a mean age of 29.7 years, 82% were male, and 98% were not enrolled in a methadone treatment program at the time of their deaths. • Deaths occurred in the home environment in 68% of cases and in the company of at least one other person in 58%. • There was intervention before the subject's death in only 21% of cases. • Two or more drug classes were detected in 71% of subjects; alcohol was detected in 45%, with a mean blood alcohol concentration of 0.14 g/100ml • Fatal heroin overdose is potentially preventable. • Educating users about the risks of co-administering alcohol and other depressant drugs with heroin, the comparative safety of injecting heroin in the company of others and the need to call for intervention sooner may reduce the frequency of heroin-related deaths. • Death rates, especially overdose, are high among patients 	<p>t tests, Mann-Whitney U test, chi-squared test, multiple linear regressions Significance levels varied</p>
			<p>N/A</p>

following methadone treatment discharge', <i>Drug and Alcohol Dependence</i> , Vol. 52, pp 257-260	n=507 (397 in methadone treatment and 110 discharged)	who are unfavourably discharged or drop out of methadone treatment compared with patients who are enrolled in treatment.
--	---	--

Review articles		
Paper	Country of origin	Key Findings
Anoto, M, Lundain, E and Santisteban, O (2003) 'Barcelona's Safer Injection Facility - Eva: A Harm Reduction Program Lacking Official Support', <i>The Journal of Drug Issues</i> , Vol. 33, No. 3, pp 689-712	Spain	<ul style="list-style-type: none"> Started on September 12, 2001, EVA - Espacio de Venopuncion higienica Asistida - is the first safe injection facility (SIF) in Barcelona, Spain. EVA suffers from the general underfunding and it has no formal or material support from municipal authorities. This SIF can accommodate five drug injectors at one time and also operates as a mobile room for shelter, contact, and health education, addressing mainly those drug users who are at highest risk of overdose, HIV infection, violence, and death. The project offers consistent services provided by an array of health care and welfare professionals, and it is ready to intervene in overdose and/or crisis situations.
Baca, CT and Grant, KJ (2005) 'Take-home naloxone to reduce heroin death', <i>Addiction</i> , Vol. 100, No. 12, pp1823-1831	USA	<ul style="list-style-type: none"> The evidence supporting naloxone distribution is currently anecdotal, although promising Naloxone alone may be inefficient in some cases to revive the victim, CPR may also be required A second dose of naloxone may also be required Complications following resuscitation may require hospitalisation
Darke, S and Ross, J (2002) 'Suicide among heroin users: rates, risk factors and methods', <i>Addiction</i> , Vol. 97, No. 11, pp 1383-1394	South Australia	<ul style="list-style-type: none"> Heroin users have a death rate 13 times that of their peers Deaths among heroin users attributed to suicide range from 3-35% Heroin users are 14 times more likely than peers to die from suicide Prevalence of attempted suicide is also higher for this group Drugs as a method of suicide play a larger role in suicide among heroin users Concludes that suicide is a major problem that treatment agencies face, requiring targeted interventions
Farrell, M, Neeleman, J, Griffiths, P and Strang, J (1996)	UK	<ul style="list-style-type: none"> The distinction between accidental and intentional overdose is precarious among

<p>'Suicide and overdose among opiate addicts', <i>Addiction</i>, Vol. 91, No. 3, pp 321-323</p>		<p>opiate users</p> <ul style="list-style-type: none"> • Risk factors contributing to overdose mortality include; level of purity, social isolation, recent drop out of treatment, low educational status and longer history of use • Methadone maintenance seems to protect against death from overdose • Official data collection systems underestimate suicide rates among addicts • Non-fatal overdose appears to be associated with a longer history of heroin use, polypharmacy, and high consumption levels
<p>Fiddler, C, Squires, T, Sherval, J, Busuttill, A and Gorman, D (2001) 'A review of GP records relating to methadone-associated deaths in the Lothian region of Scotland 1997-9', <i>Journal of Substance Use</i>, Vol. 6, No. 2, pp 96-100</p>	<p>UK n=60</p>	<ul style="list-style-type: none"> • The majority of methadone-associated deaths (73%) occurred in persons who were not prescribed methadone at the time of their death. • Thirty-eight persons were prescribed medication other than methadone or dihydrocodeine at the time of death. • Thirty (79%) of those being prescribed for were receiving benzodiazepines. • Forty-seven per cent had a history of excessive alcohol consumption. • Fifty per cent had a reported psychiatric history. • Sixty per cent had previously attended Accident and Emergency through deliberate self-harm or accidental overdose. • Low socioeconomic status was found to be associated with the highest rate of methadone-related deaths.
<p>Hall, W (1999) 'Reducing the toll of opioid overdose deaths in Australia', <i>Drug and Alcohol Review</i>, Vol. 18, No. 2, pp 213-220</p>	<p>Australia</p>	<ul style="list-style-type: none"> • Opioid overdose mortality among young adults in Australia has increased consistently over the past several decades. • The rate (per million adults in this age group) increased 55-fold, from 1.3 in 1964 to 71.5 in 1997. The proportion of all deaths in adults in this age group caused by opioid overdose increased from 0.1% in 1964 to 7.3% in 1997. • The paper called for the need to implement and evaluate a variety of measures to reduce opioid overdose deaths among young Australians. • These included: peer education about the risks of polydrug use and overdose after resuming opioid use after periods of abstinence, and attracting more dependent users into opioid maintenance treatment; improve responses to overdose by encouraging witnesses to call ambulances, training drug users in CPR, and trialling distribution of the opiate antagonist naloxone to users at high risk of overdose.
<p>Hunt, N (2006) 'The Evaluation Literature on Drug Consumption Rooms' (Paper B) Report published as supporting evidence to 'The Report</p>		<ul style="list-style-type: none"> • Drug Consumption Rooms (DCR) have been operating since 1986 • There are DCR in 8 countries

<p>of the Independent Working Group on Drug Consumption Rooms' <i>Joseph Rowntree Foundation</i> (www.jrf.org.uk)</p>		<ul style="list-style-type: none"> • DCRs are effective at attracting their target population and enable many drug consumptions to occur within hygienic environments. • evidence points towards beneficial effects on viral risk behaviours including the unique opportunities to tailor risk reduction advice • There remains an absence of studies that have fully evaluated any contribution DCRs might make to the incidence of HIV, hepatitis B and hepatitis C and this remains an important area to examine more carefully. • DCRs generate an environment in which early interventions such as administering oxygen or naloxone can be provided. Not all emergencies would be fatal but the evidence strongly indicates that a proportion of these interventions has directly saved lives. • In Germany, the methodologically strongest study of the impact of DCRs (using a national trend analysis of mortality data) suggests that the introduction of DCRs in four cities was followed by reductions in mortality at the community level in each case. • DCRs also provide an effective low threshold environment in which a range of medical treatments are administered and referrals to drug treatment, health and social welfare services can be made. • Recent Canadian evidence now gives very strong evidence that, within inner city settings with high levels of drug use, the opening of a DCR can effectively reduce public injecting, discarded needles/syringes and drug related litter.
<p>Kerr, D, Dietze, P and Kelly, AM (2008) 'Intranasal naloxone for the treatment of suspected heroin overdose', <i>Addiction</i>, Vol. 103, pp 379-386</p>	<p>Australia</p>	<ul style="list-style-type: none"> • Administration of naloxone by the intranasal route is a new and novel approach, which can help reduce the risk of blood-borne viruses • However currently there is not enough evidence to support naloxone as first-line intervention by paramedics for treatment of heroin overdose in pre-hospital setting • Similarly more research is needed regarding the effectiveness, safety and utility before community use is considered
<p>Lenton, S and Hargreaves, K (2000) 'A trial of naloxone for peer administration has merit, but will the lawyers let it happen?' <i>Drug and Alcohol Review</i>, Vol. 19, No. 4, pp 365-369</p>	<p>Australia</p>	<ul style="list-style-type: none"> • Between 1979-1995 there has been a six-fold increase in the rate of heroin-related overdose deaths in Australia • Also been a sharp increase in the number of dependent heroin users in Australia • These upward trends suggest that overdose mortality may also continue to increase
<p>Strang, J, Kelleher, M, Best, D, Mayet, S and Manning, V (2006) 'Emergency naloxone for heroin overdose', <i>British Medical Journal</i>, Vol. 333, pp 614-615</p>	<p>UK</p>	<ul style="list-style-type: none"> • Naloxone is an extremely effective drug, which should be prescribed to take-home for patients at risk and their families and carers • For this to be effective training is required

<p>Warner-Smith, M, Darke, S, Lynskey, M and Hall, W (2001) 'Heroin overdose: causes and consequences', <i>Addiction</i>, Vol. 96, No. 8, pp 1113-1125</p>	<p>Australia</p>	<ul style="list-style-type: none"> • So far risk factors contributing to overdose mortality have not been able to explain the strong age and gender trends consistently observed among overdose victims • There is evidence that systemic disease may be more prevalent in users at greater risk of overdose • Pulmonary and hepatic dysfunction resulting from such disease may increase susceptibility to both fatal and non-fatal overdose
--	------------------	--

Appendix 3a Interview Schedule – Drug Users & Family Members

**Reducing Drug Users' Risk of Overdose
Drug User and Family/Friend Interview Schedule**

Has the participant read the information sheet? Yes

Has the participant received an information sheet to keep? Yes

Assure the participant that **all information given is in confidence and will be anonymised**. No-one from services or elsewhere will be able to identify any individual in the final report and **no** details will be asked for that could lead to the identification of an individual.

Q1 Location of interview?
 Glasgow
 Lanarkshire
 Fife
 Lothian

Q2 Is the participant a ...?
 Service user
 Non-service user
 Family/friend

Q3 Gender
 MALE
 FEMALE

Q4 Age

Q5 Ethnic Origin
 White Scottish
 White British
 Indian
 Pakistani
 Bangladeshi
 Chinese
 Asian – Other
 Black African
 Black Caribbean
 Black – Other
 Declined information

Other (please describe) _____

**THIS SECTION IS FOR SERVICE USERS AND NON-SERVICE USER PARTICIPANTS ONLY
Drug History**

Q6

From the list of drugs can you tell me what drugs you have used? (SHOW PROMPT CARD)		
	Tick all boxes that apply	Length of time used
Heroin *	<input type="checkbox"/>	
Street Bought Methadone *	<input type="checkbox"/>	
Prescribed Methadone *	<input type="checkbox"/>	
Street Bought Benzos *	<input type="checkbox"/>	
Prescribed Benzos *	<input type="checkbox"/>	
Cocaine *	<input type="checkbox"/>	
Crack Cocaine *	<input type="checkbox"/>	
Amphetamines *	<input type="checkbox"/>	
Alcohol	<input type="checkbox"/>	
Other (please name)		

Personal Overdoses

NOTE: THIS SECTION IS FOR DRUG USERS ONLY (NOT FOR FAMILY MEMBERS)

I am now going to ask you about overdoses which have been defined as 'a situation where after using, you or another person passed out and couldn't wake up.'

- Q7 Have you ever overdosed?**
 Yes
 No

Q8 If yes, how often have you overdosed?

Q9 I'm now going to ask you some questions about your last overdose:

How long ago did it happen?	
Where did it happen? Probe if this was the same place they took the hit? Probe was this usual place you take your drugs or was it an unfamiliar setting?	
What had you taken? (probe alcohol if not mentioned)	
Who else was there?	
What type of accommodation were you living in at the time?	
Why do you think you overdosed?	
Any other details	

Q10 Sometimes people are likely to overdose when other things are happening in their lives. Were any of these situations happening to you at the time? (SHOW PROMPT CARD)

- Relationship broken up
 Bereavement
 Child Custody Issues
 Physical illness
 Serious injury, illness to close relative
 Serious problem with close friend, relative or neighbour
 Psychiatric illness at time of overdose

Other (please describe) _____

- Q11 Were you taken to hospital after your last overdose?**
 Yes
 No

Q12 Who took you there?

- Q13 Were you given any information on safer drug use and overdose at the hospital before being discharged?**
 Yes
 No

- Q14** If yes, what information were you given?
- Leaflets
- Verbal information
- DVD
- Information on local drug services
- Other (please describe) _____
- Q15** Were you asked if you wanted a referral to any drug services?
- Yes
- No
- Can't remember
- Q16** How would you describe staff attitudes at the hospital?
- _____
- Q17** Were you receiving support for your drug use at the time of the overdose?
- Yes
- No
- Q18** If yes, was the service staff made aware of your overdose?
- Yes
- No
- Q19** Did they offer you any additional support? (if yes please describe)
- _____
- Q20** As a result of this experience did you seek support for your drug use?
- Yes
- No

Witnessed Overdoses

NOTE: THESE QUESTIONS ARE FOR ALL PARTICIPANTS

I am now going to ask you about overdoses which have been defined as 'a situation where after using, you or another person passed out and couldn't wake up.'

- Q21** Have you ever witnessed an overdose?
- Yes Go to Question 22
- No Go to Question 29
- Q22** How many overdoses have you witnessed?
- _____
- Q23** At the last overdose you witnessed how would you describe the person who overdosed? (SHOW PROMPT CARD)
- Close friend
- Acquaintance
- Stranger
- Relative
- Other (please describe) _____
- Q24** I'm now going ask you some questions about the last overdose you witnessed:

How long ago did it happen?	
Where did it happen? Probe if this was the same place the person who overdosed took the hit? Probe was this the usual place the person who overdosed takes their drugs or was it an unfamiliar setting?	

What had you taken? (probe alcohol if not mentioned)	
Who else was there?	
What type of accommodation were you living in at the time?	
Why do you think you overdosed?	
Any other details	

Q25 What did you do at the overdose? (Prompt: if not mentioned ask whether they called an ambulance first or someone else, if another person who was it?)

INSTRUCTION: If they called an ambulance please ask the following questions (If they did not call an ambulance go to Q28)

Q26 How long after you realised the person had overdosed did you call an ambulance?

Q27 If an ambulance was called what did you do while you were waiting for it to arrive?

INSTRUCTION: If they DID NOT call an ambulance please ask the following question

Q28 If you didn't call an ambulance could you tell me why you didn't?

INSTRUCTION: THE FOLLOWING QUESTION IS FOR DRUG USERS ONLY - DO NOT ASK FAMILY MEMBERS

Q29 Have you changed your drug use in any way as a result of your overdose experience(s)?

Witnessed Overdoses

NOTE: THESE QUESTIONS ARE FOR ALL PARTICIPANTS

Q30 What do you think are the risk factors that might lead to an overdose?

Q31 Can you tell me the signs of an overdose that would give you most concern?

Q32 Can you tell me what actions you would take NOW if you witnessed an overdose?

Q33 If you identified that someone has overdosed would you contact emergency services immediately or would you try something else first?

Q34 Have you ever heard of Naloxone which is sometimes known as Narcan?
Yes
No

Q35 Can you tell me what it does?

Q36 Would you consider using it if you witnessed an overdose?
Yes
No

Q37 If no, what would information would you need before you considered using it?

Q38 Are there any circumstances where you wouldn't use it?

Witnessed Overdoses

NOTE: THESE QUESTIONS ARE FOR ALL PARTICIPANTS

Q39 Have you ever been given any information on preventing overdose?
Yes
No

If yes, who gave you the overdose information? _____

If no, would you like to have overdose information? _____

Q40 If yes, can you describe the information you were given?
Leaflets
Verbal information
DVD
Information on local drug services

Other (please describe) _____

Q41 How relevant or useful was the information you were given?

Q42 What do you think would be the best way to get overdose information across to drug users?

Q43 What do you think would be the best way to get overdose information across to drug users' families?

Q44 Have you ever been offered overdose training?
Yes
No

Q45 If no, would you like to get overdose training?

Q46 Have you received training on how to handle an overdose situation?
Yes
No

Q47 If yes, can you describe the training you had (e.g. first aid/basic life support)

Q48 How useful do you think the overdose training was?

Q49 What do you think could be done to raise overdose awareness for drug users and their families and friends in order to reduce drug users risk of overdose?

Emergency Services

NOTE: THESE QUESTIONS ARE FOR ALL PARTICIPANTS

Q50 We know some witnesses wait some time before they call an ambulance, why do you think this is?

Q51 What do you think would encourage witnesses to call for help sooner? PROMPT: If not already mentioned ask specifically about calling for an ambulance?

Q52 What reasons do you think people might have for not calling an ambulance?

Q53 In your experience do ambulance services offer information on local drug services?
Yes
No

Q54 Of the overdose(s) that you have witnessed how often would you say the police attend?

Q55 Have the police arrested anyone at the overdose(s) you've witnessed?

Q56 From your experience how would you describe the attitudes of the police at an overdose scene?

Q57 In your experience do the police offer information on local drug services?
Yes
No

Q58 What are your views on how emergency services dealt with the overdose situations you have experienced?

Final Question

NOTE: THESE QUESTIONS ARE FOR ALL PARTICIPANTS

Q59 What do you think would be the best way to get overdose information across to drug users' and their families and friends?

Appendix 3b Interview Schedule – Emergency Service Staff

**Reducing Drug Users' Risk of Overdose
SAS and Police Interview Schedule**

Has the participant read the information sheet?

Assure the participant that **all information given is in confidence and will be anonymised**. No-one from services or elsewhere will be able to identify any individual in the final report and **no** details will be asked for that could lead to the identification of an individual.

- Q1 Location of interview?**
Glasgow
Lanarkshire
Fife
Lothian
- Q2 Do you work in ...?**
Scottish Ambulance Service
Police
- Q3 How long have you been working in the Scottish Ambulance Service / Police?**

- Q4 What grade/level do you work at?**

- Q5 What are the main issues that you face when attending an overdose?**

- Q6 Are there often others there?**

- Q7 Do you find that helpful or does it make it more difficult?
(Threatening behaviours?)**

- Q8 When others are there what have they done to try to help the overdose victim?**

- Q9 How useful do you think this has been?**

- Q10 How soon after a person has overdosed and you normally arrive at the scene?**

- Q11 How often are you the first emergency service to arrive?**

- Q12 What would you normally do at the scene?**
Information collection? _____
Intervention? Use or carry Naloxone? _____

Q13 In what circumstances would you be sending or taking someone to hospital?

Q14 What do you think you would do if someone refused to go to hospital?

Q15 If they are not hospitalised do you provide them with information about...

- Drug Awareness
- Local Treatment Services
- Overdose Awareness

Q16 If yes, what is the format of the information you provided?

- Leaflets
- Verbal information
- DVD
- Information on local drug services

Other (please describe) _____

TRAINING AND INFORMATION

Q17 Have you ever been given specific training on drugs and drug users?

- Yes
- No

Q18 If yes, when?

Q19 Have you ever been given specific training on managing an overdose situation?

- Yes
- No

Q20 If yes, when?

Q21 Do you feel that you have adequate information about the use of Naloxone?

- Yes
- No

Q22 Do you carry Naloxone?

- Yes
- No

Q23 Are you aware of the recent changes in the law regarding Naloxone?

- Yes
- No

Q24 Do you think Naloxone should be made available for drug users to have in case of overdose?

Q25 Do you think that the Police should attend at every overdose situation where an ambulance is called? Why?

Q26 Do you currently have any input to training...?

- For drug users and their families
- With drug services

Q27 In the past, have you had any input to training...?

- For drug users and their families
- With drug services

FINAL QUESTION

Q28 Is there anything else you think could be done to reduce drug users' risk of overdose?

Appendix 3c Interview Schedule – A&E Consultants

Reducing Drug Users' Risk of Overdose A&E Consultant's Interview Schedule

Has the participant read the information sheet?

Assure the participant that **all information given is in confidence and will be anonymised**. No-one from services or elsewhere will be able to identify any individual in the final report and **no** details will be asked for that could lead to the identification of an individual.

- Q1 Location of interview?**
- | | |
|-------------------|--------------------------|
| Glasgow | <input type="checkbox"/> |
| Lanarkshire | <input type="checkbox"/> |
| Fife | <input type="checkbox"/> |
| Lothian | <input type="checkbox"/> |

I am now going to ask you about overdoses which have been defined as 'a situation where after using, a person passed out and couldn't wake up. The lips of the person who overdosed might have turned blue and their breathing was very slow or stopped'.

SIZE AND NATURE OF THE PROBLEM

- Q2 How many overdoses do you think this department treats in an average month?**
-

- Q3 Do you think this number is typical of other similar hospitals across Scotland?**
- | | |
|-----------|--------------------------|
| Yes | <input type="checkbox"/> |
| No | <input type="checkbox"/> |

- Q4 Have you come across individual patients who have overdosed on more than one occasion?**
- | | |
|-----------|--------------------------|
| Yes | <input type="checkbox"/> |
| No | <input type="checkbox"/> |

- Q5 From the list of drugs can you tell me which are most often involved in overdose situations? (SHOW PROMPT CARD)**

Tick all boxes that apply

- | | |
|----------------------|--------------------------|
| Heroin* | <input type="checkbox"/> |
| Valium* | <input type="checkbox"/> |
| Cannabis | <input type="checkbox"/> |
| Cocaine* | <input type="checkbox"/> |
| Crack cocaine* | <input type="checkbox"/> |
| Amphetamines* | <input type="checkbox"/> |
| Alcohol | <input type="checkbox"/> |

Other (please name) _____

- Q6 Is there normally somebody with the patient when he/she arrives?**
- | | |
|-----------|--------------------------|
| Yes | <input type="checkbox"/> |
| No | <input type="checkbox"/> |

- Q7 How would you describe the relationship between that person and the person who overdosed? (SHOW PROMPT CARD)**

- | | |
|--------------------|--------------------------|
| Close friend | <input type="checkbox"/> |
| Acquaintance | <input type="checkbox"/> |
| Stranger | <input type="checkbox"/> |
| Relative | <input type="checkbox"/> |

Other (please name) _____

- Q8 What time of day do you think most overdoses present at A&E?**
- Morning
- Afternoon.....
- Evening
- Night
- No difference.....

TREATMENT

- Q9 Does the Department have a procedure or ICP for the management of opiate overdose?**
- Yes
- No
- Q10 If not, do you think that that is something that might be considered in the future?**
- Yes
- No
- Q11 Does the Department have access to a Drug Liaison Nurse or similar resource?**
- Yes
- No
- Q12 If not, do you think that that is something that might be considered in the future?**
- Yes
- No
- Q13 In what circumstances would an overdose patient be admitted to the wards?**
-
- Q14 Can you estimate the percentage of overdose patients that would leave hospital without having been admitted?**
-

DISCHARGE AND REFERRAL

- Q15 Are patients given any information on safer drug use and overdose at the hospital before being discharged?**
- Yes
- No
- Q16 If yes, what information is given?**
- Leaflets
- Verbal information
- DVD
- Information on local drug services
- Other (please describe) _____
- Q17 Are patients asked if they would like a referral to any drug services?**
- Yes
- No
- Q18 If a patient is already in contact with a drug service, is that service made aware of the patient's overdose?**
- Yes
- No

OVERDOSE MANAGEMENT

- Q19 Do you think that the staff team has all the resources that it requires in order to deal with drug overdoses?**
Prompt: This includes knowledge, experience, time etc.
- Yes
- No
- Q20 If not, what do you think would improve the situation?**
-

Q21 Do you feel that the staff team normally has enough information about the circumstances of the overdose to manage the overdose situation?

Yes
No

Q22 If not, what further information would you want to have?

Q23 Are there any circumstances where you think an A&E Dept. would be an inappropriate setting for treating a person who had experienced a drug overdose?

OVERDOSE TRAINING AND INFORMATION

Q24 What do you think would be the best way to get overdose information across to drug users?

Q25 What do you think would be the best way to get overdose information across to drug users' families?

EMERGENCY SERVICES

Q26 We know some witnesses wait some time before they call an ambulance, why do you think this is?

Q27 What do you think would encourage witnesses to call for help sooner?

Q28 PROMPT: If not already mentioned ask specifically about calling for an ambulance?

Q29 What reasons do you think people might have for not calling an ambulance at all?

Q30 In your experience do ambulance services offer information on local drug services?

Yes
No

FINAL QUESTION

Q31 Is there anything else you think could be done to reduce drug users' risk of overdose?

Appendix 3d Survey Instrument – Experienced Overdose

Have You Experienced An Overdose?

Thank you for taking the time to fill in this questionnaire. The information collected will be used to make recommendations to help reduce drug users' risk of overdose across Scotland.

For this research we are defining an overdose as 'a situation where after using, you or another person passed out and couldn't wake up.'

- Q1 Have you ever overdosed?**
Yes Go to Question 2
No Go to Question 9
- Q2 If yes, how many times have you overdosed?**

- Q3 Were you taken to hospital after your last overdose?**
Yes Go to Question 4
No Go to Question 8
- Q4 Who took you there?**

- Q5 Were you given any information on safer drug use and overdose at the hospital before being discharged?**
Yes Go to Question 6
No Go to Question 7
- Q6 If yes, what information were you given?**
Leaflets
Verbal information
DVD
Information on local drug services
Other (please describe) _____
- Q7 Were you asked if you wanted a referral to any drug services?**
Yes
No
Can't remember
- Q8 Were you receiving support for your drug use at the time of the overdose?**
Yes
No
- Q9 Have you ever been given any information on preventing overdose?**
Yes
No
If yes who gave you the overdose information? _____
If no, would you like to have overdose information? _____
- Q10 Is there anything else you think could be done to reduce drug users' risk of overdose?**

THANK YOU VERY MUCH FOR YOUR HELP.

Appendix 3e Survey Instrument – Witnessed Overdose

Have You Witnessed An Overdose?

Thank you for taking the time to fill in this questionnaire. The information collected will be used to make recommendations to help reduce drug users' risk of overdose across Scotland.

For this research we are defining an overdose as 'a situation where after using, you or another person passed out and couldn't wake up.

- Q1 Have you ever witnessed an overdose?**
Yes Go to Question 2
No Go to Question 4

Q2 If yes, how many times have you witnessed an overdose?

- Q3 At the last overdose you witnessed how would you describe the person who overdosed?**
Close friend
Acquaintance
Stranger
Relative

Other (please describe) _____

Q4 What do you think are the causes that might lead to an overdose?

Q5 Can you tell me the signs of an overdose that would give you most concern?

Q6 If you identified that someone has overdosed would you contact emergency services immediately or would you try something else first?

- Q7 Have you ever been given any information on preventing overdose?**
Yes
No

If yes who gave you the overdose information? _____

If no, would you like to have overdose information? _____

- Q8 If yes, Can you describe the information you were given?**
Leaflets
Verbal information
DVD
Information on local drug services

Other (please describe) _____

Q9 How relevant or useful was the information you were given?

Q10 What do you think would be the best way to get overdose information across to drug users' families?

Q11 Is there anything else you think could be done to reduce drug users' risk of overdose?

THANK YOU VERY MUCH FOR YOUR HELP.

Appendix 3f Survey Instrument – NHS 24 & 999 Staff

Reducing Drug Users' Risk of Overdose – Telephone Response Questionnaire

Thank you for taking the time to fill in this questionnaire. We are interested in hearing about your experience in dealing with calls regarding drug overdoses. The information collected will be used to make recommendations to help reduce drug users' risk of overdose across Scotland.

- Q1** How many calls regarding overdoses do you think you deal with in an average month?

- Q2** Do you think this number is typical of other Telephone Response staff across Scotland?
Yes
No
- Q3** Does your organisation have a procedure or Care Pathway for the management of opiate overdose?
Yes
No
- Q4** If not, do you think that that is something that should be considered in the future?
Yes
No
- Q5** Have you been given specific training on managing an overdose situation?
Yes
No
- Q6** If yes, when?

- Q7** Are you aware of the changes in the law regarding Naloxone?
Yes
No
- Q8** Do you feel that you have adequate information about the use of Naloxone?
Yes
No
- Q9** What information or advice do you relay to the caller?

- Q10** What do you consider to be the main issues/challenges for the caller in dealing with an overdose situation?

- Q11** Do you think that you have all the resources (knowledge, experience, time etc.) required to deal with drug overdoses?
Yes
No
- Q12** If not, what do you think would help to improve the situation?

THANK YOU VERY MUCH FOR YOUR HELP.

ISSN 0950 2254
ISBN 978 0 7559 7290 6
(Web only publication)

www.scotland.gov.uk/socialresearch

RR Donnelley B58330 10-08

