



## **Annex 2: Draft protocol for cocaine DRDs main study**

### **Cocaine-related deaths in Europe**

### **Draft protocol for data collection**

**Revised following discussion with experts during the DRD meeting on 16–17 November 2011 and Mini-survey in March 1012**

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### **On behalf of EMCDDA**

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Analyse the data sources, numbers and characteristics of cocaine-related DRD cases reported in Special Mortality Registries, or eventually in General Mortality Registries (GMR) when necessary (contract code: CC.11.EPI.14)

*Analysis of the data sources, numbers and characteristics of cocaine-related DRD cases reported in Special Mortality Registries, or eventually in General Mortality Registries (GMR) when necessary. June 2012. Code: EMCDDA CC.11.EPI.14.*

*Full report available from studies in <http://www.emcdda.europa.eu/themes/key-indicators/drd>*



## Aims of the project

Information for the Key indicator on drug-induced deaths (overdoses) and mortality among drug users (DRD indicator) of the EMCDDA can be based on data retrieved from the General Mortality Register (GMR) or Special Register(ies) (SR) for its component on overdoses. The EMCDDA recommends that both sources are used, if possible.

Against a background of increasing prevalence of cocaine use in some countries, and indications of increased number of cocaine deaths in some countries (in excess of 1 000 in 2007–8), the EMCDDA has decided to undertake a small project aimed at providing better information on this phenomenon of cocaine-related deaths in Europe. There are indications that cocaine deaths are more difficult to define, detect and record as such in mortality registries, and more particularly in some countries' GMRs due to coding practices. Also, the characteristics of cocaine deaths are multifactorial (socio-demographics, toxicology, circumstances and mechanism of death) and are often different from opiate deaths and may not be collected by GMRs.

In many cases it is difficult to ascertain if a death was primarily due to cocaine poisoning, or whether it was due to a combination of substances, or the result of a pre-existing health condition precipitated by cocaine use. It remains unclear how cocaine deaths are identified in Europe. In particular, it is possible that deaths occurring shortly after, and induced by, cocaine use, but which are not poisonings in the strict sense, are not identified as induced by cocaine, and therefore are not reported (EMCDDA, 2007:19–20) <sup>(1)</sup>.

This project aims to describe the trend in numbers reported to SRs (or GMRs) over 15 years. In addition, it aims to inform the demographic and drug-use characteristics of recent cases (last 5 [available] years), in this instance mainly drawing on information collected by SRs. This element will complement the current routine data collection on drug-induced deaths, which is mainly focused on opiate-related drug-induced deaths, and provides only limited information on cocaine-related deaths. It will also establish how cocaine deaths are identified and classified, and gauge the level of under-reporting and possible reasons for this.

The project builds on work carried out in a previous contract that aimed to map DRD data available in SRs in some EU countries. It will encourage interested countries to work on common study questions and data analysis to inform public health decisions, and to facilitate comparison.

## Project objectives

The objective of the contract is to:

- analyse the characteristics (age, gender, simple 'substance' typology) of cocaine-related DRD cases reported in SRs, in a limited number of countries over the last 5 (available) years (probably 5–7 countries where there are enough cases);
- to describe the trend in numbers over 15 years where possible;
- an additional objective is to compare the numbers (and basic characteristics if possible) of cocaine deaths in SRs and GMRs in this small number of countries.

## What this study covers

- This study mainly focuses on drug-induced deaths (i.e. poisoning). Other deaths (i.e. indirectly related to cocaine or for which cocaine is mentioned) may be explored, for some countries where data are available, but that will be discussed during the DRD meeting with participating experts.

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<sup>(1)</sup> EMCDDA (2007), *Cocaine and crack cocaine: a growing public health issue. Selected Issue 2007*. Luxembourg: Office for Official Publications of the European Communities.



- This study mainly focuses on SRs <sup>(2)</sup>.
- This study focuses on the 5 most recent years of reporting (i.e. commonly 2006 to 2010). Up to 10 or 15 years if data are available.
- This study is not looking at the deaths of cocaine users per se (i.e. not looking at cohort studies among cocaine users).

## Methods

The draft protocol sets out the case definition(s) and/or typologies of cases. The accompanying questionnaire asks for comments on these matters, and requests additional information to assist in drawing up a basic core data structure for collection of aggregated data for analysis, and in assessing the availability of data and feasibility of the project. Lastly, it asks whether national experts are interested in participating in the project, and whether they are able to do so.

## Next steps Timetable

- There was a parallel session on this topic during the DRD expert meeting on 17 November 2011.
- Discussions and responses to the questionnaire during the DRD meeting were analysed and any revisions to the draft protocol made. Those contacts agreeing to participate will then be contacted in respect of providing data and/or statistical tables. A mini-survey of interested parties took place in February and March 2012 which led to better insights in the approach to identifying potential cases, and further revisions to the draft protocol.
- Following this, the work with interested experts will be undertaken during the first half of 2012.

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<sup>(2)</sup> See reports on availability of the data in various national SRs in the section on Special Mortality Registries in <http://www.emcdda.europa.eu/themes/key-indicators/drd>

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## Draft protocol for data collection on cocaine-related deaths in Europe

There are several elements to this project that will require different levels of detail in terms of summary statistics and/or detailed data/information.

The section below (1) focuses on possible data collection related to drug-induced deaths (poisoning or overdoses) where cocaine is mentioned. The following section (2) focuses on deaths related to cocaine, other than overdoses.

### 1. Post-mortem toxicology 'mentions' in overdoses

A basic/minimum starting point could be information on cocaine 'mentions' in death certificates of **overdose cases** (i.e. the cases reported according to the EMCDDA selection D) and/or post mortem toxicology reports as undertaken in the EMCDDA toxicology field trial. Some summary numbers were given at the 2010 meeting from the field trial (1491/7408 cocaine mentions in overdose cases). Perhaps we could do this again over say a 5-year period to see what the trends are like. It would also provide a base-line against which the 'deaths' could be measured.

**Table A. Overdose cases with cocaine mentioned, by other substances identified from 2005 to 2010**

	Numbers	2005	2006	2007	2008	2009	2010	Total
	<b>Total of overdose cases with cocaine mentioned</b>							
<b>A#</b>	Cocaine alone							
<b>B#</b>	with alcohol/ cocaethylene only							
<b>C#</b>	with opioids only (with or without alcohol/cocaethylene)							
C1	with heroin/morphine (with or without alcohol/cocaethylene)							
C2	with methadone (with or without alcohol/cocaethylene)							
C3	With buprenorphine (with or without alcohol/cocaethylene)							
C4	with dextropropoxyphene (with or without alcohol/cocaethylene)							
C5	with codeine (with or without alcohol/cocaethylene)							
C6	with dihydrocodeine (with or without alcohol/cocaethylene)							
<b>D#</b>	with opioids and other substances (with or without alcohol/cocaethylene)							
D1	with opioids and benzodiazepines (with or without alcohol/cocaethylene)							
D2	with opioids and antidepressants (with or without alcohol/cocaethylene)							
D3	with opioids and antipsychotics (with or without alcohol/cocaethylene)							
D4	with opioids and amphetamine-type substances (with or without alcohol/cocaethylene)							
D5	with hallucinogens (LSD, etc) (with or without alcohol/cocaethylene)							
D6	With cannabis (with or without alcohol/cocaethylene)							
D7	With volatile substances (with or							

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	without alcohol/cocaethylene)							
D8	With ketamine (with or without alcohol/cocaethylene)							
D9	With GHB/GBL (with or without alcohol/cocaethylene)							
D10	With piperazines (with or without alcohol/cocaethylene)							
D11	With cathinones (with or without alcohol/cocaethylene)							
D12	With synthetic cannabinoids (with or without alcohol/cocaethylene)							
<b>E</b>	With other substances but not opioids (with or without alcohol/cocaethylene)							
E1	With <b>benzodiazepines</b> but not opioids (with or without alcohol/cocaethylene)							
E2	With <b>antidepressants</b> but not opioids (with or without alcohol/cocaethylene)							
E3	With <b>antipsychotics</b> but not opioids (with or without alcohol/cocaethylene)							
E4	With <b>amphetamine-type substances</b> but not opioids (with or without alcohol/cocaethylene)							
E5	With <b>hallucinogens</b> (LSD, etc) but not opioids (with or without alcohol/cocaethylene)							
E6	With <b>cannabis</b> but not opioids (with or without alcohol/cocaethylene)							
E7	With <b>volatile substances</b> but not opioids (with or without alcohol/cocaethylene)							
	With <b>ketamine</b> substances but not opioids (with or without alcohol/cocaethylene)							
	With <b>GHB/GBL</b> but not opioids (with or without alcohol/cocaethylene)							
	With <b>piperazines</b> but not opioids (with or without alcohol/cocaethylene)							
	With <b>cathinones</b> but not opioids (with or without alcohol/cocaethylene)							
	With <b>synthetic cannabinoids but not opioids</b> (with or without alcohol/cocaethylene)							
<b>F</b>	With unspecified or other substances (with or without alcohol/cocaethylene)							

# Categories A, B, c and D are mutually exclusive.

**Table B. Age and gender distribution over the whole period, for the overdose cases with cocaine mentioned; overdose cases with cocaine + opioids; and overdose cases with cocaine without opioids**

B1: Age distribution of all **overdose** cases with **cocaine** mentioned

	Males	Females	Total
Age band (same as ST5)			
<15			

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15-19			
20-24			
25-29			
30-34			
35-39			
40-44			
45-49			
50-54			
55-59			
60-64			
>=65			
Total			x

**B2: Age distribution of overdose cases with cocaine + opioids**

	Males	Females	Total
Age band (same as ST5)			
<15			
15-19			
20-24			
25-29			
30-34			
35-39			
40-44			
45-49			
50-54			
55-59			
60-64			
>=65			
Total			x

**B3: Age distribution of overdose cases with cocaine without opioids**

	Males	Females	Total
Age band (same as ST5)			
<15			
15-19			
20-24			
25-29			
30-34			
35-39			
40-44			
45-49			
50-54			
55-59			
60-64			
>=65			
Total			x

**Table C. Total overdose cases with cocaine mentioned (alone or in combination) in GMR and SR:**

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
SR														
Sole mention														
Any														

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mention														
GMR														
Sole mention														
Any mention														

## 2. Deaths related to cocaine

Deaths may be classified as due to immediate or long-term effects of drug use, as a direct result of drug use (e.g. overdose, as explored in the section above) or indirect result of drug use (e.g. drowning while intoxicated, cardio-vascular pathology related to cocaine use), and may be accidental, intentional or of unspecified intent. Thus codes for a drug-related death exist in various chapters of ICD-10 (and ICD-9) and may be classified in a number of ways.

For the purpose of this study, the definition of cocaine-related deaths could be extended to all deaths where cocaine and/or its metabolites were reported anywhere (explicitly or implicitly) in either the underlying cause or contributing cause of death. (Implicitly is used here to denote that cocaine was one of several substances involved, e.g. in a poly/mixed/multiple substance poisoning and identified as such by reference to toxicological analyses).

This definition is operationalised as set out in the table below.

**Table D Cocaine-related death definition**

<b>Cocaine-related death definition</b>				
<i>Category No.</i>	<i>Description</i>	<i>Level (C= Core, E = Extended, F = Full)</i>	<i>ICD-9 (where available)#</i>	<i>ICD-10 (where available)#</i>
	<b>Underlying cause</b>			
	<u>Accidental</u>			
1	Mental and behavioural disorder due to cocaine	C	292.0, .1, .2, .8, .9; 304.2; 305.6	F14.X
2	Accidental drug induced poisoning — cocaine alone	C	968.5; E855.2	X42 + T40.5 & F14.1
3	Accidental drug induced poisoning — cocaine in combination	C	968.5; E855.2	X42 + T40.5 & F14.1
4	General medical condition	F	? 001-289; 320-629; 680-759; 780-959; 996-999 + E855.2	A00-F09; F20-T35; T66-T98; Y85-98; Z00-Z99 (exc. R78.2); + T40.5 & F14.1
5	Transport accidents (driver, passenger, pedestrian)	F	E800-807; E810-848 + E855.2	V01-V99 + T40.5 & F14.1
6	Accidental injury (fall, drowning, exposure to fire, cold, etc.)	F	E880-928 + E855.2	W00-X39; X50-X59 +

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				T40.5 & F14.1
	<u>Suicide</u>			
7	Suicide — poisoning by drugs/medicaments	F	E950.4, .5, .9	X62 + T40.5 & F14.1
8	Suicide — hanging	F	E953 + E855.2	X70 + T40.5 & F14.1
9	Suicide — other (poisoning by gas, drowning, fire, sharp object, jumping, etc.)	F	E951; E952; E954-959 + E855.2	X71-X84 + T40.5 & F14.1
	<u>Assault</u>			
10	Assault (inc. strangulation, discharge of firearm, assault with object, by drug, etc.)	F	E960-969, inc. E962.0, .9 + E855.2	X85-Y09 + T40.5 & F14.1
	<u>Event of undetermined intent</u>			
11	Poisoning by drugs/medicaments	F	E980.4, .5, .9	Y12 + T40.5 & F14.1
12	Other (poisoning by gas, falling, lying in front of or running into moving object, etc.)	F	E981-989 + E855.2	Y20-Y34 + T40.5 & F14.1
	<b>Contributory cause</b>			
13	Mental and behavioural disorder due to cocaine	E	292.0, .1, .2, .8, .9; 304.2; 305.6	F14.X
14	Other cocaine toxicity	E	968.5; E855.2	T40.5 & F14.1; R78.2
Note: all categories to be mutually exclusive; # included for those SRs that use ICD codes or those who can undertake their own ICD coding.				

Inclusion criteria

Negative — lack of evidence of another cause of death

Positive — existence of some indication/evidence of recent consumption/administration of cocaine

- (a) evidence of consumption/administration extracted from clinical records/external examination (history of use mentioned by family/friends, presence of drugs/paraphernalia at death scene, injection marks/venopunctures)
- (b) positive PM (AM) toxicology for cocaine and/or metabolites
- (c) presence at autopsy of signs compatible with death from an acute reaction to cocaine (indicative natural diseases — heart failure, dilated cardiomyopathy, arrhythmias, Brugada-syndrome, associated myocarditis, left valve endocarditis(?), aortic rupture, cerebrovascular complications, haemorrhagic/ischaemic stroke, seizures, hyperthermia, fatal excited delirium, rhabdomyolysis, serotonergic crises; pharmacological overdose e.g. drug couriers; pre-existing risk factors/conditions induced by chronic cocaine use — left ventricular hypertrophy, coronary atherosclerosis, vascular malformations in brain with rupture triggered by hypertension)
- (d) infections or complications related to mode of cocaine administration (± PM result for cocaine and/or metabolites).

Exclusion criteria

None

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### 3. Core dataset

It appears that a core dataset for the countries likely to participate could include the following data items: year of death; gender; age at death; cause(s) of death; intentionality; toxicology; substance(s) considered as cause of death.



### Suggested summary tables/datasets

Table 1:

Participating SR/GMR; year of death; category of death (as per table above);

See draft tables below . does it make sense?

Numbers of deaths related to cocaine,

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total

Breakdown of the total number of deaths by categories

Category No.	Description	Number
	<b>Underlying cause</b>	
	<u>Accidental</u>	
1	Mental and behavioural disorder due to cocaine	
2	Accidental drug induced poisoning — cocaine alone	
3	Accidental drug induced poisoning — cocaine in combination	
4	General medical condition	
5	Transport accidents (driver, passenger, pedestrian)	
6	Accidental injury (fall, drowning, exposure to fire, cold, etc.)	
	<u>Suicide</u>	
7	Suicide — poisoning by drugs/medicaments	
8	Suicide — hanging	
9	Suicide — other (poisoning by gas, drowning, fire, sharp object, jumping, etc.)	
	<u>Assault</u>	
10	Assault (inc. strangulation, discharge of firearm, assault with object, by drug, etc.)	
	<u>Event of undetermined intent</u>	
11	Poisoning by drugs/medicaments	
12	Other (poisoning by gas, falling, lying in front of or running into moving object, etc.)	
	<b>Contributory cause</b>	
13	Mental and behavioural disorder due to cocaine	
14	Other cocaine toxicity	

Participating SR/GMR; year of death; gender (male, female); age-group at death (as per ST5); category of death (as per tables B);

Table 2:

Participating SR/GMR; year of death; gender (male, female); age-group at death (as per ST5); substance combination (as per following list):

Cocaine only

Cocaine and alcohol

Cocaethylene

Cocaine and opioids

Cocaine and other stimulants

Cocaine and 'legal highs'

Cocaine and medications/medicaments (prescription, 'over the counter')

Cocaine and other substances

Any mention of cocaine (including 'crack')

Any mention of 'crack'

Note: these combinations are not mutually exclusive

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Statistical analysis will require breakdowns by age(-group), gender, year, drug combination(s), ICD codes (versions 9 and 10).

## Questionnaire about data collection on Cocaine-related deaths in Europe

### Contractor/Consultant

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Country	
Special (Mortality) Register	
Questionnaire completed by	
Title and names	
Position	
Institution/organisation	
Postal address	
E-mail	
Telephone	
Fax:	

Q1 Is your Special Mortality Register willing and able to participate in this study? Yes/No

Q2 Is the GMR in your country able to provide any information on cocaine-related deaths? Yes/No

Q3 Is your GMR/SR able to identify cases of cocaine-related death? Yes/No. If Yes, how is this done?

Q4 What is the geographical coverage of your SR?

Q5 What version(s) of ICD have been used by your country's GMR and for which period(s)?

Q6 What version(s) of ICD have been used by your country's SR and for which period(s)?

Q7 Please describe briefly the source(s) of information collected by your SR and the data available.

Q8 For what years can data be provided by: (a) the SR; (b) the GMR?

Q9 Which of the following data items can be provided by: (a) the SR; (b) the GMR?

Data item	SR		GMR	
	Yes	No	Yes	No
Year of death				
Gender				
Age at death/age-group				
Cause(s) of death				

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Intentionality				
Substances found at PM (AM if appropriate)				
Toxicology levels				
Substance(s) considered as cause of death				
Underlying cause ICD codes				
External cause ICD codes				
Can your Registry distinguish 'crack' from cocaine powder?				
If 'Yes' to previous question, how is this done?				

Q10 Would you be able to provide annual breakdowns for Tables B1-3 by: (a) the SR; (b) the GMR?

Q11 Would you be able to provide annual breakdowns for Tables like B1-3 if the following categories were used instead?

- Cocaine only
- Cocaine and alcohol
- Cocaethylene
- Cocaine and opioids
- Cocaine and other stimulants
- Cocaine and 'legal highs'
- Cocaine and medications/medicaments (prescription, 'over the counter')
- Cocaine and other substances

Q12 Would you be able to supply the numbers for Table C by (a) the SR; (b) the GMR?

Q13 Which sections of the cocaine death case criteria (Table D) can be met by: (a) the SR; (b) the GMR?

Category	SR		GMR	
	Yes	No	Yes	No
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

**Thank you very much for your help and cooperation!**

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