Forth Valley
Alcohol & Drug Partnership

DRUG DEATHS IN FORTH VALLEY, SCOTLAND

2012

A report on the findings of the Forth Valley Alcohol and Drug Partnership Drug Related Critical Incidents Group

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Acknowledgements

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Executive Summary

Case Vignette: A Typical Drug Death Victim in Forth Valley 2012

The average Drug Death victim in Forth Valley would be a White Caucasian 37 year old male. He would have started his substance misuse at the age of 15 years; around that time he would also have left school. At this point, he might have taken up employment. His childhood may have been disrupted; he might have had a family history of psychiatric difficulties and/or substance misuse. He may even have suffered physical and/or sexual abuse as a child.

From the age of 15 years onwards, he would have proceeded to misuse a cocktail of drugs including cannabis, amphetamines, LSD and ecstasy. Approximately five years after leaving school he would have started taking heroin. He would have started injecting at around 23 years of age. He would have maintained meaningful and close relationships with his friends and family members throughout his life. He would have had children; however, they would not have lived with him and he would have lost custody of them.

He would have been known to at least 2 services, intermittently, including his GP and specialist substance misuse services in Forth Valley during the 5 years prior to his death. In this time he would have been misusing several types of substances including heroin and benzodiazepines (prescribed and/ or non-prescribed). He would have encountered at least one complex episode of a co-morbid psychiatric or physical health problem. He would also have experienced other adverse life events, such as bereavement, assault and the loss of a close relationship. At some point in his life, he would have suffered a non-fatal drug overdose. He would have criminal record and have served a prison sentence some point during his life.

At the time of his death, he would be unemployed and living with other adults. He would have been classed as single. He would have been close to friends and family members and so would not have been socially isolated, but may also have experienced difficulties in these relationships. During this time he would have been known to GP but would not have sought or received pharmacological treatment for his drug dependency. He would continue to misuse a cocktail of illicit and prescribed substances.

On the day of this death, he would have purchased at least one ‘tenner’ bag of heroin alongside benzodiazepines. He would have shared these amongst friends/co-users and injected in the presence of them. He would have died in the presence of others and would have been believed to be sleeping and any attempts to revive him would therefore have been delayed. Any means of formal resuscitation such as CPR, would have been only conducted when instructed to do so by the ambulance, and would usually be partial in nature. He would have died at his resident home address.

At post mortem his blood sample would have revealed a cocktail of depressants such as heroin, benzodiazepines, and/or methadone as well as anti-depressant medication. His cause of death would most likely have been classed as “Adverse Effects of heroin”.

Background

Aims and Objectives

The principal aim of the Forth Valley Drug Death and Critical Incident Review group is the reduction and prevention of critical incidents and drug deaths in Forth Valley. This report includes information pertaining to the geographic, social, criminal offending, substance misuse, physical, psychiatric/psychological and service use characteristics as well as the specific circumstances of drug deaths that occurred in Forth Valley in 2012. Based on this information, the group has set forth recommendations to facilitate the reduction of drug deaths and inform policy and practice at a local and national level.

Methods

The population of drug deaths (DDs) in Forth Valley in 2012 consisted of 27 cases. Information about these deaths was collected via dissemination of the East Central Scotland Drug Deaths Questionnaire to services who were in contact with the deceased individual prior to their death, as well as case notes held by social care services, specialist addiction services, general practice, prison and Police Scotland. Data relating to the specific cause of death, post-mortem and toxicology was obtained from the Procurator Fiscal.

Key Results

Incidence and Prevalence of Drug Deaths

- There were a total of 27 drug deaths (DDs) in Forth Valley in 2012
- The average drug death rate in Forth Valley in 2012 (0.090 per 1000) was lower than the 2008-2012 Scottish average rate of 0.11 per 1000
- Although the highest number of drug deaths occurred in Falkirk, the highest rate of drug deaths in Forth Valley occurred in the Clackmannanshire area
- Clackmannanshire also has the highest proportion of problem drug users based on population totals in Forth Valley and problem drug users in Clackmannanshire have a higher drug death rate than those in the other two council areas
- 100% of Forth Valley DD victims were White Caucasian
- 85.2% of Forth Valley DD victims were male
- The mean age of the Forth Valley DD victim in 2012 was 36.7 years
- The average age of drug deaths victims is increasing

Demographic, Social Functioning and Life Context Trends

- Just over half (51.9%) of drug death victims were living alone at the time of their deaths
- The living arrangements of drug death victims at the time of their deaths were stable for only about half of the victims over the six months prior to death
- The majority (74.1%) of DD victims were single at the time of their death
- The majority (74.1%) of DD victims had children; the overall pattern was that underage children tended to live with their mothers, regardless of whether or not she was a substance user
- Five children lost one of their primary caregivers through drug death

- The majority of DD victims were not socially isolated; many were known to have a close relationship with a family member and/or at least one close friend
- The mean age at which DD victims left school was 15 years
- Data pertaining to employment/education activity after leaving school was not routinely reported by services.
- At the time of death, 85.2% of DD victims were unemployed

Criminal Justice Issues and Offending Patterns

- The majority of the drug death victims had a criminal history (91.7%)
- 13.5% of the victims who had been arrested, were arrested at least once 6 months prior to their death
- 79.2% of DD victims had served a prison sentence at some point during their lives; with many serving multiple sentences
- Three victims died within 2 weeks of release from prison

Physical, Psychological/Psychiatric Health and Significant Life Events

- The majority of DD victims (66.7%) experienced psychological or psychiatric difficulties, the most common of which was symptoms of depression
- 44.4% of the DD victims were known to have suffered significant physical difficulties
- 63% of DD victims were known to have experienced a significant adverse event in their adult lives and 35.7% had experienced adversity in childhood
- Most common adverse life events included child custody loss, bereavements, serious relationship problems and assault/physical abuse
- The majority of DD victims (70.3%) had experienced a combination of psychological difficulties, physical difficulties and/or life events alongside their substance misuse problems

Substance Misuse Histories

- The vast majority of the drug death victims were known poly-drug users, 59.3% of which were IV users
- The average age at which drug misuse began was 15 years, and age at which individuals first injected was 22.6 years
- By the time of their deaths, the victims had an average drug using career of over 21 years
- 63% were known to have overdosed at some point in their lives, often on multiple occasions
- 70.4% of the drug death victims were known to have had severe problems with their alcohol consumption at some points in their lives. For 63.2% these problems persisted until their deaths

Service Use Histories

- All drug death victims were known to at least one service in the 5 years prior to their deaths
- The majority of drug death victims (81.5%) had accessed at least one service in the 6 months prior to their deaths
- General Practitioners saw 81.5% of the eventual drug death victims in the 6 months prior to their deaths
- A large proportion (81.5%) of DD victims did not seek/receive treatment for their drug problem 6 months before they died
- 18.5% were receiving pharmacological treatment in the 6 months prior to their deaths
- Four of these individuals were still on a substitute prescribing programme at the time of their deaths

Circumstances of the Death

- Drug deaths in 2012 in Forth Valley occurred at a relatively even rate during the spring and summer months, but increased markedly in October and November
- Overall, drug deaths were no more likely to occur during a weekend than on a weekday
- The majority of DDs (63%) occurred in the presence of others, which were in all cases known to the victim
- In many cases where others were present, the victim was simply believed to be sleeping at the time of their death, thus delaying any possible interventions
- CPR was attempted by bystanders in about half of the cases (76.5%); however, this was often partial and had to be instructed by the ambulance crew over the telephone
- 15 of the 27 drugs deaths involved opiates and bystanders were present; in these cases it is possible that the effects of the opiates could have been reversed if the overdose had been recognised and take-home-naloxone had been available at the scene

Toxicology Findings

- Benzodiazepines, heroin/morphine, methadone and anti-depressants were the four most common substances involved in the drug deaths of 2012 in Forth Valley
- 88.8% of victims had taken benzodiazepines shortly before their death
- All deaths involved at least one opiate substance
- All but one of the DDs occurring in Forth Valley were polysubstance deaths
- There is widespread evidence for diversion of prescribed substances and non-adherence to medication prescribed by General Practitioners

Recommendations and Actions

- Forth Valley should continue to collect data within the Forth Valley Drug Deaths Database, working in partnership with the ECSAS MCN. This process should be reviewed and updated in partnership with NHS FV Public Health Directorate. This process of reviewing deaths should be more rigorous and it is recommended that is should employ similar methodology to the NHS Forth Valley suicide review processes.
  Action: Complete review of Drug Death process. Ensure actions are shared and completed by Clinical Governance groups.

- Annually review and maintain robust information sharing protocols between all partner agencies.
  Action: Maintain and review ISPs annually.

- Continue to facilitate data collection and support for the ISD and their compilation of the National Drug Related Death Reports.
  Action: Fully clarify new DRD Data collection processes

- The group must consider further the particularly high drug death rate in Clackmannanshire, look to understand the reasons for this and target preventative strategies accordingly.
  Action: Full DRD report to be highlighted to Clackmannan ADP and the CPP.

- Ensure that bereavement counselling is available to minors, the group notes and supports new Forth Valley initiatives in this area.
  Action: Continue to highlight, promote and support work in this area.

- It is recommended the ICP process captures a full client employment history.
  Action: Highlight this need to the ICP group.

- Communication difficulties meant that this report did not have the usual levels of social work information. This issue should be monitored.
  Action: Ensure Social Work data is provided by Social Work to the DRD group.

- In relation to prison liberations, it is recommended that information as to whether a prisoner has been given over dose awareness training and naloxone is included with the information about methadone dosing.
  Action: Prison Healthcare Management to support staff to utilise FACE to improve information sharing and communication relating to discharges.

- Services should be aware of the important role of health in the recovery of substance users. Services should increase the quality of recording of both mental and physical health problems and the associated actions to improve the general health of clients.
  Action: Highlight to ICP group, ensure regular medical reviews, ensure regular recovery reviews for those with treatment services.

- The NHS Forth Valley ORT Champion must engage with doctors and other health professionals to promote best care of substance users and raise awareness of their multiple co-morbidities. General Practitioners should be particularly involved in this.
- The NHS Forth Valley ORT Champion must engage with doctors and other healthcare professionals to raise awareness of the non-adherence and diversion of prescribing regimes. This appears to be particularly marked in Clackmannanshire.
  Action: Representatives of the group to meet with the NHS **Forth Valley ORT Champion and lead GPs. Particular focus to be given to promoting GP prescribing in Clackmannanshire.**

- Increase workforce knowledge and competency in relation to utilising existing psychological interventions and make use of all available means to support individuals at risk, including mutual aid and self-help groups.
  Action: Ensure the FVADP stretch aim to deliver ROSC training to 100 addiction staff is met.

- Further analysis of the deaths that occurred within services should occur to ensure optimal learning. There were 2 deaths identified as suicides in this cohort – both of these were in contact with services
  Action: Further investigation is required to be undertaken in regard to the deaths in service, these investigations should external partners to the NHS. A report will be shared with the DRD group.

- All services should carefully record their clients' substance misuse and overdose histories.
  Action: Highlight to ICP group; this should be captured using a standardised tool and incorporated in the risk assessment.

- All individuals in contact with substance misuse treatment services should be provided with overdose awareness training and Naloxone supply.
- Bystanders who have been present at an overdose should be strongly encouraged to be given overdose awareness training and a supply of Naloxone.
- Family members of service users should be specifically targeted for overdose training and Naloxone supply.
  Action: Naloxone group to provide information to DD group and Integrated Clinical Governance Group; assurance needs to be gained around penetration levels of naloxone supply within each service.

- Continue the Scottish Ambulance Service, Non Fatal Overdose report work.
  Action: Annual report to be provided to the DD group by Signpost Recovery, detailing incidents and engagement levels.

- DD victims are in contact with lots of different services – but not treatment services. The ADP should continue to actively promote workforce development in areas such as the Citizen's Advice Bureau, benefits agencies, Child and Family Social work departments and Criminal Justice settings to ensure staff have knowledge of substance misuse services and can appropriately signpost people.
  Action: ADP to support, evaluate and report on workplace development intiatives.

- At the end of a period of treatment services should provide a risk assessed discharge plan to ensure smooth transition between services and ongoing recovery.

Action: to highlight to ICP and pathways groups to ensure supportive documentation

Section 1: Introduction

Forth Valley Alcohol and Drug Partnership Drug Related Critical Incident Group is a multi agency partnership formed to review the circumstances around substance related death in Forth Valley. Forth Valley has a strong history of research into drug deaths, having been the site of pioneering research by Deborah Zador in 2005 into factors which precipitate drug deaths across Scotland. The work of the group, including this report, seeks to build on this strong foundation.

It has the express aim of reviewing all drug deaths and using the key learning points not just to prevent future drug death, but also to improve the care and treatment experience of services users and their carers. The group is also explicitly tasked with delivering locally the recommendations of the National Forum on Drug Related Death. Since the beginning of 2009, the group has also submitted relevant information to ISD Scotland for their National Drug Related Death Project, in accordance with their requirements and stipulations.

The group has worked in accordance with the guidelines set out in a jointly agreed Information Sharing Protocol, which allows sufficient information to be linked and shared, but also satisfies the rigours and safeguards of data protection legislation.

Section 2: Methodology

This report is a retrospective analysis of trends, similarities and common themes occurring within victims of drug deaths in Forth Valley over the past year (2012). Information has been analysed from a descriptive perspective and does not infer that the data collated necessarily identifies risk factors attributable to a drug death. In order to accomplish such a task one would require a controlled sample of a living, drug taking and general population.

2.1 Population

In total, there were 27 individuals who died as a result of a fatal drug overdose in Forth Valley in 2012. Deaths occurring as the result of both accidental and deliberate overdoses (suicides) were reviewed by the group. Included in this report is descriptive information pertaining to the individuals who died as a result of an illicit overdose in the Forth Valley area between January and December 2012. All of these fatalities have been confirmed of dying from a fatal drug overdose by post-mortem toxicology reports obtained from the Procurator Fiscal. A further two cases were reviewed by the drug death group in Forth Valley, but their deaths were ultimately attributed to causes other than a fatal drug overdose.

2.2 Definition of a Drug Death (DD)

The definition of a Drug Death (DD) is complex, with individual studies adopting specific definitions, which vary depending upon the focus of the study. The Scottish Criminal Drugs Enforcement Agency (SCDEA) defines a drug death as:

'Where there is prima facie evidence of a fatal overdose of controlled drugs. Such evidence may be recent drug misuse, for example controlled drugs and/or a hypodermic syringe found in close proximity to the body and/or the person is known to the police as a drug misuser although not necessarily a notified addict."

The complexity of providing a suitable DD definition is demonstrated by the differences in definitions incorporated by different organisations. For example, the World Health Organisation (WHO) defines it as 'fatal consequences of the abuse of internationally controlled substances and/or of non medical use of other substances for psychic effects,' (WHO, 1993; p7). This definition allows the incorporation of deaths indirectly associated with drug abuse, which would be excluded by the SCDEA, such as chronic intoxication, suicide, drug abuse-related accidents and drug-abuse related diseases.

This definition is similar, but not identical, to the definition employed by the General Register Office for Scotland (GROS). The GROS definition includes instances in which toxicological findings indicate the presence of a controlled substance, but where this substance may not necessarily have been a factor contributing to the individual's death.

The Inclusion/Exclusion criteria presented below incorporates the ICD-10 codes used by various national Drug Related Deaths investigations, e.g. GROS, 2008 and The National Investigations into Drug Related Deaths 2003 (Zador et al., 2005) and Drug Misuse Statistics Scotland (ISD, 2008). Subsequently, the Drug Death Monitoring Group conforms to this definition of a DD.

2.3 Inclusion Criteria: ICD-10

Drug Deaths, where the underlying cause of death has been coded to the following sub-categories of 'mental and behavioural disorders due to psychoactive substance use';

a)
- (i) opioids (F11)
- (ii) cannabinoids (F12)
- (iii) sedatives or hypnotics (F13)
- (iv) cocaine (F14)
- (v) other stimulants, including caffeine (F15)
- (vi) hallucinogens (F16); and
- (vii) multiple drug use and use of other psychoactive substances (F19)

b) Deaths coded to the following categories and where a drug listed under the Misuse of Drugs Act (1971) was known to be present in the body at the time of death:

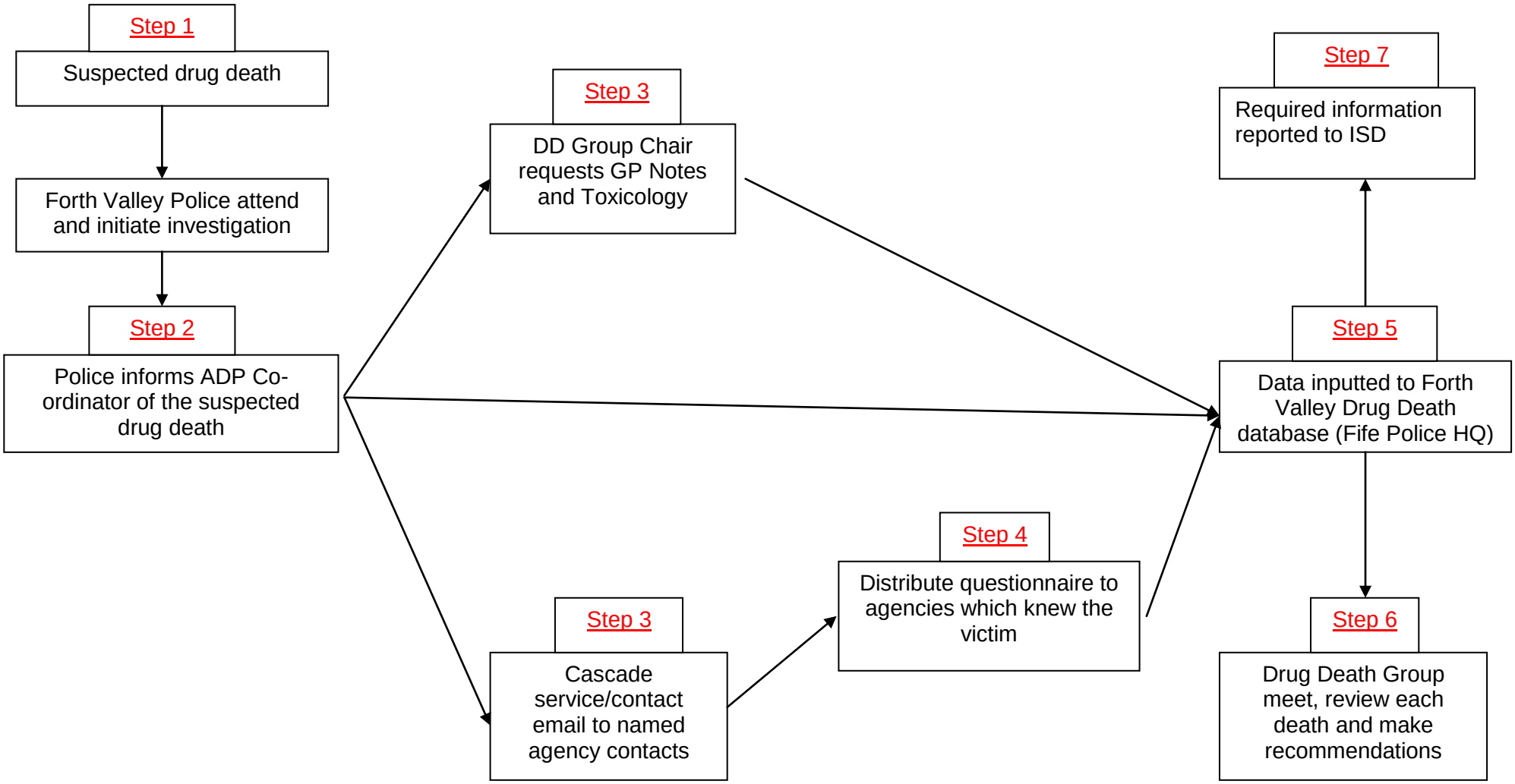
- (i) accidental poisoning (X40-X44);
- (i) intentional self-poisoning by drugs, medicaments and biological substances (X60—X64);
- (ii) assault by drugs, medicaments and biological substances (X85) and
- (iii) event of undetermined intent, poisoning (Y10-Y14)

2.4 Exclusion Criteria

(a) deaths coded to mental and behavioural disorders due to the use of alcohol (F10), tobacco (F17) and volatile substances (F18)
(b) deaths coded to drug abuse which were caused by secondary infections and related complications (e.g. septicaemia)
(c) deaths from AIDS where the risk factor was believed to be the sharing of needles;
(d) deaths where a drug listed under the Misuse of Drugs Act was present because it was part of a compound analgesic or cold remedy, e.g.:
    - Co-proxamol: paracetamol, dextropropoxyphene
    - Co-dydramol: paracetamol, dihydrocodeine
    - Co-codamol: paracetamol, codeine sulphate

All three of these compound analgesics have, particularly co-proxamol, been used in suicidal overdoses.

2.5: Flowchart – Forth Valley data collection response to deaths (where misuse of drugs is suspected)



2.6 Step-by-step Guide to Data Collection

Step 1.

A suspected drug death occurs in the Forth Valley and police attend and carry out investigation into the circumstances surrounding the death. The length of the investigation depends upon the individual circumstances and can vary from a few days to a number of months.

Step 2.

Police inform the ADP of the suspected drug death. At this point, the name and date of birth of the deceased are shared.

Step 3.

The ADP disseminates the East Central Scotland Drug Death Questionnaire to all agencies who knew the victim for completion. At this point, the Chair of the Forth Valley Drug Deaths Group also request toxicology from the Procurator Fiscal and the GP notes from the relevant General Practitioner.

Step 4.

Agencies check records to see if the individual has accessed their respective services. If the individual is known to a particular agency, the Drug Death Questionnaire is completed by that agency and returned to the Drug Deaths Researcher to be entered into the Drug Death Database.

Step 5.

All questionnaires, case notes and post-mortem/toxicology reports are sent to Fife Police Head Quarters where details are entered into the DD Database.

Step 6.

The Forth Valley Drug Related Critical Incident Review Group meets to discuss each death and make recommendations.

Step 7.

The Drug Death Researcher reports each Drug Death, alongside all the detail required of the death, to the ISD in accordance with government stipulations.

2.7 Protocol and Creation of the Drug Deaths Database

Services who had contact with the deceased individuals prior to their deaths complete the East Central Scotland Drug Death Questionnaire, which contains sections on the following domains:

1. Demographic Characteristics
2. Life Context and Social Functioning
3. Criminal Justice Issues and Offending History
4. Substances Use History
5. Physical and Psychological Health
6. Service Provisions
7. Additional information

2.8 Drug Deaths Database

The main source of information for the current report was the Forth Valley Drugs Death Database (EXCEL/SPSS), which holds all data on Drugs Deaths that have occurred within the Forth Valley area since January 2010. The database is securely held on a stand-alone machine and housed within the Fife Police Headquarters. The group has worked hard to deliver an Information Sharing Protocol which allows sufficient information to be linked and shared, but also satisfies the rigours and safeguards of data protection legislation.

2.9 Data Analysis

For the purposes of the present report, data contained within the Drug Deaths Database was collated and analysed by one researcher. The data analysis presented in the current report is limited to descriptive statistics. The researcher is supervised by the Chairperson of the Drug Related Critical Incident group. The process of data collection and analysis broadly involved the following stages:

1. Maintenance of the database on a regular basis, entering of new information and regular cleansing of existing data
2. Background research on past/current government directives and relevant literature
3. Extraction of relevant data pertaining to the seven domains of the questionnaire outlines above
4. Extraction and submission of data required by ISD for the National Drug Related Death Database.
5. Data analysis (via Excel/SPSS) and interpretation/synthesis
6. Presentation of results

2.10 Data Collection Sources

Outlined below are lifestyle domains and sources used in data collection:

Domain	Sources Used
1. Demographic Characteristics	- Sudden Death Report - Drug Death Questionnaire
2. Life Context and Social Functioning	- Sudden Death Report - Social Work Notes, Social Enquiry - Criminal Justice Service Reports - Psychiatric Reports - GP Notes and Correspondences - CADS/FVCJDTS Notes - Drug Death Questionnaire
3. Criminal Justice and Offending	- Sudden Death Report - Post-Mortem/Toxicology Reports - Drug Death Questionnaire
4. Substance Use History And 5. Physical and Psychological Health	- Sudden Death Report - GP Notes and Correspondences - CADS/FVCJDTS Notes - Psychiatric Reports - Social Work Notes - Drug Death Questionnaire
6. Service Use History	All of the above sources
7. Additional Information	All of the above sources

2.11 Missing Data

The availability/lack of information for all cases is stated clearly throughout the content of this report and it is noted that use of multiple sources may reflect variations in the data obtained. However, the availability of additional sources such as the East Central Scotland Drug Death Questionnaire and access to GP notes has enabled the DD group to maximise the insight into the established life domains of the DD victims of 2012. Indeed, the DD group acknowledge this as part of an ongoing aim, rather than a limitation, whereby the aim is to continue to synthesise information from multiple sources and develop a systematic approach in identifying the lifestyle patterns of DD victims.

Recommendations

- Forth Valley should continue to collect data within the Forth Valley Drug Deaths Database, working in partnership with the ECSAS MCN. This process should be reviewed and updated in partnership with NHS FV Public Health Directorate. This process of reviewing deaths should be more rigorous and it is recommended that is should employ similar methodology to the NHS Forth Valley suicide review processes.
- Annually review and maintain robust information sharing protocols between all partner agencies.
- Continue to facilitate data collection and support for the ISD and their compilation of the National Drug Related Death Reports.

2.12 Format of Results

The results of the present report are, as previously stated, analysed from a descriptive perspective and are then compared and contrasted to drug deaths at a Scottish national and UK-wide level. For the purpose of clarity, the structure of the present report does not directly reflect the layout of the East Central Scotland Drug Death Questionnaire; instead, the results section (Section 3) is divided into the following series of sub-sections:

1 - Demographic Characteristics
2 - Life Context and Social Functioning
3 - Criminal Justice and Offending
4 - Physical, Psychological/Psychiatric Health and Significant Life Events
5 - Substance Misuse Histories
6 - Service Use Histories
7 - Circumstances of the Deaths
8 - Toxicology Results
9 - Pharmacology of Heroin in Forth Valley

Section 3: Results

3.1 Demographic Characteristics

This section describes patterns surrounding the incidence and location of drug deaths. It also considers gender, age and ethnicity of drug death victims.

3.1.1 Incidence and Prevalence of Drug Deaths

In 2012 the Forth Valley Drug Death and Critical Incident Review Group considered 30 cases including drug related, non-drug related and drug deaths cases. These cases were discussed and reviewed, which enabled the group to focus on the individual circumstances surrounding each death.

The group's definition of a drug death considers those deaths that are directly attributable to the overdose of an illicit substance and not the broader scale of deaths including deaths from accidental injury, blood borne viruses and suicides.

Of these 30 cases, 27 were subsequently confirmed as drug deaths by toxicology at the time of writing this report. The remaining three cases were attributed to other causes.

Key Points

- There were a total of 27 drug deaths (DDs) in Forth Valley in 2012

3.1.2 Residency of DD victims within Forth Valley

The resident council area of DD victims in Forth Valley during 2012 are displayed in Table 1 below.

Table 1: DD Victims Council Areas of Residency 2012 (n = 27)

Council Area	Number of DDs
Clackmannanshire	10
Falkirk	12
Stirling	5

The majority of drug deaths in 2012 occurred in the victim's own homes. This was the case for 14 victims (51.9%), although two of these individuals were pronounced dead in hospital (but had consumed the fatal drugs in their own homes). 13 individuals (48.1%) died away from their homes; of these, five individuals died in hospital (after consuming the fatal drugs in a location other than their homes). Two individuals (7.4%) died in public places.

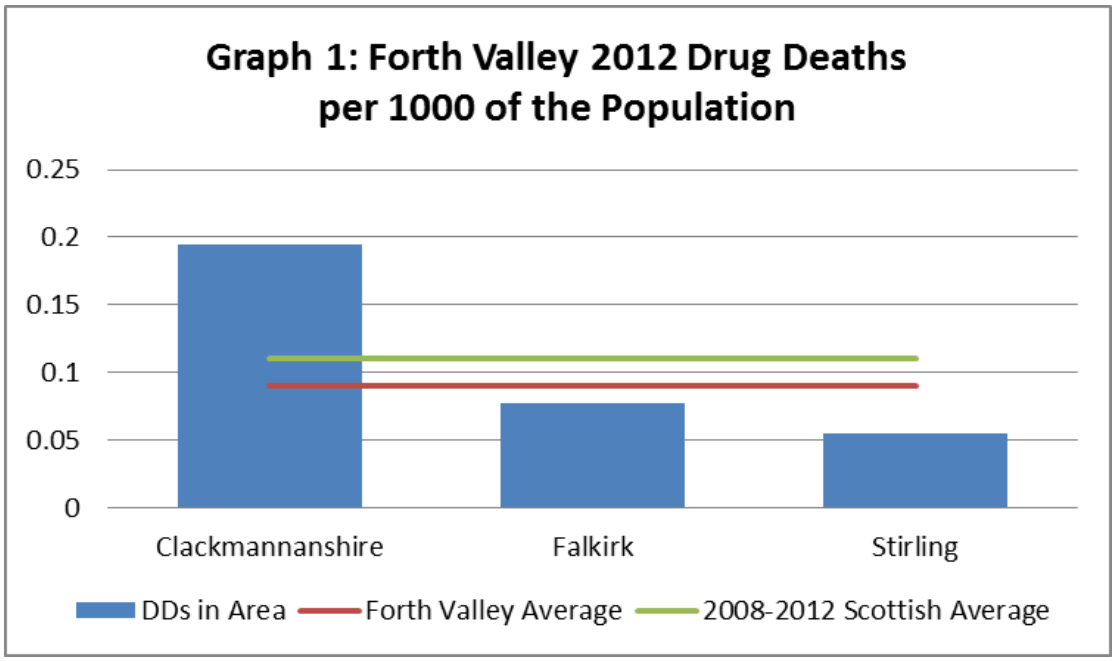
These results demonstrate that in 2012 the drug death victims in Forth Valley died in close proximity to their homes. It is therefore probable that they did not have to travel far to obtain their drugs and elevated death rates in specific locations are not as a result of individuals travelling to those areas in order to obtain the drugs.

The calculation of the number of drug deaths per 1000 of the population corresponding to the location of the drug death enables identification of DD hotspots, by demonstrating which geographical areas display elevated DD rates when their populations are taken into account. The DD rate per 1000 of the population has been calculated according to geographical area. Table 2 displays the population of the three council areas of Forth Valley.

Table 2: Population of the Council Areas within Forth Valley[1]

Falkirk	Stirling	Clackmannanshire
156,800	91,020	51,280

Across the whole of Forth Valley, the number of drug deaths per 1000 was 0.09 in 2012, which is below the 2008-2012 Scottish average rate of 0.11 drug deaths per 1000. However, when considering the separate council areas of Forth Valley, the rates are as follows: most drug deaths occurred in Clackmannanshire (0.195 per 1000), followed by Falkirk (0.077 per 1000) and Stirling (0.055 per 1000). These patterns are summarised in graph 1 below:



An alternative way of assessing the relative number of drug deaths across the three council areas within Forth Valley is by comparing the number of drug deaths in the area to the number of problem drug users[2]. There are an estimated 480 problem drug users in Clackmannanshire, 1000 in Falkirk and 710 in Stirling. These figures suggest that based on the entire population, the highest proportion of problem drug users in Forth Valley are based in Clackmannanshire (9.36 problem drug users per 1000 of the population), followed by Stirling (7.80) and Falkirk (6.38). The fact that the highest proportion of drug deaths in Forth Valley occur in Clackmannanshire is therefore consistent with the fact that this area is also the home of the highest proportion of problem drug users. However, when the drug death rates are presented as a function of the total number of problem drug users, the figures suggest that problem drug users in Clackmannanshire also have higher

[1] This information was obtained from the General Register Office (GRO) for Scotland
[2] These figures were estimated by the General Register Office (GRO) for Scotland for 2009/2010

death rates than in the other areas: in Clackmannanshire, there were 18.28 drug deaths per 1000 problem drug users in 2012, which there were 12 in Falkirk and 7.04 in Stirling.

Key Points

- The average drug death rate in Forth Valley in 2012 (0.090 per 1000) was lower than the 2008-2012 Scottish average rate of 0.11 per 1000
- Although the highest number of drug deaths occurred in Falkirk, the highest rate of drug deaths in Forth Valley occurred in the Clackmannanshire area
- Clackmannanshire also has the highest proportion of problem drug users based on population totals in Forth Valley and problem drug users in Clackmannanshire have a higher drug death rate than those in the other two council areas

3.1.3 Gender and Ethnicity

The majority (85.2%) of Forth Valley drug death victims in 2012 were male. The male: female gender ratio in was 23:4. This is broadly consistent with national patterns: across the whole of Scotland in 2012, 72% of all drug deaths victims were male (GROS, 2012).

All 27 drug death victims (i.e. 100%) were white British, the predominant ethnicity in Forth Valley.

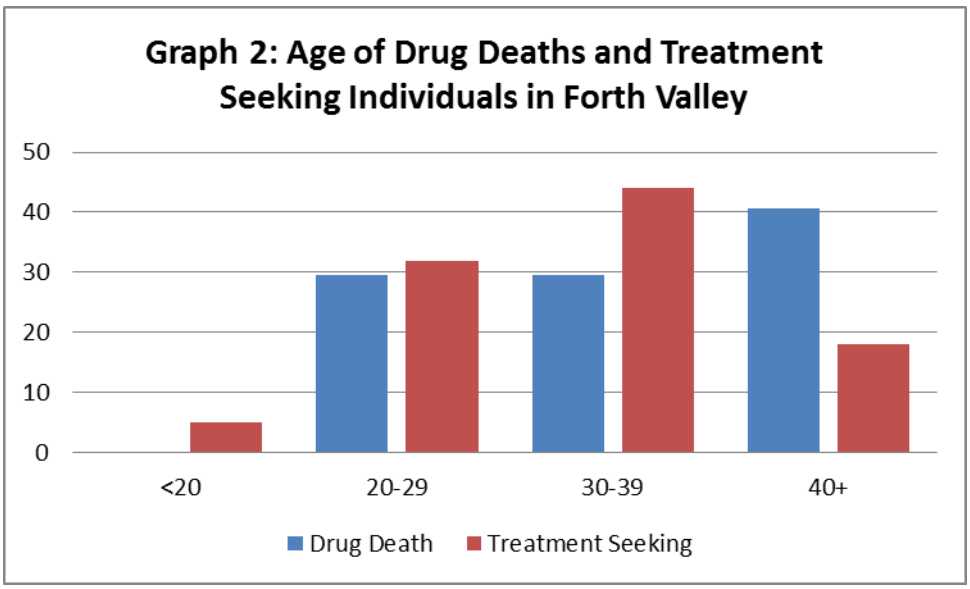
3.1.4 Age

The age of DD victims of Forth Valley in 2012 ranged between 21 and 59 years, with a mean age of 36.7 years. This is comparable to the Scottish average; the median age of drug death victims in 2012 in Scotland was 38 years (GROS, 2012)[3]. The average age of drug deaths victims is increasing across all areas of Scotland, including Forth Valley.

The drug deaths in Forth Valley in 2012 span a wide range of ages. When broken down into separate age categories spanning 10 years each, the results show that the majority of victims (40.7%) fell into the 40+ year age group. An equal number of drug death victims (29.6%) were between 20-29 and 30-39 years of age. Unlike previous years, no victim was under the age of 20.

While there appears to be a trend for the individuals to die due to a drug death at a slightly later stage in life, the majority of individuals seeking substance misuse treatment for the first time in Forth Valley[4] fall within the 30-39 year age group. These figures are summarised in graph 2 below:

[3] National figures are calculated using median
[4] These figures were obtained from the ISD and are for the year ending March 2010



This indicates that while individuals were most likely to seek treatment in their 20s or 30s, but a drug death is likely to occur at a later time in life.

Key Points

- 100% of Forth Valley DD victims were White Caucasian
- 85.2% of Forth Valley DD victims were male
- The mean age of the Forth Valley DD victim in 2012 was 36.7 years
- The average age of drug deaths victims is increasing

Recommendations:

- The group must consider further the particularly high drug death rate in Clackmannanshire, look to understand the reasons for this and target preventative strategies accordingly.

3.2 Life Context and Social Functioning

This section describes drug death victims' accommodation and living arrangements at the time of their death and in the six months prior to their deaths. This section also considers information relating to employment, both directly after school and at the time of death as well as patterns surrounding the individuals' relationships with both friends and family.

3.2.1 Housing and Living Arrangements

Living arrangements at the time of death were known for all individuals. Just over half (51.9%) of DD victims were living on their own at the time of their deaths, the remaining 48.1% were living with others; that is, their partners, parents, relatives or friends at the time of their death. Four drug death victims had no fixed abode. Of these, two stayed at various different locations of friends and family members and two were living in homeless accommodation at the time of their deaths.

When considering the housing status of the drug death victims, it is important to recognise that in a number of cases the living arrangements varied frequently, and the lifestyles of these individuals were sometimes described as "chaotic". As such, in addition to the homeless individual mentioned above, an additional eleven victims (40.7%) experienced at least one change in living situation in the six months prior to their deaths. In seven of these cases, this was because they had been incarcerated in the 6 months prior to their death. In two cases the change in living arrangements was due to changes in their relationship status and in a further two individuals had been evicted from their prior accommodation and was subsequently in homeless accommodation.

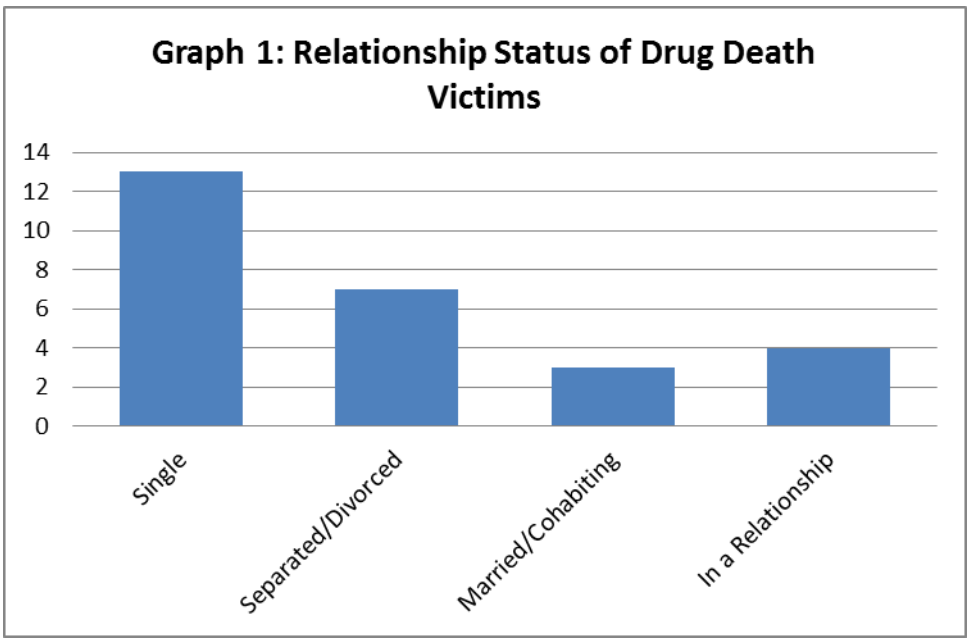
Overall, these results suggest that only about half of the DD victims were living in stable environments. However, the fact that a large number of drug death victims were living with others suggests that they were supported by a network of friends and families. It also indicates that amongst the chaos of their drug use they were able to sustain relationships with others, which is considered in more detail in the next section.

Key Points

- Just over half (51.9%) of drug death victims were living alone at the time of their deaths
- The living arrangements of drug death victims at the time of their deaths were stable for only about half of the victims over the six months prior to death

3.2.2 Relationship and Family Information

The relationship status of the drug death victims is considered here as it provides an indication of the level of social support available to the DD victims. Graph 1 below shows the relationship status of individuals at their time of death.



The majority (74.1%) of DD victims were single, separated or divorced at the time of their deaths. 25.9% were known to be in a relationship (three individuals were married/cohabitating).

Of the seven individuals who did have partners at the time of their deaths, 42.9% had a partner who also had a known substance or alcohol misuse problem. For these individuals, their drug misuse use was probably perpetuated by their environment. Since this information is not recorded routinely, this figure may, in reality, be higher. Furthermore, 57.1% of those who were in a relationship at the time of their deaths were also known to have experienced significant difficulties in these relationships.

3.2.3 Relationship with Children

20 of the 27 DD victims (or 74.1%) had children, however, this does not imply that the victims were directly responsible for their children's welfare. Seventeen of these victims had children under the age of 18. However, the children were living with the drug death victims at the time of their deaths in only three cases (15% of those who had children). In total, 44 children lost a parent due to a drug death in 2012 in Forth Valley. Of these, 34 were under the age of 18. Five children lost their primary caregiver.

3.2.4 Friendships and Relationships

Information about the nature of relationships DD victims held with friends was also considered. However, while information relating to close family relationships was generally available, information about meaningful friendships was sparse and more difficult to ascertain. Of the 27 drug death victims of 2012, 51.9% were known to have had at least one relative they felt close to. Of those individuals, the majority shared this close relationship with a parent (n=10). Three individuals had a close relationship with a sibling and one had a close relationship with a cousin. Two individuals had parents who were known to be alcohol dependent. In three cases, it was known that the family member also had a significant substance misuse problem.

59.3% of the drug death victims were known to have at least one meaningful friendship. However, in 14/16 of these individuals (87.5%), the friends were also known to be substance misusers.

This information shows that the drug death victims were generally not socially isolated as a result of their drug use and had managed to maintain meaningful relationships with others, including those outside the drug using community. This suggests that there was perhaps some degree of social support available to the drug death victims as they did have relatives and friends to whom they could turn for support if it was needed. There is a support base, that can be tapped into provide important information relating to overdose and drug misuse that could be cascaded to not only the drug using, but wider spectrum of the community.

Key Points

- The majority (74.1%) of DD victims were single at the time of their death
- The majority (74.1%) of DD victims had children; the overall pattern was that underage children tended to live with their mothers, regardless of whether or not she was a substance user
- Five children lost one of their primary caregivers through drug death
- The majority of DD victims were not socially isolated; many were known to have a close relationship with a family member and/or at least one close friend

3.2.5 Education and Employment Status after Leaving School

The mean age at which DD victims left school was 15 years. This information was only known for five individuals. The employment status immediately after leaving school was also only known for ten individuals; half of these were employed, three had pursued further training and only 2 were known to have been unemployed.

3.2.6 Employment Status at the Time of Death

At the time of their deaths, the vast majority of DD victims were in receipt of benefits. Only four victims were in stable employment at the time of their death (14.8%); the remaining victims were unemployed. This is perhaps not surprising given that DD victims had a prior history of drug abuse starting around the age of 15 years[5]. Although on average, individuals did not die as a result of their drug abuse until the age of 37 years, they were, on average, abusing drugs from around the time they left school, providing an indication of the chronicity of their substance misuse and subsequent impact of this on their quality of life.

[5] See Section 5.

Key Points

- The mean age at which DD victims left school was 15 years
- Data pertaining to employment/education activity after leaving school was not routinely reported by services.
- At the time of death, 85.2% of DD victims were unemployed

Recommendations

- Ensure that bereavement counselling is available to minors, the group notes and supports new Forth Valley initiatives in this area.
- It is recommended the ICP process capture a full client employment history.
- Communication difficulties meant that this report did not have the usual levels of social work information. This issue should be monitored.

3.3 Criminal Justice and Offending

The present section examines the DD victims' criminal and offending history in more detail. History of incarcerations is also considered.

3.3.1 History of Offending

The criminal justice and offending histories were available for 24 of the 27 drug death victims. Of these, 22 individuals (91.7%) had a criminal history. These 22 individuals had all been arrested at least once in their lives; three of these (13.5%) had been arrested in the six months prior to their deaths.

3.3.2 History of Incarcerations

19 individuals (or 79.2%) were known to have served at least one prison sentence some point during their lives. Fifteen of these individuals had been incarcerated more than once. Seven individuals had been in prison in the 12 months before their death.

Table 1: Number of DDs occurring following prison release

Time since most recent prison release	No. of DD victims (n = 19)
Less than 2 weeks	3
2 weeks to 1 month	0
1 to 6 months	4
6 months to a year	0
More than a year	12

As shown in Table 1, of those who had served a prison sentence in the past, three individuals died within 2 weeks of being released from prison and a further four individuals died within 6 months. Whether or not these individuals were given naloxone upon their release is generally not recorded or reported to the group, which makes this difficult to ascertain.

Key Points

- The majority of the drug death victims had a criminal history (91.7%)
- 13.5% of the victims who had been arrested, were arrested at least once 6 months prior to their death
- 79.2% of DD victims had served a prison sentence some point during their lives; with many serving multiple sentences
- Three victims died within 2 weeks of release from prison

Recommendations

- In relation to prison liberations, it is recommended that information as to whether a prisoner has been given over dose awareness training and naloxone is included with the information about methadone dosing.

3.4 Physical/Psychological Health and Significant Life Events

This section explores the types of physical and psychological/psychiatric problems suffered by the DD population in Forth Valley, with a particular emphasis on co-morbidities and life events.

Data pertaining to the physical and psychological health of the DD victims in Forth Valley was available for all 27 individuals at the time of writing this report. However, it is not possible to say how complete this data might be; therefore the current section can only summarise what is known about these individuals. It is likely that the results reported in the present section are underestimating the real situation.

3.4.1 Psychiatric/Psychological Problems

Eighteen of the 27 drug death victims (or 66.7%) were identified as having psychiatric or psychological difficulties.

By far the most common problem reported were both mood and anxiety disorders, with 11 individuals (61.1%) each having reported such symptoms, half of which were prescribed medication.

Four individuals (22.2%) suffered from psychotic symptoms and two (11.1%) had a diagnosed personality disorder. It is likely that their symptoms were exacerbated by their substance misuse.

At least six of the above cases experienced complex and multiple psychiatric difficulties.

Furthermore, four drug death victims (or 22.2% of those with psychological difficulties) had either expressed suicidal ideation, or attempted suicide at least once in their lives and nine (50%) were known to have self-harmed.

3.4.2 Physical Health Problems

Twelve of the 27 drug death victims (or 44.4%) were known to have suffered from significant physical difficulties.

Common problems included Blood-borne viruses (n = 5), severe respiratory problems (n = 5), vascular diseases (n = 3), cardiac diseases (n = 3) and seizures/epilepsy (n=3).
In three cases there was a clear link between chronic pain and their subsequent substance misuse.

Key Points

- The majority of DD victims (66.7%) experienced psychological or psychiatric difficulties, the most common of which was symptoms of depression
- 44.4% of the DD victims were known to have suffered significant physical difficulties

3.4.3 Significant Life Events

Information pertaining to the childhoods of the drug death victims was not available for all individuals. This information was generally not available for those victims in the older age groups. However, ten (or 37%) individuals were known to have experienced significant difficulties in childhood. These individuals reported disrupted childhoods, physical abuse, sexual abuse and/or had spent time in foster/kinship care.

Seventeen drug death victims (63%) were known to have experienced significant adverse life events, with most individuals having suffered multiple life events. The number and type of life events recorded in case notes/DD questionnaires are summarised in the table below:

Table 1: Number and Type of Life Events Recorded in Case Notes/DD Questionnaires

Life Event	No. of individuals	% of individuals
Child Custody Problems	11	64.7%
Bereavement	7	41.2%
Accident	3	17.6%
Relationship Break-up	3	17.6%
Abuse/Assault	3	17.6%

The most common life event impacting the lives of DD victims were child custody problems (64.7%) and bereavements, which 41.1% of this group had experienced. The loss was often recorded as that of a parent, sibling, child, or close friend. Assault and serious relationship problems were also suffered by a proportion of the individuals (17.6%). It should be noted that incidents of physical and/or sexual abuse are likely to be markedly underreported and that these rates are, in reality, higher.

At a basic level, the above information provides an indication of the level of instability and vulnerability of these individuals in their lives. The personal histories show that these DD victims experienced sexual, physical and/or emotional abuse and significant losses, which may have in turn been precipitating, maintaining and/or consequential factors of their substance misuse.

Sadly, in some cases the drug death victim's siblings, partners or friends were not only substance users but also drug death victims themselves. The life events of the victims convey a sense of vulnerability, which may have led to the formation of coping by means of substance misuse and therefore impacted negatively upon their abilities to manage adversity in their adult lives.

Key Points

- 63% of DD victims were known to have experienced a significant adverse event in their adult lives and 35.7% had experienced adversity in childhood
- Most common adverse life events included child custody loss, bereavements, serious relationship problems and assault/physical abuse

3.4.4 Co-morbidity

Up until this point, the psychiatric problems, physical problems and life events of these individuals have been examined in isolation. In reality, however, individuals often suffer from a combination of these factors. The concept of co-morbidity can differ widely in terms of context and interpretation. For example, an ongoing issue is whether or not co-morbidity should be viewed over the course of a lifetime, or within a predefined context (Todd et al, 2004). For the purposes of this report, analysis of DD victim's co-morbidity is considered in the context of multiple physical, psychological/psychiatric, and substance misuse morbidities over the course of their lives, as opposed to a specific point in their lives.

The table below summarises the combinations of physical and psychiatric/psychological difficulties[6], as well as life events experienced by the DD victims in connection with their substance abuse.

Table 2: Combinations of Co-morbidity with Substance Misuse Experienced by DD victims (n = 27)

Combinations	No. of Individuals	% of Individuals
Physical difficulties alone	1	3.7%
Psychological difficulties alone	3	11.1%
Life Event alone	1	3.7%
Physical + Psychological	3	11.1%
Physical + Life Events	3	11.1%
Psychological + Life Events	8	29.6%
Physical + Psychological + Life Events	5	18.5%

Only three individuals were not known to have suffered any difficulties in addition to their substance misuse (11.1%). As demonstrated by the table above, the combined effects of physical and psychological difficulties, together with life events, are far more prevalent in this population than these difficulties on their own. The majority of drug death victims (70.3%) had experienced a combination of significant physical difficulties, psychological difficulties and/or life events alongside their substance misuse problems.

Key Points

- The majority of DD victims (70.3%) had experienced a combination of psychological difficulties, physical difficulties and/or life events alongside their substance misuse problems

[6] For the purpose of this table, past self-harm or suicide attempts are included as psychological difficulties

Recommendations

- Services should be aware of the important role of health in the recovery of substance users. Services should increase the quality of recording of both mental and physical health problems and the associated actions to improve the general health of clients.
- The NHS Forth Valley ORT Champion must engage with doctors and other health professionals to promote best care of substance users and raise awareness of their multiple co-morbidities. General Practitioners should be particularly involved in this.
- The NHS Forth Valley ORT Champion must engage with doctors and other healthcare professionals to raise awareness of the non-adherence and diversion of prescribing regimes. This appears to be particularly marked in Clackmannanshire.
- Services should increase workforce knowledge and competency in relation to utilising existing psychological interventions and make use of all available means to support individuals at risk, including mutual aid and self-help groups.
- Further analysis of the deaths that occurred within services should occur to ensure optimal learning. There were 2 deaths identified as suicides in this cohort – both of these were in contact with services.

3.5 Substance Misuse Histories

The present section further examines the substance misuse histories of the drug death victims; including the age at which they started misusing illegal substances, lifetime injecting characteristics and overdose histories.

Details of the substance misuse histories were available for all of the individuals who died as a result of a drugs death in 2012.

In the 6 months prior to death, all of these victims were known to have misused prescribed and non-prescribed drugs. All by one of these individuals were known to abuse illicit substances and alcohol in combinations of two or more, which in all but one case included at least one of the following: heroin, benzodiazepines and/or methadone (prescribed and non-prescribed). This suggests that almost all drug death victims were known poly-drug users.

While the focus of this report is on drug deaths occurring as a result of illicit substances, it is nevertheless worth noting that a substantial proportion of the drug death victims (70.4%, or 19 individuals) were also known to have severe problems with their alcohol consumption at some point in their lives. For 12 individuals of these (63.2%) these problems persisted until their deaths.

3.5.1 Age at which Drug Misuse Began

The age at which the drug death victims started misusing drugs was known for 16 individuals, and ranged from 7 to 40 years, with a median age of 15 years. This coincides with the age at which most of the DD victims left school. A common trend was for the individuals to start abusing cannabis (and alcohol) at that age, followed by a combination of ecstasy, LSD, amphetamines and cocaine some months after that.

The average age at which victims started abusing heroin was 21.3 years; this figure is based on the 7 individuals for which this information was known.

The average age of a drug death victim in Forth Valley in 2012 was 36.7 years – suggesting that the drug death victims of Forth Valley had an average drug career of approximately 21 years prior to their deaths.

3.5.2 Lifetime Injecting Characteristics

The injecting behaviour of drug death victims were considered in order to gain a more detailed profile of the drug use histories and characteristics of this population.

Sixteen (or 59.3%) of the victims were known to have injected at some point in their lives. The age at which these individuals first injected was known for 8 of these individuals and ranged from 14 to 40 years, with an average age of 22.6 years. Considered together with the age at which these individuals first stated using heroin (21.3 years), these figures confirm a known trend whereby individuals tend to first smoke heroin for some time before progressing to intra-venous use of the drug.

3.5.3 Overdose Histories

Seventeen of the 27 individuals (or 63.0%) were known to have experienced at least one drug overdose at some point in their lives. For the remaining 10 individuals no overdose had been recorded, which does not imply that they have never actually experienced an overdose.

For those individuals that were known to have overdosed in the past, the number of recorded overdoses ranged between 1 and 5, which included both accidental and deliberate overdoses. Five of those who were known to have overdosed in the past had done so on multiple occasions.

Furthermore, three drug death victims were known to have overdosed in the 6 months prior to their deaths.

Key Points

- The vast majority of the drug death victims were known poly-drug users, 59.3% of which were IV users
- The average age at which drug misuse began was 15 years, and age at which individuals first injected was 22.6 years
- By the time of their deaths, the victims had an average drug using career of over 21 years
- 63% were known to have overdosed at some point in their lives, often on multiple occasions
- 70.4% of the drug death victims were known to have had severe problems with their alcohol consumption at some points in their lives. For 63.2% these problems persisted until their deaths

Recommendations

- All services should carefully record their clients' substance misuse and overdose histories.
- All individuals in contact with substance misuse treatment services should be provided with overdose awareness training and Naloxone supply.
- Continue the Scottish Ambulance Service Non Fatal Overdose work.

3.6 Service Use Histories

The present section outlines the service use histories and frequency of contact with services of the DD victims 6 months and 5 years prior to death. It also summarises any pharmacological interventions in the 6 months prior to death.

It is recognised that being engaged in a process of care and treatment has a positive impact on outcomes, including reducing the number of drug-deaths. In order to co-ordinate and integrate the care that is provided to individuals it is important to determine the extent of contacts made with services and the agencies most involved in providing a service to DD victims.

3.6.1 Services Accessed within 5 Years Prior to Death

Information pertaining to service use histories was available for all individuals. Records showed that all of these individuals had contact with at least one service in the 5 years prior to their deaths, 22 of which were known to two or more services. The particular services involved are listed in the table below:

Table 1: Contact with Services of 2010 DD victims in the 5 years prior to death (n=27)

Service	No. of individuals who had contacts	% of individuals who had contact
General Practitioner (GP)	26	96.3%
Scottish Prison Service (SPS)	14	51.9%
NHS Addiction Service (CADS)	9	33.3%
Signpost	10	37.0%
Homeless Services	2	7.4%
Mental Health Services	2	7.4%

Table 1 illustrates the types of agencies that the drug death victims were involved with 5 years before their death. *This table does not include multiple contacts made by an individual to any single agency.*

General Practitioners were the most accessed service providers; 96.3% of the drug death victims had been in contact with their GPs in the 5 years prior to death. The other most commonly accessed services were Scottish Prison Service (51.9%), NHS Forth Valley Community Alcohol and Drug Services (33.3%) and Signpost (37.0%).

No information was obtained from Social Work Services, including Criminal Justice Services. It is likely that the individuals had extensive contact with this service as well, and the group should ensure that this information is obtained in future.

3.6.2 Services Accessed During the 6 months Prior to Death

The majority of the individuals (81.5%) were known to have had contact with a service during the 6 months prior to their death, which implies that 18.5% of drug death victims were not in contact with any service at the time of their deaths.

The table below shows the number of agencies accessed by individuals (n = 14) in the 6 months prior to their deaths.

Table 2: Contact with Services of 2010 DD victims in the 6 months prior to death (n=27)

Service	No. of individuals who had contacts	% of individuals who had contact
General Practitioner (GP)	22	81.5%
Scottish Prison Service (SPS)	7	25.9%
NHS Addiction Service (CADS)	6	22.2%
Signpost	6	22.2%
Homeless Services	2	7.4%
Mental Health Services	1	3.7%

Table 2 displays the number of contacts of drug death victims made with a statutory and/or non-statutory agency 6 months prior to death. Fifteen individuals had contact with multiple services in the 6 months prior to their deaths.

Most contact had been made with the General Practitioner (81.5%), followed by the Scottish Prison Service (25.9%), NHS Addiction Service (22.2%) and Signpost (22.2%).

Key Points

- All drug death victims were known to at least one service in the 5 years prior to their deaths
- The majority of drug death victims (81.5%) had accessed at least one service in the 6 months prior to their deaths
- General Practitioners saw 81.5% of the eventual drug death victims in the 6 months prior to their deaths

3.6.3 Pharmacological Intervention 6 Months Prior to Death

Of particular interest is the proportion of DD victims who received pharmacological treatment for their drug dependency problem in the 6 months prior to their death. This information was available for all 27 individuals.

Five individuals (18.5%) of the drug death victims had received some form of pharmacological treatment for a drug misuse problem in the six months prior to their deaths. This means that the majority of victims (81.5%) did not receive or seek pharmacological treatment in the 6 months prior to death. None was known to be on a waiting list at the time of death.

Of the individuals who received pharmacological treatment, four were prescribed methadone and one was prescribed buprenorphine. At the time of death, four individuals were still prescribed this medication. The average dose was 50.5mg of methadone each day. Two individuals received their substitute prescription to take away from the pharmacy, and two had to consume their substitute prescription on the premises of the pharmacy. At the time of death, toxicology showed that three of these individuals had consumed their methadone; while one individual was prescribed buprenorphine but had not consumed it prior to their death.

Key Points

- A large proportion (81.5%) of DD victims did not seek/receive treatment for their drug problem 6 months before they died
- 18.5% were receiving pharmacological treatment in the 6 months prior to their deaths
- Four of these individuals were still on a substitute prescribing programme at the time of their deaths

Recommendations

- DD victims are in contact with lots of different services – but not treatment services. The ADP should continue to actively promote workforce development in areas such as the Citizen's Advice Bureau, benefits agencies, Child and Family Social work departments and Criminal Justice settings to ensure staff have knowledge of substance misuse services and can appropriately signpost people.
- At the end of a period of treatment services should provide a risk assessed discharge plan to ensure smooth transition between services and ongoing recovery.

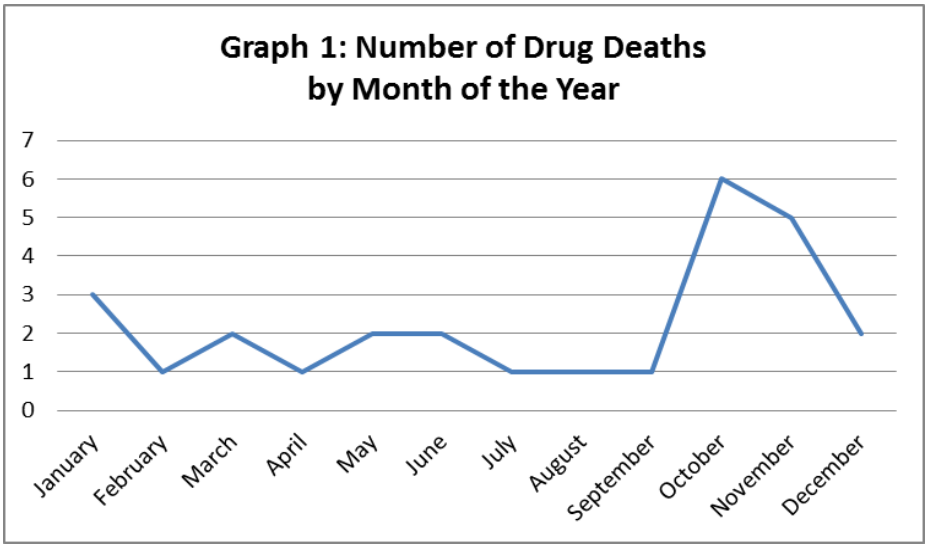
3.7 Circumstances of Death

The present section summarises the circumstances of the drug deaths in Forth Valley in 2012, including the months of the year and days of the week that the drug deaths occurred. This section also describes specific information concerning the scene of the death, such as the presence of others and attempted interventions.

Information pertaining to the circumstances of death was available for all 27 drug death victims.

3.7.1 Timings of Deaths

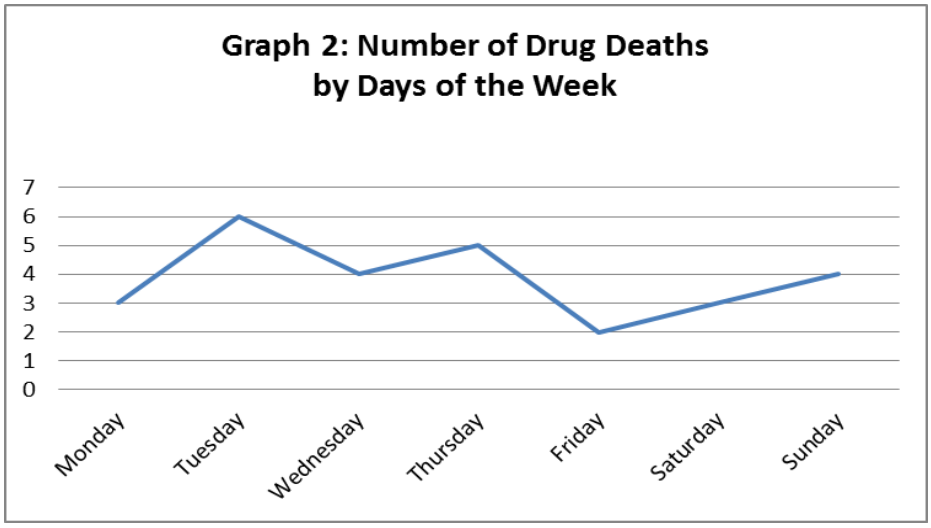
3.7.1.1 Month of the Year



As can be observed from Graph 1 above, the prevalence of drug deaths in Forth Valley remained increased markedly in October and November of 2012, but were stable for the preceding months.

As a result of the increased number of drug deaths in October and November, an emergency meeting was arranged between all key partners and chaired by Public Health, which resulted in a press release being developed and released to the public. The drug death review group also met on two additional occasions in this period over and above the normal schedule and identified the following key actions to address this unexpected increase in the number of drug deaths; firstly, overdose awareness training and Naloxone supply was increased as a matter of priority. Secondly, additional Police enforcement activity was actioned and drugs were seized and tested for any contaminants and purity levels. However, these results were inconclusive, with no differences in purity levels or contaminants identified.

3.7.1.2 Days of the Week



As can be seen from the graph above, drug death victims in Forth Valley were not more likely to occur on certain weekdays as opposed to others.

Overall, there was no noticeable trend of alcohol involvement in the drug deaths over the course of the week. Of the eleven deaths which involved alcohol, only three occurred on a weekend. Similarly, there was no trend of drug deaths involving methadone and days of the week.

Key Points

- Drug deaths in 2012 in Forth Valley occurred at a relatively even rate during the spring and summer months, but increased markedly in October and November
- Overall, drug deaths were no more likely to occur during a weekend than on a weekday

3.7.2 Circumstances of Death

The circumstances surrounding the individual drug deaths were also considered, including whether or not others were present at the time of death, if bystanders recognised common signs of overdose and what, if any intervention was employed.

The majority of DD victims (n = 17 or 63%) were in the company or in close proximity to others at their point of death. That means that others were at least present in the same premises as the DD victim during the episode of their death. In all but one of the cases, the individuals present were known to the victim (the victim where the persons present were not known to the individual, the victim died in hospital). The relationships of those persons present were: partners (n = 5), close family members (n = 12), friends of the victim (n = 7), and other (n = 2).

When considered together with the toxicology results, there were 15 deaths which involved either heroin or methadone and an individual known to the victim was present at the time of death. In these cases it might have been possible to reverse the effects of the opiates if take-home-Naloxone had been available at the scene. However, the overdose was not recognised or taken seriously in at least 11 of these cases, and take-home Naloxone was only available in one instance.

3.7.3 Snoring Immediately Prior to Death

It has been noted that individuals often are observed to be snoring prior to a visible adverse reaction to the drugs they have consumed. Respiratory distress was noted by bystanders in 4 cases (23.6% of those where bystanders were present). In many cases the victim was simply thought to be asleep at the time of their death and this may have inhibited further intervention. Individuals present were known to have checked on the DD victims, sometimes on several occasions.

Whilst most cases did not report information on snoring, it may well be that it did not appear significant to those who were present (and of course would not have been identified in those cases where individuals died alone). In such cases, the presence or absence of snoring would not have been reported to the police, and would not have been documented in the Sudden Death Report. However, awareness of such warning signs of an overdose may assist individuals in identifying overdose and intervening to prevent them becoming a drug fatality.

3.7.4 Interventions Attempted at the Scene

Of cases where a witness was present (n = 17), some form of cardio-pulmonary resuscitation (CPR) was attempted by bystanders in prior to ambulance arrival in the majority of cases (13 individuals or 76.5%). The details pertaining to the exact nature of the CPR procedures carried was out not always fully recorded. However, in most cases the CPR had to be instructed by the ambulance crew to those present over the telephone. In three cases there is evidence that the CPR was initiated by the bystanders without needing to be prompted to do so.

Often the nature of CPR conducted was partial, e.g. checking the airways, putting the DD victim in the recovery position.

Ambulances attended 24 of the 27 drug deaths. However, in 13 cases, the victim was clearly and irrevocably dead when the ambulance arrived (including 7 victims where bystanders were present). Narcan® (naloxone injection) was administered to eight victims (20%) by paramedics. In one instance, take-home-naloxone was administered to the victim by a bystander.

Key Points

- The majority of DDs (63%) occurred in the presence of others, which were in all cases known to the victim
- In many cases where others were present, the victim was simply believed to be sleeping at the time of their death, thus delaying any possible interventions
- CPR was attempted by bystanders in about half of the cases (76.5%); however, this was often partial and had to be instructed by the ambulance crew over the telephone
- 15 of the 27 drugs deaths involved opiates and bystanders were present; in these cases it is possible that the effects of the opiates could have been reversed if the overdose had been recognised and take-home-naloxone had been available at the scene

Recommendations

- Bystanders who have been present at an overdose should be strongly encouraged to be given overdose awareness training and a supply of Naloxone.
- Family members of service users should be specifically targeted for overdose training and naloxone supply.

3.8 Toxicology Results of Drug Deaths

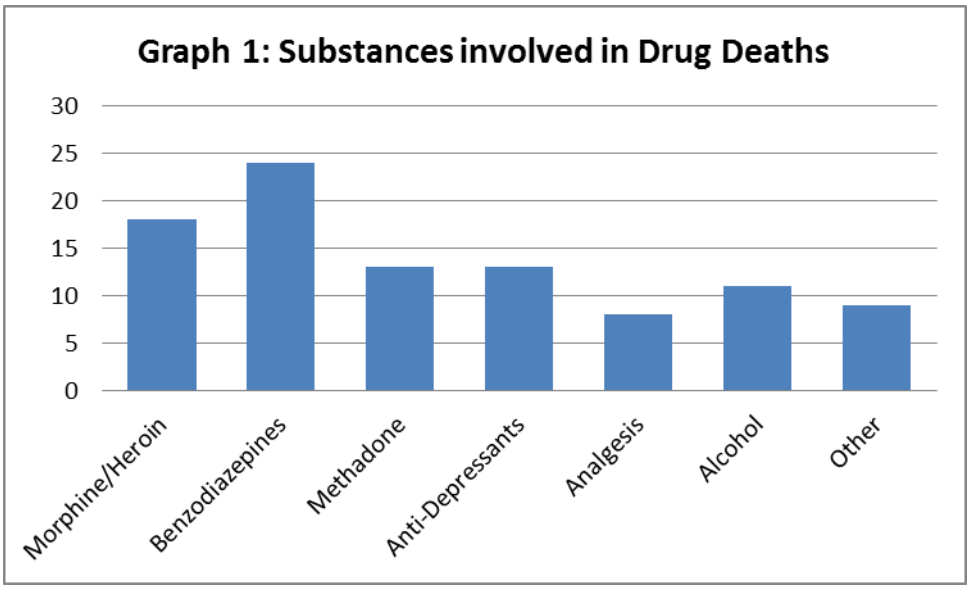
This section describes the post-mortem toxicology findings of the Drug Death victims in context of the poly-substance misuse culture in Forth Valley in 2012.

Post mortem toxicology reports of all the drug death victims were analysed to gain a greater insight into the types of substances that led to the fatal overdoses.

Forensic toxicologists conduct blood/urine tests for the substances believed to be implicated in the drug death. A typical blood test usually tests for basic drugs, including acid/neutral drugs, benzodiazepines, non-steroidal anti-inflammatory drugs (NSAIDS) and morphine. Urine samples are analysed for opiates, amphetamines, cannabinoids, cocaine, benzodiazepines, methadone, barbiturates, tricyclic antidepressants (TCA), MDMA and methamphetamine. Therefore, only those substances tested for are likely to be detected in the toxicology, potentially biasing the outcome of toxicology findings.

3.8.1. Toxicology results

Graph 1 below shows all substances which were found in the toxicology results of the drug death victims in Forth Valley in 2012. The graph also shows the number of victims who were found with each substance in their toxicology results. Please note that metabolites are not considered in the following analysis (e.g. diazepam and nordiazepam are represented simply as benzodiazepines).



As this graph shows, benzodiazepines were the most common substances involved in drug deaths in Forth Valley in 2012. It was involved in all but three cases for which this information was available, therefore being involved in playing a role in 88.8% of deaths.

Heroin/morphine was the second most common substance involved in DDs in Forth Valley in 2012, having been detected by toxicology in 18 (or 66.6%) of victims.

Methadone was involved in 48.1% of DDs in Forth Valley in 2012. Three of the individuals who died with methadone in their system had been prescribed the medication at the time of their deaths. These finding suggest that the remaining ten victims had obtained their methadone illicitly.

Antidepressants were detected in 13 (48.1%) of the drug deaths (amitriptyline n=2, mirtazapine n=10, citalopram n=2, and fluoxetine n=1).

The analgesics which were detected included gabapentin (n=3), dihydrocodeine (n=4) and tramadol (n=1).

Other substances included amphetamines and other stimulants such as cocaine and ecstasy as well as anti-psychotic drugs.

Alcohol was involved in 11 (or 40%) of deaths.

Overall, heroin/morphine, benzodiazepines, anti-depressants and methadone were the four most common substances involved in the Forth Valley DDs of 2012.

Key Points

- Benzodiazepines, heroin/morphine, methadone and anti-depressants were the four most common substances involved in the drug deaths of 2012 in Forth Valley
- 88.8% of victims had taken benzodiazepines shortly before their death
- All deaths involved at least one opiate substance

3.8.2 Role of Prescribed Medication

There were several instances where prescription substances were found in the toxicology that had not been prescribed to the individuals. As such, while 13 individuals were found to have consumed methadone shortly prior to their deaths, only three of these were prescribed the substance. This indicates that many individuals are sourcing the drugs which ultimately lead to their deaths illicitly. An additional individual was prescribed buprenorphine, which was subsequently not detected in their toxicology, indicating that this may have been diverted.

Benzodiazepines were found in 24 cases, but had only been prescribed to six of these individuals. A further individual had been prescribed a benzodiazepine, which was subsequently not detected in their toxicology results.

In total, 16 antidepressant substances were found in 13 of the deaths. Of these, 7 had been prescribed. Furthermore, three individuals had been prescribed antidepressant medication which was not found in their toxicology results.

Dihydrocodeine was prescribed to two individuals; this was found in the toxicology of both of these individuals. However, one individual had been prescribed pregabalin which was not detected in their toxicology.

There was also evidence of illicit sourcing and diversion of anti-psychotic medication in the drug deaths of 2012, including promazine. Propranolol and quinine were also noted to have been diverted.

When analysing these results in the context of the area in which these drug deaths occurred, it appears that there may have been more diversion of anti-depressant, analgesics and anti-psychotic medication in the Clackmannanshire area of Forth Valley than in the other areas.

3.8.3 Substances Implicated Concomitantly

As demonstrated by the figures the previous section, almost all of the drug death victims died as a result of the consumption of a combination of drugs. On average, 3.81 separate substances were discovered in the toxicology of the Forth Valley drug death victims. Only one victim died as the result of consumption of a single substance.

Also of note is the fact that all drug deaths involved at least one opiate, including methadone, morphine and/or dihydrocodeine.

Key Points

- All but one of the DDs occurring in Forth Valley were polysubstance deaths
- There is widespread evidence for diversion of prescribed substances and non-adherence to medication prescribed by General Practitioners

Recommendations

- The ADP must engage with doctors and other healthcare professionals to raise awareness of the non-adherence and diversion of prescribing regimes. This appears to be particularly marked in Clackmannanshire.