Mortality cohort studies among people who are using drugs: Revision and pilot testing of Standard Table 18

Technical report

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Gesundheit Österreich GmbH

European Monitoring Centre for Drugs and Drug Addiction

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Technical report

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This document is part of a package of documents that accompany the mapping and support of mortality cohort studies among people who are using drugs (2021) and using mortality cohort studies to answer key policy questions (2022).

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Summary

Background

This document is part of a package of documents produced in the course of a consultant study on mortality cohort studies among people who are using drugs in the EU27, Norway and Turkey commissioned by the EMCDDA (contract no.: CT.20.HEA.0113.1.0 and CT.21.HEA.0129.1.0). The objective was to revise the existing Standard Table 18 (ST18) and its core items to improve the comparability and utilization of mortality cohort studies. Further, this report aims to promote standardized data collection and reporting by the National Focal Points and their drug-related deaths experts, and encourage more countries to report their findings in this area. The intended users of this document are the national focal points, their affiliated/nominated national researchers, and other interested researchers.

Methods

Core items included in the revised ST18 were collected in the course of the production of (1) the 'Top-level European Overview' of purpose, modes, availability and results of mortality cohort studies (Task 1) and (2) four detailed 'Country breakdowns' of the methods and findings of studies in selected countries (Task 2). A contact list of institutions and researchers involved in cohort studies was developed to facilitate future work and cooperation at European level.

Results

The ST18 was restructured into two sections: 1 Standard Table 18 and 2 Overview (nationally). Contrary to the former template, the revised ST18 allows the reporting of one individual study only and includes the core items to be recommended to collect for each cohort study individually and were adapted to promote one integrated analysis and interpretation of 'drug-related deaths' and 'mortality among people who use drugs' in REITOX National Reports. Three countries pilot tested the revised ST18 and provided feedback on its content and structure: Lithuania, Croatia, and Denmark.

Conclusions

The revised ST18 aims to serve as a basis for improving the comparability and utilisation of findings of cohort studies in the EU27, Norway and Turkey. It has potential to support these and other interested countries in collecting and analysing their data according to harmonised and consistent definitions (depending on data linkage possibilities; data protection issues etc.), and to inform evidence-based public health policy making.

Keywords: Drug-related mortality, people who use drugs, causes of death, mortality cohort studies

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1 Introduction

This technical report is part of a package of documents produced in the course of a consultant study on mortality cohort studies among people who are using drugs in the EU27, Norway and Turkey commissioned by the EMCDDA (contract no.: CT.20.HEA.0113.1.0 and CT.21.HEA.0129.1.0).

It consists of the revised Standard Table 18 (ST18) and includes a set of core items to be recommended to collect for each study and an extensive contact list of institutions/researchers involved in cohort studies in the EU27, Norway and Turkey.

The aim is to **discuss, and pilot test the revised ST18** with at least three countries. The core items proposed in the revised ST18 shall be evaluated regarding whether and how they should be implemented for a harmonised collection and analysis of data at European level.

2 Background and context

The EMCDDA's monitoring of drug use and drug-related harms is based on a set of interlinked indicators, including the drug-related deaths key indicator. While one component consists of monitoring drug-induced deaths (overdoses), the other component of this indicator consists of monitoring the overall mortality among people who use drugs [ref DRD and cohort protocol and FAQ DRD].

The Agency has promoted cohort studies and supported the publication of their findings in the past. The current contract aims to update collate and to publish updated findings and evidence from these studies, in order to inform key policy questions. This is particularly timely for several reasons:

1. One of the UN SDGs (SDG 3.4.) focuses on reducing premature mortality related to non-infectious diseases. The Agency aims to contribute to this goal by monitoring premature mortality (mortality rates, excess mortality compared to the general population, cause specific mortality) among people using drugs. Beyond drug overdoses, other causes of drug-related deaths contribute to premature deaths among people who are using drugs. These other frequent causes of death include suicide, violence, HIV, hepatitis and other infections. The burden of these deaths on mortality can be monitored through longitudinal cohort studies.
2. In Europe, the number of overdose deaths is not improving. While it is estimated to be overall constant, fatalities are increasing according to the latest data available in some countries such as . Meanwhile, the roll out of evidence-based responses is uneven across the region. Cohort studies can contribute to a better understanding of the situation and identification of gaps and priorities for responses.
3. Cohort studies serve in the validation of other indicators such as overdose deaths and estimation of the number of high-risk drug users.
4. The 2018 assessment of the KI showed that this component of the drug-related deaths indicator is underdeveloped and that only a limited number of countries report data from their cohort studies, through the EMCDDA standard reporting form (standard table 18 - ST18) [ref RTX document]. There is a need to strengthen the work in this area, in term of availability of content and findings (analysis of the populations studied, mortality rates, trends and effects of risk and of protective factors), and in term of methods (harmonisation of the studies to improve comparability of the findings; linkage; coding of causes of deaths; standard reporting, revision as necessary of the standard reporting tool).
5. Finally, in 2020 - the COVID-19 pandemic emerged in Europe. Updated cohort and linkage studies will document the possible impact of the pandemic in term of overall and cause specific mortality among drug users.

Mortality cohort studies should be encouraged, in order to:

1. Measure mortality rates for people using drugs in Europe (including showing differences in the overall and cause specific mortality rates across countries, settings, and populations, and over time);
2. Compare (cause specific) mortality rates among drug users with mortality rates in the general population;
3. Assess changes in mortality rates (incl. monitoring the changes in HCV related deaths – a WHO indicator for the monitoring of the elimination of viral hepatitis; and in the future, COVID-19 – or other health threats – related mortality rates);
4. Identify new risks and patterns of use associated with higher mortality rates (including cohorts of cannabis or cocaine or other stimulants' users);
5. Identify risky situations in the process of treatment (e.g. higher overdose risk short after beginning and termination of OAT);
6. Assess the ICD coding of the causes of deaths attributed to cohort participants who die during the study, to estimate whether and to which extent unspecific coding can lead to an underestimation of overdose deaths;
7. Provide multipliers (rate of overdose deaths observed) for cross validation of the national statistics on the number of overdoses, and allow estimations of the prevalence of HRDU and HROU (denominators that are essential to develop and assess interventions targeting those most at risk);
8. Being part of cross indicator analysis, acting as an important point of validation (in particular to improve the epidemiology of high-risk drug use;
9. Help to assess good practices (incl. the effect of good quality OAT).

3 Revision of the Standard Table 18

The previous ST18 Fonte template was used as a basis for the revision, with addition and omission of some fields. Contrary to the former template, the revised ST18 allows the **reporting of one individual study only.** If a country reports more than one study on a given year, they need to report another ST18 (as is the case for e.g., the series of DRD cases with ST6).

The formerly used Fonte template (see Annexes) was restructured into **two sections** which are described below.

1 Standard Table 18

The first section is divided into three parts and constitutes the actual ST18 Fonte template: *Contact details, ST18 study factsheet and References.*

Contact details: Provided GDPR and national/EU regulation is respected, contact details of national experts that participate in mortality cohort studies among drug users and one main contact person who will be contacted in cases of any questions on the data, e.g., Head of National Focal Point (NFP), shall be provided. Alternatively, the NFP can act as a contact point.

ST18 study factsheet: The revised ST18 includes the core items to be filled in for each cohort study individually and were adapted to facilitate a clearer comparison between studies and among countries and support combined analysis at a European level in future. Core items include, for example, study title, ID (to be assigned by contact person/NFP), geographical coverage, information on enrolment, inclusion criteria, study setting, population and period but also study results such as person-years, crude mortality rates (CMR) and standard mortality ratios (SMR).

References: All publications that were used/described in the ST18 shall be listed (either in peer-reviewed journals or in other forms, grey literature)

2 Overview (nationally)

In the second section, country rapporteurs shall produce an overall picture of the study situation in the respective country. This section shall be filled out once a year by the NFPs. National rapporteurs shall choose the appropriate information from a selection of pre-formulated multiple-choice answer options regarding the important aspects:

» Confidentiality, ethical approval and consent
» Data linkage
» Way forward
» Excess mortality and premature deaths
» Risk factors
» Main causes of deaths
» Protective factors

» Recommendations

Recommendations shall be chosen from the options based on the study findings to inform policy makers and to make their implications for public health more comprehensible.

This sections also provides the opportunity to provide any 'Additional information' in free-text format on the themes mentioned above or on e.g., information on unpublished studies, plans for future studies, expressions of interest to participate in a cooperation/pooled analysis, networking etc.

3.1 Standard Table 18

Table 3.1:
Standard Table 18: Overall mortality and causes of death among cohorts of people who use drugs – version 2022

Introduction	
EMCDDA collection year	
Country	
Contact details	
Please provide **one main contact person** who will be contacted in cases of any questions on the data, e.g. Head of National Focal Point. Please provide the contact details of national experts that participate in mortality cohort studies among drug users.	
Name	
Institution	
Address	
Telephone	
E-Mail	
Study Factsheet (1)	
Please provide the following information **for each identified study individually**	
Title	Title of the study, take from publication or enter a clearly identifiable title
ID	Each study is assigned its own ID by the EMCDDA
Study site (geographical coverage)	○ National ○ Regional ○ single region ○ more than one region ○ Local ○ single city ○ more than one city ○ NA If study site is not national, please specify cities or regions: ……

Enrolment period start	.. . . (please use format DD.MM.YYYY)
Enrolment period end	.. . . (please use format DD.MM.YYYY)
End of observation period	.. . . (please use format DD.MM.YYYY)
Setting(s) of enrolment	☐ Outpatient treatment centre(s) ☐ Inpatient treatment centre(s) ☐ Low-threshold service(s) ☐ Prison(s), law enforcement ☐ After prison release ☐ Hospital(s) including emergency service(s) ☐ Other setting If Other, please specify: ……
Study population	☐ Opioid users in (opioid agonist) treatment ☐ Opioid users not in (opioid agonist) treatment ☐ Cocaine users in treatment ☐ Cocaine users not in treatment ☐ Amphetamine users in treatment ☐ Amphetamine users not in treatment ☐ Other stimulant users in treatment ☐ Other stimulant users not in treatment ☐ Cannabis users in treatment ☐ Cannabis users not in treatment ☐ Synthetic cannabinoid users in treatment ☐ Synthetic cannabinoid users not in treatment ☐ Other users <u>not</u> in treatment ☐ Other If *Other users <u>not</u> in treatment*, please specify: …… If *Other*, please specify: …… A study with two study populations can be reported twice, i.e. one report with the finding for the first subgroup (e.g., people using cocaine without opioids); and one report (copied from the first one) with the findings for the other sub-group (e.g. people using cocaine with opioids).
Comments on study population	……..

Inclusion criteria	…… (min/max age, gender/sex, diagnosis, geographic restrictions, nationality, citizenship, …)
Study type (multiple answers are possible)	☐ Register-based study (e.g., treatment data, health insurance, law enforcement, …) ☐ Prospective study ☐ Retrospective study ☐ Survey-based data ☐ Other If *Other*, please specify: ……
(Additional) data collected	☐ Personal information (i.e., gender/sex, date and/or place of birth, nationality, …) ☐ Substances used ☐ Modes of substance use (injecting drug use, high-risk drug use, etc.) ☐ Health data (e.g., diagnosed mental or psychiatric disorders) ☐ Infectious diseases data ☐ Risk factors (needle-sharing, using drugs alone, homelessness, unprotected sex, …) ☐ Opioid Agonist Treatment ☐ … ☐ Other (e.g., type of OAT) If *Other*, please specify: ……
Ascertainment of vital status and data linkage	Vital status was ascertained through ○ Linkage of the cases dataset with the general mortality register (i.e., source of systematic data on all deaths in the country) ○ Linkage with other register/registries (e.g., with a risk of underestimation of the deaths) ○ No linkage (only local data) ○ Other If Other, please specify: ……
Data protection	How was data protection ensured? ○ Fully-anonymised data Please specify: …… ○ Pseudonymized data Please specify: …… ○ Other Please specify: ……

	Who is responsible for and keeps the linked dataset used in this study? ☐ The National Focal Point ☐ Drug treatment register ☐ The authors/researchers/university ☐ Other If other, please specify: ……
Confidentiality, ethical approval and consent	Has ethical approval been obtained for the conduct of this study? ○ Yes ○ No ○ Do not know If yes, please specify the institution and year of this approval. ……..
	Were participants' consents requested for this study? ○ Yes ○ No ○ Do not know

Core items

	Female	Male	**Total**
Size of the cohort (i.e. vital status verified)			
Person-years (PY) of observation			
Death cases at the end of follow-up			
Mean age at enrolment of subjects followed up			
Mean age at death of subjects followed up			
Crude mortality rate (CMR) per 1 000 PY (95% CI)			
Mortality rate in the reference population (e.g., 1.5/1 000)			
Standard mortality ratio, SMR (95% CI)			

Comments on core items	Please specify (e.g., details on rates, or if national or European population or both available, …) ……..
	Are causes of death available for analysis in this study? ○ Yes ○ No ○ NA

	If yes: ○ All codes (underlying and contributory) ○ Only underlying cause code ○ Do not know				
Cause-specific mortality	**Cause of death category (ICD-10 code)**	**Number of deaths reported**	**Death cases/100 000 persons per year (cohort)**	**Death cases/100 000 persons per year (standard population)**	**Standard mortality ratio per cause of death (95% CI)**
	COMPULSORY: Underlying cause of death (based on the EMCDDA definition[1])				
	Harmful use, dependence, and other mental and behavioural disorders (F11, F12, F14-F16, F19)				
	Accidental poisoning (X41 & T40.0-T40.9; X42 & T43.6, X44 & T40.0-T40.9)				
	Intentional poisoning (X61 X41 & T40.0-T40.9; X62 & T43.6, X64 & T40.0-T40.9)				
	Poisoning by undetermined intent (Y11 & T40.0-T40.9; Y12 & T43.6, Y14 & T40.0-T40.9)				
	All other (unknown) causes				
	of which, ill-defined conditions				
	All codified cases **based on the EMCDDA definition of drug-induced deaths (overdose)**				
	Unknown causes	0			
	[1] The EMCDDA DRD protocol defines the operational criteria to select the 'overdose' or 'drug-induced deaths' cases, according to the common European definition. These cases are reported annually by the countries to the EMCDDA. The methods pages of the statistical bulletin provides the list of the selected ICD codes. The summary table of this list is available in Annex 1.				
	OPTIONAL: Cause of death categories and corresponding ICD-10 codes based on the standardized definitions adopted from Santo et al. (2022) (note that the overdose cases reported above should be reported below as well)				
	All injury and poisoning (F11-F16, F19, F55, V00-X99, Y00-Y39, Y85-Y87, Y89)				
	Drug-induced deaths				
	Drug use disorders and poisonings (F11- F16, F19, F55, X40- X44, X60-X64, X85, Y10-Y14)				

	Underlying cause of death (F11.0-F11.5, F11.7-F11.9, F12.0-F12.5, F12.7-F12.9, F13.0-F13.5, F13.7-F13.9, F14.0-F14.5, F14.7-F14.9, F15.0-F15.5, F15.7-F15.9, F16.0-F16.5, F16.7-F16.9, F18.0-F18.5, F18.7-F18.9, F19.0-F19.5, F19.7-F19.9, D52.1, D59.0, D59.2, D61.1, D64.2, E06.4, E16.0, E23.1, E24.2, E27.3, E66.1, G21.1, G24.0, G25.1, G25.4, G25.6, G44.4, G62.0, G72.0, I95.2, J70.2-J70.4, L10.5, L27.0, L27.1, M10.2, M32.0, M80.4, M81.4, M83.5, M87.1,R78.1-R78.5, X40-X44, X60-X64, X85, Y10-Y14)				
	Suicide (X60-X84, Y87.0)				
	Non-poisoning suicided (X66-X85, Y87.0)				
	Violence (X85-Y09, Y87.1)				
	Motor vehicle and transport accidents (V01-V99)				
	Falls / fires / burns / drownings (W00-W19, W65-W74, X00-X09)				
	All liver-related (B15-B19, B94.2, C22, I85.0, K70-K77, O98.4, P35.3)				
	Viral hepatitis (B15-B19, B94.2, I85.0, O98.4, P35.3)				
	All alcohol-related (E24.4, F10, G31.2, G62.1, G72.1, I42.6, K29.2, K85.2, K86.2, K70, K86.0, R78.0, X45, X65, Y15)				
	Cancer (C00-C97, D45-D46, 47.1, D47.3-D47.5)				
	Cardiovascular disease (I00-I99, G45, G46)				
	Chronic respiratory disease (J40-J46)				
	Digestive disorders (including chronic liver disease) (K25-K28, K35-K38, K40-K46, K73, K74, K80-K83, K85-K86, K91.5)				
	HIV-related (B20-B24)				

	Influenza and pneumonia (J10-J18)				
	Injecting-related diseases (A48.0, G06.0, G06.1, G06.2, L02.X, L03.X, L08.8, L08.9, L97, L98.4, L98.8, L98.9, M72.6, R02, B37.6, I33.0, I33.9, I34.0, I34.2, I34.8, I34.9, I35.X, I36.X, I37.X, I38, I39.X, T82.6, A40.X, A41.X, A49.1, A49.8, A49.9, B37.7, R57.2, R65.1, R65.9, M00.X, M86.X, M89.9, M46.2, M46.3, M46.4, I80, I82.2, I82.3, I82.8, I82.9, I87.0, I87.2, I87.8, I87.9, A48.8, A49.0, I26.9				
	Skin or soft tissue infections (A48.0, G06.0, G06.1, G06.2, L02.X, L03.X, L08.8, L08.9, L97, L98.4, L98.8, L98.9, M72.6, R02)				
	Endocarditis (B37.6, I33.0, I33.9, I34.0, I34.2, I34.8, I34.9, I35.X, I36.X, I37.X, I38, I39.X, T82.6)				
	Sepsis and bacteraemia (A40.X, A41.X, A49.1, A49.8, A49.9, B37.7, R57.2, R65.1, R65.9, A48.8, A49.0, I26.9)				
	Septic arthritis (M00.X)				
	Osteomyelitis (M86.X, M89.9, M46.2, M46.3, M46.4)				
	Venous diseases (I80, I82.2, I82.3, I82.8, I82.9, I87.0, I87.2, I87.8, I87.9)				
	All other (unknown) causes				
	of which, ill-defined conditions (R99)				
	All codified cases				
	Unknown causes				
Comments on cause-specific mortality	Please specify (e.g., mean age is at first treatment and not at enrolment; HIV and hepatitis deaths are reported together, …) ……..				
Implications & way forward	Is an update/re-linking of this cohort planned for the next years? ○ Yes ○ No ○ NA				

	Are pooled analysis of these data with data from other cohorts planned? ○ Yes ○ No ○ NA
	Are there plans to conduct a survival analysis using this data? ○ Yes ○ No ○ NA

References

Please list all publications that were described in this report (either in peer-reviewed journals or in other forms, grey literature)

3.2 Overview (nationally)

Table 3.2:
Overall picture of the study situation (to be filled out once a year by the NFPs)

Overview (nationally)	
Confidentiality, ethical approval and consent	Is there a national legal framework and regulation to link the data of the people enrolled and the data from the mortality registers? ○ Yes ○ No ○ Do not know If yes, please add the reference(s) of the framework (law/act.., year, institution) ……..
Data linkage	Is there a unique personal identifier for each person in the country? ○ Yes ○ No ○ Do not know
	What institution is responsible for the encryption of data? ☐ Ministry of Health ☐ National Institute of Public Health ☐ Prison administration ☐ Drug treatment register ☐ The National Focal Point ☐ Do not know ☐ Other If other, please specify: ……..
Way forward	New cohort studies are planned for the coming 3 to 4 years ○ Yes ○ No ○ NA If yes, please specify ……..

Excess mortality and premature deaths	The identified studies found an excess risk of the people enrolled compared to people of the same age and gender in the general population ○ Yes ○ No ○ NA ○ Other If Other, please specify: ……
	The identified studies showed that the deaths among the enrolled persons occured prematurely, on average ☐ Up to 10 years earlier compared to the general popualtion ☐ 11 to 20 years earlier ☐ 21 to 30 years earlier ☐ More than 30 years earlier ☐ NA ☐ Other If Other, please specify: ……
Risk factors	The main risk factors for deaths in the identified studies were (multiple choices): ☐ Injecting drugs ☐ Homelessness ☐ Using drugs alone ☐ Opioid use ☐ Male gender ☐ Female gender ☐ Unemployement ☐ Being out of treatment ☐ Quitting treatment ☐ Older age ☐ Living alone ☐ Unemployment/retirement ☐ NA ☐ Other If Other, please specify: ……..
Comments on risk factors	……..

Main causes of deaths	The **main causes of deaths** in the studies identified were: *Underlying cause of death based on the EMCDDA definition with 'Selection B' of ICD-10 codes (EMCDDA, 2009, p. 29):* ☐ Harmful use, dependence, and other mental and behavioural disorders (F11, F12, F14-F16, F19) ☐ Accidental poisoning (X41 & T40.0-T40.9; X42 & T43.6) ☐ Intentional poisoning (X61 X41 & T40.0-T40.9; X62 & T43.6), ☐ Poisoning by undetermined intent (Y11 & T40.0-T40.9; Y12 & T43.6) ☐ Unknown causes ☐ NA *Cause of death categories and corresponding ICD-10 codes based on the standardized definitions adopted from Santo et al. (2022)* ☐ All injury and poisoning (F11-F16, F19, F55, V00-X99, Y00-Y39, Y85-Y87, Y89) ☐ Drug-induced deaths: Drug use disorders and poisonings (F11- F16, F19, F55, X40- X44, X60-X64, X85, Y10-Y14) ☐ Drug-induced deaths: Underlying cause of death (F11.0-F11.5, F11.7-F11.9, F12.0-F12.5, F12.7-F12.9, F13.0-F13.5, F13.7-F13.9, F14.0-F14.5, F14.7-F14.9, F15.0-F15.5, F15.7-F15.9, F16.0-F16.5, F16.7-F16.9, F18.0-F18.5, F18.7-F18.9, F19.0-F19.5, F19.7-F19.9, D52.1, D59.0, D59.2, D61.1, D64.2, E06.4, E16.0, E23.1, E24.2, E27.3, E66.1, G21.1, G24.0, G25.1, G25.4, G25.6, G44.4, G62.0, G72.0, I95.2, J70.2-J70.4, L10.5, L27.0, L27.1, M10.2, M32.0, M80.4, M81.4, M83.5, M87.1,R78.1-R78.5, X40-X44, X60-X64, X85, Y10-Y14) ☐ Suicide (X60-X84, Y87.0) ☐ Non-poisoning suicided (X66-X85, Y87.0) ☐ Violence (X85-Y09, Y87.1) ☐ Motor vehicle and transport accidents (V01-V99) ☐ Falls / fires / burns / drownings (W00-W19, W65-W74, X00-X09) ☐ All liver-related (B15-B19, B94.2, C22, I85.0, K70-K77, O98.4, P35.3) ☐ Viral hepatitis (B15-B19, B94.2, I85.0, O98.4, P35.3) ☐ All alcohol-related (E24.4, F10, G31.2, G62.1, G72.1, I42.6, K29.2, K85.2, K86.2, K70, K86.0, R78.0, X45, X65, Y15) ☐ Cancer (C00-C97, D45-D46, 47.1, D47.3-D47.5) ☐ Cardiovascular disease (I00-I99, G45, G46) ☐ Chronic respiratory disease (J40-J46) ☐ Digestive disorders (including chronic liver disease) (K25-K28, K35-K38, K40-K46, K73, K74, K80-K83, K85-K86, K91.5) ☐ HIV-related (B20-B24) ☐ Influenza and pneumonia (J10-J18) ☐ Injecting-related diseases (A48.0, G06.0, G06.1, G06.2, L02.X, L03.X, L08.8, L08.9, L97, L98.4, L98.8, L98.9, M72.6, R02, B37.6, I33.0, I33.9, I34.0, I34.2, I34.8, I34.9, I35.X, I36.X, I37.X, I38, I39.X, T82.6, A40.X, A41.X, A49.1, A49.8, A49.9, B37.7, R57.2, R65.1, R65.9, M00.X, M86.X, M89.9, M46.2, M46.3, M46.4, I80, I82.2, I82.3, I82.8, I82.9, I87.0, I87.2, I87.8, I87.9, A48.8, A49.0, I26.9 ☐ Skin or soft tissue infections (A48.0, G06.0, G06.1, G06.2, L02.X, L03.X, L08.8, L08.9, L97, L98.4, L98.8, L98.9, M72.6, R02) ☐ Endocarditis (B37.6, I33.0, I33.9, I34.0, I34.2, I34.8, I34.9, I35.X, I36.X, I37.X, I38, I39.X, T82.6) ☐ Sepsis and bacteraemia (A40.X, A41.X, A49.1, A49.8, A49.9, B37.7, R57.2, R65.1, R65.9, A48.8, A49.0, I26.9) ☐ Septic arthritis (M00.X) ☐ Osteomyelitis (M86.X, M89.9, M46.2, M46.3, M46.4) ☐ Venous diseases (I80, I82.2, I82.3, I82.8, I82.9, I87.0, I87.2, I87.8, I87.9) ☐ Unknown causes ☐ NA

Comments on main causes of death	……..
Protective factors	Protective factors identified in the studies included: ☐ Receiving OAT treatment ☐ Receiving other treatment ☐ Other ☐ NA If Other, please specify: …….
Comments on protective factors	……..
Recommendations	On the basis of the identified studies, the following recommendations can be formulated: ☐ Ensure access to OAT ☐ Ensure continuity to OAT ☐ Ensure access to harm reduction for opioid users (e.g., take-home naloxone, overdose prevention training, …) ☐ Other interventions ☐ NA If Other, please specify …….
Additional information	Provide any additional information you would like to share, e.g. information on unpublished studies, plans for future studies, expressions of interest to participate in a cooperation/pooled analysis, networking, willingness to share your study questionnaire etc. …….

3.3 Glossary and important definitions

Table 3.3:
Glossary and important definitions

All-cause mortality	
Total person-years (PY)	Total person-years (PY) of observation
Female person-years (PY)	Female person-years (PY) of observation
Male person-years (PY)	Male person-years (PY) of observation
Mean age at death	Mean age at death of subjects followed up
Mortality rate in the reference population	The mortality rate in the reference population is a measure of the number of deaths (in general or due to a specific cause) in the national or European general/standard population, scaled to the size of that population, per unit time. Please express deaths per 1 000 individuals per year (1 000 person-years).
Overall crude mortality rate (CMR)	The overall crude mortality rate (CMR) is a measure of the number of deaths (in general or due to a specific cause) in a population, scaled to the size of that population, per unit time. Please express deaths per 1 000 individuals per year (1 000 person-years).
Female crude mortality rate (CMR)	The female crude mortality rate (CMR) is a measure of the number of deaths (in general or due to a specific cause) in the female population, scaled to the size of that population, per unit time. Please express deaths per 1 000 individuals per year (1 000 person-years).
Male crude mortality rate (CMR)	The male crude mortality rate (CMR) is a measure of the number of deaths (in general or due to a specific cause) in the male population, scaled to the size of that population, per unit time. Please express deaths per 1 000 individuals per year (1 000 person-years).
Overall standard mortality ratio, SMR (95% CI)	The standard mortality ratio (SMR) is a measure of the 'excess risk of mortality' of drug users enrolled in the study, compared with the persons of same age and gender in the general population. It is calculated as the observed number of deaths in the study, divided by the number of deaths that would be expected, based on the age and sex-specific mortality rates in the general population (e.g. an SMR of 5 means that the people who are using drugs, enrolled in the study have a 5 times higher mortality than persons of the same age and gender in the general population).
Female standard mortality ratio, SMR (95% CI)	The female standard mortality ratio (SMR) is a measure of the 'excess risk of mortality' of female drug users, compared with women of same age in the general population.
Male standard mortality ratio, SMR (95% CI)	The male standard mortality ratio (SMR) is a measure of the 'excess risk of mortality' of male drug users, compared with men of same age in the general population.
Cause-specific mortality	
Causes of death (ICD-10 code)	Notes on ICD-10 codes: AIDS: B20-B24; Ill-defined: R95-R99; All codified cases: A00-Z99
Death cases/100 000 persons per year COHORT	Number of persons included in the cohort who died due to a particular diseases per 100 000 person-years
Death cases/100 000 persons per year general population	Number of persons standard population who died due to a particular diseases per 100 000 person-years
Standard mortality ratio (SMR) per cause of death	The SMR of drug users who died due to a particular disease, compared with the SMR of persons of same age and gender in the general population who died due to the same disease.

4 Pilot testing

4.1 Overall feedback

Table 4.1:
Lithuania: Country feedback and subsequent changes

Feedback	Changes made
Study population » The information provided in the study report is based on ICD-10 codes and is not fully applicable to the categories in this revised table. It would be easier for us to fill a table about the number (and percentage) of users of different substances based on ICD-10 (total and by gender). Perhaps it could be an additional optional table following this question.	New free text field "Comments on study population" has been added. Inclusion criteria "Diagnosis" has been added to the argument in brackets: » (e.g., min/max age, gender/sex, diagnosis, geographic restrictions, nationality, citizenship, …)
Ascertainment of vital status » Not certain about the right answer option – should it be the first or the second. The method was data linkage. The registry used was e-health. In the national e-health information system various data related to a person's health provided by different sources, including data on death, are collected centrally throughout the country, so the linking of data of the same person is automatic in one information system.	Answer options have been specified: ○ Linkage of the cases dataset with the general mortality register (i.e., source of systematic data on all deaths in the country) ○ Linkage with other register/registries (e.g., with a risk of underestimation of the deaths)
Data protection » Not certain about the right answer option. The personal ID code of the deceased person was used to link the data sources. The data of other persons who are not deceased were obtained anonymised, without the possibility of identifying a specific person.	Changed to request specification for all answer options. How was data protection ensured? ○ Fully-anonymised data Please specify: ..... ○ Pseudonymized data Please specify: ..... ○ Other Please specify: .....
Mortality rate in the reference population » Not certain about the item, could not find its definition in the working document on the revised st18. In this row we have provided data on the „Reference rate" (mortality rate of the general population of the same age – for 2019) – as in the previous st18 table. Is this the same item? If yes, should the data be provided in this format (e.g., 1.0/1000) or simply: 1.0; 2.9; 2.0.	Core item has been specified: Mortality rate in the reference population (e.g., 1.5/1 000)
Cause-specific mortality » Not certain if we should repeat the numbers for: All injury and poisoning; Drug-induced deaths; Accidental drug-induced deaths; Accidental opioid deaths. In total there were 2 overdoses (the intent was undetermined): 1 from methadone and 1 from unspecified substances.	Descriptions have been specified: All codified cases based on the EMCDDA definition of drug-induced deaths (overdose) OPTIONAL: Cause-specific deaths based on the standardized definitions adopted from Santo et al. (2020) (note that the overdose cases reported above should be reported below as well)

Table 4.2:
Croatia: Country feedback and subsequent changes

Feedback	Changes made
Study type » Are multiple answers possible?	Answer option have been adapted to offer multiple choice: ☐ Register-based study (e.g., treatment data, health insurance, law enforcement, …) ☐ Prospective study ☐ Retrospective study ☐ Survey-based data ☐ Other If *Other*, please specify: ……
Mean age at enrolment of subjects followed up » We have data on the mean age at the first enrolment in treatment and not the enrolment in the study.	New free text field "Comments on cause-specific mortality" has been added to report this kind of context information: Please specify (e.g., mean age is at first treatment and not at enrolment; HIV and hepatitis deaths are reported together, …)
Cause-specific mortality » Other categories which we have are violent deaths-other; traffic accidents; murder; chronic illnesses – digestive system; chronic illnesses- other; chronic illnesses – cardiovascular diseases; chronic illnesses – oncological diseases; chronic illnesses – drug addiction; and infectious diseases. Maybe it is possible to make a table which every country could fill with the categories which they have as it is in ARQ-DXP?	New free text field "Comments on cause-specific mortality" has been added to report this kind of context information: Please specify (e.g., mean age is at first treatment and not at enrolment; HIV and hepatitis deaths are reported together, …)
Cause-specific mortality » We have HIV and HCV merged to a category of infectious diseases and the number is 55	New free text field "Comments on cause-specific mortality" has been added to report this kind of context information: Please specify (e.g., mean age is at first treatment and not at enrolment; HIV and hepatitis deaths are reported together, …)
Overall picture of the study situation: Main causes of deaths » Violent deaths are most prevalent on our sample where 49,52% of persons died from a violent cause of death. Most of them are overdose 61,09%	New free text field "Comments on main causes of death" has been added to report this kind of context information.
Overall picture of the study situation: Protective factors » Buprenorphine is more of a protective factor then methadone.	New free text field "Comments on protective factors" has been added to report this kind of context information.

Table 4.3:
Denmark: Country feedback and subsequent changes

Feedback	Changes made
Study population » Information on age group might be a relevant in order to improve comparison of results across countries.	Information on age/age group is already requested in the field "Inclusion criteria" » **(min/max age,** gender/sex, diagnosis, geographic restrictions, nationality, citizenship, …)
Core items: Crude mortality rate (CMR) per 1 000 PY (95% CI) » 7.6 only overdoses	New free text field "Comments on core items" has been added to report this kind of context information: » Please specify (e.g., details on rates, or if national or European population or both available, …)
Cause-specific mortality » This table is quite comprehensive. Consider whether all the requested specific death categories are necessary. Otherwise it is recommended to omit or merge some of the categories, e.g. „Pneumonia and influenza"	We tried to harmonise the categories of causes of deaths with other categorisations (from Santo et al), to facilitate comparisons with other cohorts (the right balance between simplicity and comparability is difficult indeed)
Drug use disorders and poisonings (F11- F16, F19, F55, X40- X44, X60-X64, X85, Y10-Y14) » ICD-10 codes used in this study: F11 or F19 (opioid or poly-drug related disorder), X42 (accidental poisoning by and exposure to narcotics and psychodysleptics [hallucinogens], not elsewhere classified), or Y12 (poisoning by and exposure to narcotics and psychodysleptics, not elsewhere classified, undetermined intent).	New free text field "Comments on cause-specific mortality" has been added to report this kind of context information: » Please specify (e.g., mean age is at first treatment and not at enrolment; HIV and hepatitis deaths are reported together, …)
Bear in mind, that some of the information in Table 2 only need to be collected once (e.g., "Is there a unique personal identifier for each person in the country?") and hence does not need to be included in the ST18 every year	Relevant remark. As with other standard tables, it is possible to copy the information from the previous year.

4.2 Final country reports

4.2.1 Lithuania: Standard Table 18

Table 4.4:
Standard Table 18: Overall mortality and causes of death among cohorts of people who use drugs – version 2022

Introduction	
EMCDDA collection year	2021
Country	Lithuania
Contact details	
Please provide **one main contact person** who will be contacted in cases of any questions on the data, e.g. Head of National Focal Point. Please provide the contact details of national experts that participate in mortality cohort studies among drug users.	
Name	Evelina Pridotkienė
Institution	Drug, Tobacco and Alcohol Control Department (National focal point)
Address	Šv. Stepono 27a, Vilnius, Lithuania
Telephone	
E-Mail	evelina.pridotkiene@ntakd.lt
Study Factsheet (1)	
Please provide the following information **for each identified study individually**	
Title	Overall mortality and causes of death among cohorts of drug users
ID	Each study is assigned its own ID by the EMCDDA
Study site (geographical coverage)	⊗ National ○ Regional ○ single region ○ more than one region ○ Local ○ single city ○ more than one city

	○ NA If study site is not national, please specify cities or regions: ……
Enrolment period start	01.01.2017 (please use format DD.MM.YYYY)
Enrolment period end	31.12.2017 (please use format DD.MM.YYYY)
End of observation period	31.12.2020 (please use format DD.MM.YYYY)
Setting(s) of enrolment	☒ Outpatient treatment centre(s) ☒ Inpatient treatment centre(s) ☐ Low-threshold service(s) ☐ Prison(s), law enforcement ☐ After prison release ☐ Hospital(s) including emergency service(s) ☐ Other setting If Other, please specify: ……
Study population	☒ Opioid users in (opioid agonist) treatment ☐ Opioid users not in (opioid agonist) treatment ☒ Cocaine users in treatment ☐ Cocaine users not in treatment ☐ Amphetamine users in treatment ☐ Amphetamine users not in treatment ☐ Other stimulant users in treatment ☐ Other stimulant users not in treatment ☒ Cannabis users in treatment ☐ Cannabis users not in treatment ☐ Synthetic cannabinoid users in treatment ☐ Synthetic cannabinoid users not in treatment ☐ Other users not in treatment ☒ Other If *Other users not in treatment,* please specify: ……

	If *Other*, please specify: …… A study with two study populations can be reported twice, i.e. one report with the finding for the first subgroup (e.g., people using cocaine without opioids); and one report (copied from the first one) with the findings for the other sub-group (e.g. people using cocaine with opioids).
Comments on study population	Stimulant users in treatment (ICD-10 code f15) Volatile solvents users in treatment (ICD-10 code f18) Multiple drug / other psychoactive substance users in treatment (f19)
Inclusion criteria	Citzenship: A citizen of the Republic of Lithuania, whose personal identification number is known. Treatment: Visited health care institutions in 2017 for mental and behavioural disorders due to narcotic or psychotropic substance use; Were registered with ICD-10 codes: F11, F12, F14, F15, F16, F18, F19. Min/max age: 15-49 years of age. Age at death: less than 50 years old. (min/max age, gender/sex, diagnosis, geographic restrictions, nationality, citizenship, …)
Study type (multiple answers are possible)	☐ Register-based study (e.g., treatment data, health insurance, law enforcement, …) ☒ Prospective study ☐ Retrospective study ☐ Survey-based data ☐ Other If *Other*, please specify: ……
(Additional) data collected	☒ Personal information (i.e., gender/sex, date and/or place of birth, nationality, …) ☒ Substances used ☒ Modes of substance use (injecting drug use, high-risk drug use, etc.) ☒ Health data (e.g., diagnosed mental or psychiatric disorders) ☒ Infectious diseases data ☒ Risk factors (needle-sharing, using drugs alone, homelessness, unprotected sex, …) ☒ Opioid Agonist Treatment ☐ … ☒ Other (e.g., type of OAT) If *Other*, please specify: Age of first drug use; frequency of drug use in the last 30 days.
Ascertainment of vital status and data linkage	Vital status was ascertained through ⊗ Linkage of the cases dataset with the general mortality register (i.e., source of systematic data on all deaths in the country) ○ Linkage with other register/registries (e.g., with a risk of underestimation of the deaths) ○ No linkage (only local data)

<table>
<tr><td></td><td>○ Other

If Other, please specify:
……</td></tr>
<tr><td>Data protection</td><td>How was data protection ensured?
○ Fully-anonymised data
Please specify: ……
○ Pseudonymized data
Please specify: ……
⊗ Other
Please specify: ……</td></tr>
<tr><td></td><td>Who is responsible for and keeps the linked dataset used in this study?
☒ The National Focal Point
☐ Drug treatment register
☒ The authors/researchers/university
☐ Other

If other, please specify:
……</td></tr>
<tr><td>Confidentiality, ethical approval and consent</td><td>Has ethical approval been obtained for the conduct of this study?
○ Yes
○ No
⊗ Do not know

If yes, please specify the institution and year of this approval.
……..</td></tr>
<tr><td></td><td>Were participants’ consents requested for this study?
○ Yes
⊗ No
○ Do not know</td></tr>
<tr><td>Core items</td><td>
<table>
<tr><td></td><td>Female</td><td>Male</td><td>Total</td></tr>
<tr><td>Size of the cohort (i.e. vital status verified)</td><td>52</td><td>179</td><td>231</td></tr>
<tr><td>Person-years (PY) of observation</td><td>158.1</td><td>552.8</td><td>710.9</td></tr>
<tr><td>Death cases at the end of follow-up</td><td>5</td><td>9</td><td>14</td></tr>
<tr><td>Mean age at enrolment of subjects followed up</td><td>32.4</td><td>34.6</td><td>34.1</td></tr>
<tr><td>Mean age at death of subjects followed up</td><td>33.2</td><td>38.2</td><td>36.4</td></tr>
<tr><td>Crude mortality rate (CMR) per 1 000 PY (95% CI)</td><td>31.6 (13.2; 76.0)</td><td>16.3 (8.5; 31.3)</td><td>19.7 (11.7; 33.3)</td></tr>
</table>
</td></tr>
</table>

Mortality rate in the reference population (e.g., 1.5/1 000)	1.0/1 000	2.9/1 000	2.0/1 000
Standard mortality ratio, SMR (95% CI)	43.2 (18.0; 103.7)	9.1 (4.7; 17.5)	12.7 (7.5; 21.4)

Comments on core items

Please specify (e.g., details on rates, or if national or European population or both available, …)
Mortality rate of the general population of the same age - for 2019

Are causes of death available for analysis in this study?
⊗ Yes
○ No
○ NA

If yes:
⊗ All codes (underlying and contributory)
○ Only underlying cause code
○ Do not know

Cause-specific mortality

Cause of death category (ICD-10 code)	Number of deaths reported	Death cases/100 000 persons per year (cohort)	Death cases/100 000 persons per year (standard population)	Standard mortality ratio per cause of death (95% CI)
COMPULSORY: Underlying cause of death (based on the EMCDDA definition[1])				
Harmful use, dependence, and other mental and behavioural disorders (F11, F12, F14-F16, F19)				
Accidental poisoning (X41 & T40.0-T40.9; X42 & T43.6, X44 & T40.0-T40.9)				
Intentional poisoning (X61 X41 & T40.0-T40.9; X62 & T43.6, X64 & T40.0-T40.9)				
Poisoning by undetermined intent (Y11 & T40.0-T40.9; Y12 & T43.6, Y14 & T40.0-T40.9)	2			
All other (unknown) causes	12			
of which, ill-defined conditions	12			
All codified cases **based on the EMCDDA definition of drug-induced deaths (overdose)**	14			
Unknown causes	0			

[1] The EMCDDA DRD protocol defines the operational criteria to select the 'overdose' or 'drug-induced deaths' cases, according to the common European definition. These cases are reported annually by the countries to the EMCDDA. The methods pages of the statistical bulletin provides the list of the selected ICD codes. The summary table of this list is available in Annex 1.

	OPTIONAL: Cause of death categories and corresponding ICD-10 codes based on the standardized definitions adopted from Santo et al. (2022) (note that the overdose cases reported above should be reported below as well)				
	All injury and poisoning (F11-F16, F19, F55, V00-X99, Y00-Y39, Y85-Y87, Y89)	2			
	Drug-induced deaths	2			
	Drug use disorders and poisonings (F11- F16, F19, F55, X40- X44, X60-X64, X85, Y10-Y14)	2			
	Underlying cause of death (F11.0-F11.5, F11.7-F11.9, F12.0-F12.5, F12.7-F12.9, F13.0-F13.5, F13.7-F13.9, F14.0-F14.5, F14.7-F14.9, F15.0-F15.5, F15.7-F15.9, F16.0-F16.5, F16.7-F16.9, F18.0-F18.5, F18.7-F18.9, F19.0-F19.5, F19.7-F19.9, D52.1, D59.0, D59.2, D61.1, D64.2, E06.4, E16.0, E23.1, E24.2, E27.3, E66.1, G21.1, G24.0, G25.1, G25.4, G25.6, G44.4, G62.0, G72.0, I95.2, J70.2-J70.4, L10.5, L27.0, L27.1, M10.2, M32.0, M80.4, M81.4, M83.5, M87.1,R78.1-R78.5, X40-X44, X60-X64, X85, Y10-Y14)	1			
	Suicide (X60-X84, Y87.0)				
	Non-poisoning suicided (X66-X85, Y87.0)				
	Violence (X85-Y09, Y87.1)				
	Motor vehicle and transport accidents (V01-V99)				
	Falls / fires / burns / drownings (W00-W19, W65-W74, X00-X09)				
	All liver-related (B15-B19, B94.2, C22, I85.0, K70-K77, O98.4, P35.3)				
	Viral hepatitis (B15-B19, B94.2, I85.0, O98.4, P35.3)				
	All alcohol-related (E24.4, F10, G31.2, G62.1, G72.1, I42.6, K29.2, K85.2, K86.2, K70, K86.0, R78.0, X45, X65, Y15)				
	Cancer (C00-C97, D45-D46, 47.1, D47.3-D47.5)				

	Cardiovascular disease (I00-I99, G45, G46)	3			
	Chronic respiratory disease (J40-J46)				
	Digestive disorders (including chronic liver disease) (K25-K28, K35-K38, K40-K46, K73, K74, K80-K83, K85-K86, K91.5)				
	HIV-related (B20-B24)	3			
	Influenza and pneumonia (J10-J18)	1			
	Injecting-related diseases (A48.0, G06.0, G06.1, G06.2, L02.X, L03.X, L08.8, L08.9, L97, L98.4, L98.8, L98.9, M72.6, R02, B37.6, I33.0, I33.9, I34.0, I34.2, I34.8, I34.9, I35.X, I36.X, I37.X, I38, I39.X, T82.6, A40.X, A41.X, A49.1, A49.8, A49.9, B37.7, R57.2, R65.1, R65.9, M00.X, M86.X, M89.9, M46.2, M46.3, M46.4, I80, I82.2, I82.3, I82.8, I82.9, I87.0, I87.2, I87.8, I87.9, A48.8, A49.0, I26.9				
	Skin or soft tissue infections (A48.0, G06.0, G06.1, G06.2, L02.X, L03.X, L08.8, L08.9, L97, L98.4, L98.8, L98.9, M72.6, R02)				
	Endocarditis (B37.6, I33.0, I33.9, I34.0, I34.2, I34.8, I34.9, I35.X, I36.X, I37.X, I38, I39.X, T82.6)				
	Sepsis and bacteraemia (A40.X, A41.X, A49.1, A49.8, A49.9, B37.7, R57.2, R65.1, R65.9, A48.8, A49.0, I26.9)	3			
	Septic arthritis (M00.X)				
	Osteomyelitis (M86.X, M89.9, M46.2, M46.3, M46.4)				
	Venous diseases (I80, I82.2, I82.3, I82.8, I82.9, I87.0, I87.2, I87.8, I87.9)				
	All other (unknown) causes	4			
	of which, ill-defined conditions (R99)	4			
	All codified cases	14			

	Unknown causes	0			
Comments on cause-specific mortality	Please specify (e.g., mean age is at first treatment and not at enrolment; HIV and hepatitis deaths are reported together, …) In total there were 2 overdoses (the intent was undetermined): 1 from methadone and 1 from unspecified substances.				
Implications & way forward	Is an update/re-linking of this cohort planned for the next years? ○ Yes ⊗ No ○ NA				
	Are pooled analysis of these data with data from other cohorts planned? ○ Yes ○ No ⊗ NA				
	Are there plans to conduct a survival analysis using this data? ○ Yes ⊗ No ○ NA				

References

Please list all publications that were described in this report (either in peer-reviewed journals or in other forms, grey literature)

Kohohortinis narkotikų vartotojų mirtingumo Lietuvoje tyrimas. Mokslinio tyrimo metodologija ir ataskaita, Vilnius, 2021. https://ntakd.lrv.lt/uploads/ntakd/documents/files/Kohohortinis%20narkotik%C5%B3%20vartotoj%C5%B3%20mirtingumo%20Lietuvoje%20tyrimas.pdf

Stukas R., Beržanskytė A., Dobrovolskij V., gnatavičiūtė L., Jasaitis E. Narkotikų vartotojų mirtingumas Lietuvoje (kohortinis tyrimas). Sveikatos mokslai, 31 (4), p.5-10, 2021. https://sm-hs.eu/wp-content/uploads/2021/07/%E2%99%A52021-SM4Internetas-5-10.pdf

Table 4.5:
Lithuania: Overall picture of the study situation (to be filled out once a year by the NFPs)

Overview (nationally)	
Confidentiality, ethical approval and consent	Is there a national legal framework and regulation to link the data of the people enrolled and the data from the mortality registers? ○ Yes ⊗ No ○ Do not know If yes, please add the reference(s) of the framework (law/act.., year, institution) ……
Data linkage	Is there a unique personal identifier for each person in the country? ⊗ Yes ○ No ○ Do not know
	What institution is responsible for the encryption of data? ☐ Ministry of Health ☐ National Institute of Public Health ☐ Prison administration ☐ Drug treatment register ☐ The National Focal Point ☐ Do not know ☒ Other If other, please specify: The Institute of Hygiene under the Ministry of Health
Way forward	New cohort studies are planned for the coming 3 to 4 years ⊗ Yes ○ No ○ NA If yes, please specify 2024-2025
Excess mortality and premature deaths	The identified studies found an excess risk of the people enrolled compared to people of the same age and gender in the general population ⊗ Yes ○ No ○ NA

	○ Other If Other, please specify: ……
	The identified studies showed that the deaths among the enrolled persons occured prematurely, on average ☐ Up to 10 years earlier compared to the general popualtion ☐ 11 to 20 years earlier ☐ 21 to 30 years earlier ☒ More than 30 years earlier ☐ NA ☐ Other If Other, please specify: ……
Risk factors	The main risk factors for deaths in the identified studies were (multiple choices): ☒ Injecting drugs ☐ Homelessness ☐ Using drugs alone ☒ Opioid use ☐ Male gender ☒ Female gender ☒ Unemployement ☐ Being out of treatment ☐ Quitting treatment ☐ Older age ☐ Living alone ☒ Unemployment/retirement ☐ NA ☒ Other If Other, please specify: Daily use
Comments on risk factors	……..
Main causes of deaths	The **main causes of deaths** in the studies identified were: *Underlying cause of death based on the EMCDDA definition with 'Selection B' of ICD-10 codes (EMCDDA, 2009, p. 29):* ☐ Harmful use, dependence, and other mental and behavioural disorders (F11, F12, F14-F16, F19) ☐ Accidental poisoning (X41 & T40.0-T40.9; X42 & T43.6)

	☐ Intentional poisoning (X61 X41 & T40.0-T40.9; X62 & T43.6), ☒ Poisoning by undetermined intent (Y11 & T40.0-T40.9; Y12 & T43.6) ☐ Unknown causes ☐ NA *Cause of death categories and corresponding ICD-10 codes based on the standardized definitions adopted from Santo et al. (2022)* ☐ All injury and poisoning (F11-F16, F19, F55, V00-X99, Y00-Y39, Y85-Y87, Y89) ☒ Drug-induced deaths: Drug use disorders and poisonings (F11- F16, F19, F55, X40- X44, X60-X64, X85, Y10-Y14) ☐ Drug-induced deaths: Underlying cause of death (F11.0-F11.5, F11.7-F11.9, F12.0-F12.5, F12.7-F12.9, F13.0-F13.5, F13.7-F13.9, F14.0-F14.5, F14.7-F14.9, F15.0-F15.5, F15.7-F15.9, F16.0-F16.5, F16.7-F16.9, F18.0-F18.5, F18.7-F18.9, F19.0-F19.5, F19.7-F19.9, D52.1, D59.0, D59.2, D61.1, D64.2, E06.4, E16.0, E23.1, E24.2, E27.3, E66.1, G21.1, G24.0, G25.1, G25.4, G25.6, G44.4, G62.0, G72.0, I95.2, J70.2-J70.4, L10.5, L27.0, L27.1, M10.2, M32.0, M80.4, M81.4, M83.5, M87.1,R78.1-R78.5, X40-X44, X60-X64, X85, Y10-Y14) ☐ Suicide (X60-X84, Y87.0) ☐ Non-poisoning suicided (X66-X85, Y87.0) ☐ Violence (X85-Y09, Y87.1) ☐ Motor vehicle and transport accidents (V01-V99) ☐ Falls / fires / burns / drownings (W00-W19, W65-W74, X00-X09) ☐ All liver-related (B15-B19, B94.2, C22, I85.0, K70-K77, O98.4, P35.3) ☐ Viral hepatitis (B15-B19, B94.2, I85.0, O98.4, P35.3) ☐ All alcohol-related (E24.4, F10, G31.2, G62.1, G72.1, I42.6, K29.2, K85.2, K86.2, K70, K86.0, R78.0, X45, X65, Y15) ☐ Cancer (C00-C97, D45-D46, 47.1, D47.3-D47.5) ☒ Cardiovascular disease (I00-I99, G45, G46) ☐ Chronic respiratory disease (J40-J46) ☐ Digestive disorders (including chronic liver disease) (K25-K28, K35-K38, K40-K46, K73, K74, K80-K83, K85-K86, K91.5) ☒ HIV-related (B20-B24) ☒ Influenza and pneumonia (J10-J18) ☐ Injecting-related diseases (A48.0, G06.0, G06.1, G06.2, L02.X, L03.X, L08.8, L08.9, L97, L98.4, L98.8, L98.9, M72.6, R02, B37.6, I33.0, I33.9, I34.0, I34.2, I34.8, I34.9, I35.X, I36.X, I37.X, I38, I39.X, T82.6, A40.X, A41.X, A49.1, A49.8, A49.9, B37.7, R57.2, R65.1, R65.9, M00.X, M86.X, M89.9, M46.2, M46.3, M46.4, I80, I82.2, I82.3, I82.8, I82.9, I87.0, I87.2, I87.8, I87.9, A48.8, A49.0, I26.9 ☐ Skin or soft tissue infections (A48.0, G06.0, G06.1, G06.2, L02.X, L03.X, L08.8, L08.9, L97, L98.4, L98.8, L98.9, M72.6, R02) ☐ Endocarditis (B37.6, I33.0, I33.9, I34.0, I34.2, I34.8, I34.9, I35.X, I36.X, I37.X, I38, I39.X, T82.6) ☒ Sepsis and bacteraemia (A40.X, A41.X, A49.1, A49.8, A49.9, B37.7, R57.2, R65.1, R65.9, A48.8, A49.0, I26.9) ☐ Septic arthritis (M00.X) ☐ Osteomyelitis (M86.X, M89.9, M46.2, M46.3, M46.4) ☐ Venous diseases (I80, I82.2, I82.3, I82.8, I82.9, I87.0, I87.2, I87.8, I87.9) ☐ Unknown causes ☐ NA
Comments on main causes of death	……..
Protective factors	Protective factors identified in the studies included: ☐ Receiving OAT treatment

	☐ Receiving other treatment ☐ Other ☒ NA If Other, please specify: ……
Comments on protective factors	……..
Recommendations	On the basis of the identified studies, the following recommendations can be formulated: ☐ Ensure access to OAT ☐ Ensure continuity to OAT ☐ Ensure access to harm reduction for opioid users (e.g., take-home naloxone, overdose prevention training, …) ☐ Other interventions ☒ NA If Other, please specify ……
Additional information	Provide any additional information you would like to share, e.g. information on unpublished studies, plans for future studies, expressions of interest to participate in a cooperation/pooled analysis, networking, willingness to share your study questionnaire etc. ……

4.2.2 Croatia: Standard Table 18

Table 4.6:
Standard Table 18: Overall mortality and causes of death among cohorts of people who use drugs – version 2022

Introduction	
EMCDDA collection year	2022
Country	HR
Contact details	
Please provide **one main contact person** who will be contacted in cases of any questions on the data, e.g. Head of National Focal Point. Please provide the contact details of national experts that participate in mortality cohort studies among drug users.	
Name	Lara Jezic
Institution	Croatian Institute of Public Health
Address	Ul. Sv. Preobraženja 4, 10 000 Zagreb, Croatia
Telephone	00385 1 4878 129
E-Mail	lara.jezic@hzjz.hr
Study Factsheet (1)	
Please provide the following information **for each identified study individually**	
Title	Mortality of persons treated for the use of psychoactive drugs in the period from 2010 to 2019: A cohort study
ID	Each study is assigned its own ID by the EMCDDA
Study site (geographical coverage)	⊗ National ○ Regional ○ single region ○ more than one region ○ Local ○ single city ○ more than one city ○ NA If study site is not national, please specify cities or regions: ……

Enrolment period start	01.01.2010 (please use format DD.MM.YYYY)
Enrolment period end	31.12.2019 (please use format DD.MM.YYYY)
End of observation period	31.12.2019 (please use format DD.MM.YYYY)
Setting(s) of enrolment	☒ Outpatient treatment centre(s) ☒ Inpatient treatment centre(s) ☐ Low-threshold service(s) ☐ Prison(s), law enforcement ☐ After prison release ☐ Hospital(s) including emergency service(s) ☐ Other setting If Other, please specify: ……
Study population	☒ Opioid users in (opioid agonist) treatment ☐ Opioid users not in (opioid agonist) treatment ☐ Cocaine users in treatment ☐ Cocaine users not in treatment ☐ Amphetamine users in treatment ☐ Amphetamine users not in treatment ☐ Other stimulant users in treatment ☐ Other stimulant users not in treatment ☐ Cannabis users in treatment ☐ Cannabis users not in treatment ☐ Synthetic cannabinoid users in treatment ☐ Synthetic cannabinoid users not in treatment ☐ Other users not in treatment ☐ Other If *Other users not in treatment,* please specify: …… If *Other*, please specify: …… A study with two study populations can be reported twice, i.e. one report with the finding for the first subgroup (e.g., people using cocaine without opioids); and one report (copied from the first one) with the findings for the other sub-group (e.g. people using cocaine with opioids).
Comments on study population	……

Inclusion criteria	…… (min/max age, gender/sex, diagnosis, geographic restrictions, nationality, citizenship, …)
Study type (multiple answers are possible)	☒ Register-based study (e.g., treatment data, health insurance, law enforcement, …) ☐ Prospective study ☒ Retrospective study ☐ Survey-based data ☐ Other If *Other*, please specify: ……
(Additional) data collected	☒ Personal information (i.e., gender/sex, date and/or place of birth, nationality, …) ☒ Substances used ☒ Modes of substance use (injecting drug use, high-risk drug use, etc.) ☒ Health data (e.g., diagnosed mental or psychiatric disorders) ☒ Infectious diseases data ☐ Risk factors (needle-sharing, using drugs alone, homelessness, unprotected sex, …) ☒ Opioid Agonist Treatment ☐ … ☒ Other (e.g., type of OAT) If *Other*, please specify: Recorded hospitalizations, data from the Register of committed suicides
Ascertainment of vital status and data linkage	Vital status was ascertained through ⊗ Linkage of the cases dataset with the general mortality register (i.e., source of systematic data on all deaths in the country) ○ Linkage with other register/registries (e.g., with a risk of underestimation of the deaths) ○ No linkage (only local data) ○ Other If Other, please specify: ……
Data protection	How was data protection ensured? ⊗ Fully-anonymised data Please specify: …… ○ Pseudonymized data Please specify: …… ○ Other Please specify: ……
	Who is responsible for and keeps the linked dataset used in this study?

	☐ The National Focal Point ☐ Drug treatment register ☐ The authors/researchers/university ☒ Other If other, please specify: The General Mortality register
Confidentiality, ethical approval and consent	Has ethical approval been obtained for the conduct of this study? ⊗ Yes ○ No ○ Do not know If yes, please specify the institution and year of this approval. It is approved by the Ethical Committee of the Croatian Institute of Public Health in Decembre 2020.
	Were participants' consents requested for this study? ○ Yes ⊗ No ○ Do not know

Core items

	Female	Male	**Total**
Size of the cohort (i.e. vital status verified)	1589	7026	8615
Person-years (PY) of observation	8340	46861	38521
Death cases at the end of follow-up	91	537	628
Mean age at enrolment of subjects followed up	31	33	33
Mean age at death of subjects followed up	NA	NA	NA
Crude mortality rate (CMR) per 1 000 PY (95% CI)	10.91	13.94	13.40
Mortality rate in the reference population (e.g., 1.5/1 000)	17.32	22.35	19.84
Standard mortality ratio, SMR (95% CI)	17.22	9.53	10.19

Comments on core items	Please specify (e.g., details on rates, or if national or European population or both available, …) We have data on the mean age at the first enrolment in treatment and not the enrolment in the study.
	Are causes of death available for analysis in this study? ⊗ Yes ○ No ○ NA If yes: ○ All codes (underlying and contributory)

⊗ Only underlying cause code
○ Do not know

Cause-specific mortality

Cause of death category (ICD-10 code)	Number of deaths reported	Death cases/100 000 persons per year (cohort)	Death cases/100 000 persons per year (standard population)	Standard mortality ratio per cause of death (95% CI)
COMPULSORY: Underlying cause of death (based on the EMCDDA definition[1])				
Harmful use, dependence, and other mental and behavioural disorders (F11, F12, F14-F16, F19)	57	N/A	N/A	N/A
Accidental poisoning (X41 & T40.0-T40.9; X42 & T43.6, X44 & T40.0-T40.9)	N/A	N/A	N/A	N/A
Intentional poisoning (X61 X41 & T40.0-T40.9; X62 & T43.6, X64 & T40.0-T40.9)	N/A	N/A	N/A	N/A
Poisoning by undetermined intent (Y11 & T40.0-T40.9; Y12 & T43.6, Y14 & T40.0-T40.9)	133	N/A	N/A	N/A
Exposure to other and unspecified drugs (X44, X64, Y14)	N/A	N/A	N/A	N/A
All other (unknown) causes	N/A	N/A	N/A	N/A
of which, ill-defined conditions	N/A	N/A	N/A	N/A
All codified cases **based on the EMCDDA definition of drug-induced deaths (overdose)**	190	N/A	N/A	N/A
Unknown causes				

[1] The EMCDDA DRD protocol defines the operational criteria to select the 'overdose' or 'drug-induced deaths' cases, according to the common European definition. These cases are reported annually by the countries to the EMCDDA. The methods pages of the statistical bulletin provides the list of the selected ICD codes. The summary table of this list is available in Annex 1.

OPTIONAL: Cause of death categories and corresponding ICD-10 codes based on the standardized definitions adopted from Santo et al. (2022) (note that the overdose cases reported above should be reported below as well)				
All injury and poisoning (F11-F16, F19, F55, V00-X99, Y00-Y39, Y85-Y87, Y89)				
Drug-induced deaths				
Drug use disorders and poisonings (F11- F16, F19, F55, X40- X44, X60-X64, X85, Y10-Y14)				
Underlying cause of death (F11.0-F11.5, F11.7-F11.9, F12.0-F12.5, F12.7-F12.9,				

	F13.0-F13.5, F13.7-F13.9, F14.0-F14.5, F14.7-F14.9, F15.0-F15.5, F15.7-F15.9, F16.0-F16.5, F16.7-F16.9, F18.0-F18.5, F18.7-F18.9, F19.0-F19.5, F19.7-F19.9, D52.1, D59.0, D59.2, D61.1, D64.2, E06.4, E16.0, E23.1, E24.2, E27.3, E66.1, G21.1, G24.0, G25.1, G25.4, G25.6, G44.4, G62.0, G72.0, I95.2, J70.2-J70.4, L10.5, L27.0, L27.1, M10.2, M32.0, M80.4, M81.4, M83.5, M87.1,R78.1-R78.5, X40-X44, X60-X64, X85, Y10-Y14)				
	Suicide (X60-X84, Y87.0)	61			
	Non-poisoning suicided (X66-X85, Y87.0)				
	Violence (X85-Y09, Y87.1)	26			
	Motor vehicle and transport accidents (V01-V99)	25			
	Falls / fires / burns / drownings (W00-W19, W65-W74, X00-X09)				
	All liver-related (B15-B19, B94.2, C22, I85.0, K70-K77, O98.4, P35.3)				
	Viral hepatitis (B15-B19, B94.2, I85.0, O98.4, P35.3)				
	All alcohol-related (E24.4, F10, G31.2, G62.1, G72.1, I42.6, K29.2, K85.2, K86.2, K70, K86.0, R78.0, X45, X65, Y15)				
	Cancer (C00-C97, D45-D46, 47.1, D47.3-D47.5)	47			
	Cardiovascular disease (I00-I99, G45, G46)	55			
	Chronic respiratory disease (J40-J46)				
	Digestive disorders (including chronic liver disease) (K25-K28, K35-K38, K40-K46, K73, K74, K80-K83, K85-K86, K91.5)	16			
	HIV-related (B20-B24)				
	Influenza and pneumonia (J10-J18)				

	Injecting-related diseases (A48.0, G06.0, G06.1, G06.2, L02.X, L03.X, L08.8, L08.9, L97, L98.4, L98.8, L98.9, M72.6, R02, B37.6, I33.0, I33.9, I34.0, I34.2, I34.8, I34.9, I35.X, I36.X, I37.X, I38, I39.X, T82.6, A40.X, A41.X, A49.1, A49.8, A49.9, B37.7, R57.2, R65.1, R65.9, M00.X, M86.X, M89.9, M46.2, M46.3, M46.4, I80, I82.2, I82.3, I82.8, I82.9, I87.0, I87.2, I87.8, I87.9, A48.8, A49.0, I26.9				
	Skin or soft tissue infections (A48.0, G06.0, G06.1, G06.2, L02.X, L03.X, L08.8, L08.9, L97, L98.4, L98.8, L98.9, M72.6, R02)				
	Endocarditis (B37.6, I33.0, I33.9, I34.0, I34.2, I34.8, I34.9, I35.X, I36.X, I37.X, I38, I39.X, T82.6)				
	Sepsis and bacteraemia (A40.X, A41.X, A49.1, A49.8, A49.9, B37.7, R57.2, R65.1, R65.9, A48.8, A49.0, I26.9)				
	Septic arthritis (M00.X)				
	Osteomyelitis (M86.X, M89.9, M46.2, M46.3, M46.4)				
	Venous diseases (I80, I82.2, I82.3, I82.8, I82.9, I87.0, I87.2, I87.8, I87.9)				
	All other (unknown) causes				
	of which, ill-defined conditions (R99)				
	All codified cases				
	Unknown causes				
Comments on cause-specific mortality	Please specify (e.g., mean age is at first treatment and not at enrolment; HIV and hepatitis deaths are reported together, …) ……..				
Implications & way forward	Is an update/re-linking of this cohort planned for the next years? ○ Yes ○ No ⊗ NA				
	Are pooled analysis of these data with data from other cohorts planned? ○ Yes				

	○ No ⊗ NA
	Are there plans to conduct a survival analysis using this data? ○ Yes ○ No ⊗ NA

References

Please list all publications that were described in this report (either in peer-reviewed journals or in other forms, grey literature)
Erceg M. et. al. (2021) Mortality of persons treated for the use of psychoactive drugs in the period from 2010 to 2019: A cohort study. Zagreb, Croatian Institute of Public Health

Table 4.7:
Croatia: Overall picture of the study situation (to be filled out once a year by the NFPs)

Overview (nationally)	
Confidentiality, ethical approval and consent	Is there a national legal framework and regulation to link the data of the people enrolled and the data from the mortality registers? ⊗ Yes ○ No ○ Do not know If yes, please add the reference(s) of the framework (law/act.., year, institution) ……..
Data linkage	Is there a unique personal identifier for each person in the country? ⊗ Yes ○ No ○ Do not know
	What institution is responsible for the encryption of data? ☐ Ministry of Health ☒ National Institute of Public Health ☐ Prison administration ☐ Drug treatment register ☐ The National Focal Point ☐ Do not know ☐ Other If other, please specify: ……..
Way forward	New cohort studies are planned for the coming 3 to 4 years ○ Yes ⊗ No ○ NA If yes, please specify ……..
Excess mortality and premature deaths	The identified studies found an excess risk of the people enrolled compared to people of the same age and gender in the general population ⊗ Yes ○ No

	○ NA ○ Other If Other, please specify: ……
	The identified studies showed that the deaths among the enrolled persons occured prematurely, on average ☐ Up to 10 years earlier compared to the general popualtion ☐ 11 to 20 years earlier ☐ 21 to 30 years earlier ☐ More than 30 years earlier ☒ NA ☐ Other If Other, please specify: ……
Risk factors	The main risk factors for deaths in the identified studies were (multiple choices): ☒ Injecting drugs ☒ Homelessness ☐ Using drugs alone ☐ Opioid use ☒ Male gender ☐ Female gender ☐ Unemployement ☐ Being out of treatment ☐ Quitting treatment ☒ Older age ☒ Living alone ☒ Unemployment/retirement ☐ NA ☒ Other If Other, please specify: Opioids as a main drug, being divorced or a widow, infectious diseases, more treatment attempts over time are also found to be risk factors
Comments on risk factors	……..
Main causes of deaths	The **main causes of deaths** in the studies identified were: *Underlying cause of death based on the EMCDDA definition with 'Selection B' of ICD-10 codes (EMCDDA, 2009, p. 29):* ☐ Harmful use, dependence, and other mental and behavioural disorders (F11, F12, F14-F16, F19) ☐ Accidental poisoning (X41 & T40.0-T40.9; X42 & T43.6)

	☐ Intentional poisoning (X61 X41 & T40.0-T40.9; X62 & T43.6), ☐ Poisoning by undetermined intent (Y11 & T40.0-T40.9; Y12 & T43.6) ☐ Unknown causes ☐ NA *Cause of death categories and corresponding ICD-10 codes based on the standardized definitions adopted from Santo et al. (2022)* ☐ All injury and poisoning (F11-F16, F19, F55, V00-X99, Y00-Y39, Y85-Y87, Y89) ☐ Drug-induced deaths: Drug use disorders and poisonings (F11- F16, F19, F55, X40- X44, X60-X64, X85, Y10-Y14) ☐ Drug-induced deaths: Underlying cause of death (F11.0-F11.5, F11.7-F11.9, F12.0-F12.5, F12.7-F12.9, F13.0-F13.5, F13.7-F13.9, F14.0-F14.5, F14.7-F14.9, F15.0-F15.5, F15.7-F15.9, F16.0-F16.5, F16.7-F16.9, F18.0-F18.5, F18.7-F18.9, F19.0-F19.5, F19.7-F19.9, D52.1, D59.0, D59.2, D61.1, D64.2, E06.4, E16.0, E23.1, E24.2, E27.3, E66.1, G21.1, G24.0, G25.1, G25.4, G25.6, G44.4, G62.0, G72.0, I95.2, J70.2-J70.4, L10.5, L27.0, L27.1, M10.2, M32.0, M80.4, M81.4, M83.5, M87.1,R78.1-R78.5, X40-X44, X60-X64, X85, Y10-Y14) ☐ Suicide (X60-X84, Y87.0) ☐ Non-poisoning suicided (X66-X85, Y87.0) ☒ Violence (X85-Y09, Y87.1) ☐ Motor vehicle and transport accidents (V01-V99) ☐ Falls / fires / burns / drownings (W00-W19, W65-W74, X00-X09) ☐ All liver-related (B15-B19, B94.2, C22, I85.0, K70-K77, O98.4, P35.3) ☐ Viral hepatitis (B15-B19, B94.2, I85.0, O98.4, P35.3) ☐ All alcohol-related (E24.4, F10, G31.2, G62.1, G72.1, I42.6, K29.2, K85.2, K86.2, K70, K86.0, R78.0, X45, X65, Y15) ☐ Cancer (C00-C97, D45-D46, 47.1, D47.3-D47.5) ☐ Cardiovascular disease (I00-I99, G45, G46) ☐ Chronic respiratory disease (J40-J46) ☐ Digestive disorders (including chronic liver disease) (K25-K28, K35-K38, K40-K46, K73, K74, K80-K83, K85-K86, K91.5) ☐ HIV-related (B20-B24) ☐ Influenza and pneumonia (J10-J18) ☐ Injecting-related diseases (A48.0, G06.0, G06.1, G06.2, L02.X, L03.X, L08.8, L08.9, L97, L98.4, L98.8, L98.9, M72.6, R02, B37.6, I33.0, I33.9, I34.0, I34.2, I34.8, I34.9, I35.X, I36.X, I37.X, I38, I39.X, T82.6, A40.X, A41.X, A49.1, A49.8, A49.9, B37.7, R57.2, R65.1, R65.9, M00.X, M86.X, M89.9, M46.2, M46.3, M46.4, I80, I82.2, I82.3, I82.8, I82.9, I87.0, I87.2, I87.8, I87.9, A48.8, A49.0, I26.9 ☐ Skin or soft tissue infections (A48.0, G06.0, G06.1, G06.2, L02.X, L03.X, L08.8, L08.9, L97, L98.4, L98.8, L98.9, M72.6, R02) ☐ Endocarditis (B37.6, I33.0, I33.9, I34.0, I34.2, I34.8, I34.9, I35.X, I36.X, I37.X, I38, I39.X, T82.6) ☐ Sepsis and bacteraemia (A40.X, A41.X, A49.1, A49.8, A49.9, B37.7, R57.2, R65.1, R65.9, A48.8, A49.0, I26.9) ☐ Septic arthritis (M00.X) ☐ Osteomyelitis (M86.X, M89.9, M46.2, M46.3, M46.4) ☐ Venous diseases (I80, I82.2, I82.3, I82.8, I82.9, I87.0, I87.2, I87.8, I87.9) ☐ Unknown causes ☐ NA
Comments on main causes of death	Violent deaths are most prevalent on our sample where 49.52% of persons died from a violent cause of death. Most of them are overdose 61.09%
Protective factors	Protective factors identified in the studies included: ☒ Receiving OAT treatment

	☐ Receiving other treatment ☐ Other ☐ NA If Other, please specify: ……
Comments on protective factors	Buprenorphine is more of a protective factor then methadone
Recommendations	On the basis of the identified studies, the following recommendations can be formulated: ☒ Ensure access to OAT ☒ Ensure continuity to OAT treatment ☒ Ensure access to harm reduction for opioid users (e.g., take-home naloxone, overdose prevention training, …) ☐ Other interventions ☐ NA If Other, please specify ……
Additional information	Provide any additional information you would like to share, e.g. information on unpublished studies, plans for future studies, expressions of interest to participate in a cooperation/pooled analysis, networking, willingness to share your study questionnaire etc. ……

4.2.3 Denmark: Standard Table 18

Table 4.8:
Standard Table 18: Overall mortality and causes of death among cohorts of people who use drugs – version 2022

Introduction	
EMCDDA collection year	2022
Country	Denmark
Contact details	
Please provide **one main contact person** who will be contacted in cases of any questions on the data, e.g. Head of National Focal Point. Please provide the contact details of national experts that participate in mortality cohort studies among drug users.	
Name	Kari Grasaasen / Christian Tjagvad
Institution	Danish Health Authority
Address	Islands Brygge 67 DK-2300 Copenhagen S
Telephone	
E-Mail	kagr@SST.DK / christian.tjagvad@medisin.uio.no
Study Factsheet (1)	
Please provide the following information **for each identified study individually**	
Title	Incidence and predictors of drug overdoses among a cohort of >10,000 patients treated for substance use disorder.
ID	Each study is assigned its own ID by the EMCDDA
Study site (geographical coverage)	⊗ National ○ Regional ○ single region ○ more than one region ○ Local ○ single city ○ more than one city ○ NA If study site is not national, please specify cities or regions: ……

Enrolment period start	01.01.2000 (please use format DD.MM.YYYY)
Enrolment period end	31.12.2010 (please use format DD.MM.YYYY)
End of observation period	31.12.2010 (please use format DD.MM.YYYY)
Setting(s) of enrolment	☒ Outpatient treatment centre(s) ☐ Inpatient treatment centre(s) ☐ Low-threshold service(s) ☐ Prison(s), law enforcement ☐ After prison release ☐ Hospital(s) including emergency service(s) ☐ Other setting If Other, please specify: ……
Study population	☒ Opioid users in (opioid agonist) treatment ☐ Opioid users not in (opioid agonist) treatment ☐ Cocaine users in treatment ☐ Cocaine users not in treatment ☐ Amphetamine users in treatment ☐ Amphetamine users not in treatment ☐ Other stimulant users in treatment ☐ Other stimulant users not in treatment ☐ Cannabis users in treatment ☐ Cannabis users not in treatment ☐ Synthetic cannabinoid users in treatment ☐ Synthetic cannabinoid users not in treatment ☐ Other users not in treatment ☐ Other If *Other users not in treatment,* please specify: …… If *Other*, please specify: …… A study with two study populations can be reported twice, i.e. one report with the finding for the first subgroup (e.g., people using cocaine without opioids); and one report (copied from the first one) with the findings for the other sub-group (e.g. people using cocaine with opioids).
Comments on study population	……

Inclusion criteria	18 to 75 years at time of admission. Must have a Danish personal number (min/max age, gender/sex, diagnosis, geographic restrictions, nationality, citizenship, …)
Study type (multiple answers are possible)	☒ Register-based study (e.g., treatment data, health insurance, law enforcement, …) ☐ Prospective study ☐ Retrospective study ☐ Survey-based data ☐ Other If *Other*, please specify: ……
(Additional) data collected	☒ Personal information (i.e., gender/sex, date and/or place of birth, nationality, …) ☒ Substances used ☒ Modes of substance use (injecting drug use, high-risk drug use, etc.) ☐ Health data (e.g., diagnosed mental or psychiatric disorders) ☐ Infectious diseases data ☐ Risk factors (needle-sharing, using drugs alone, homelessness, unprotected sex, …) ☒ Opioid Agonist Treatment ☐ … ☐ Other (e.g., type of OAT) If *Other*, please specify: ……
Ascertainment of vital status and data linkage	Vital status was ascertained through ⊗ Linkage of the cases dataset with the general mortality register (i.e., source of systematic data on all deaths in the country) ⊗ Linkage with other register/registries (e.g., with a risk of underestimation of the deaths) ○ No linkage (only local data) ○ Other If Other, please specify: ……
Data protection	How was data protection ensured? ⊗ Fully-anonymised data Please specify: …… ○ Pseudonymized data Please specify: …… ○ Other Please specify: ……
	Who is responsible for and keeps the linked dataset used in this study?

	☐ The National Focal Point ☐ Drug treatment register ☐ The authors/researchers/university ☒ Other If other, please specify: Statistics Denmark
Confidentiality, ethical approval and consent	Has ethical approval been obtained for the conduct of this study? ○ Yes ⊗ No ○ Do not know If yes, please specify the institution and year of this approval. ……..
	Were participants' consents requested for this study? ○ Yes ⊗ No ○ Do not know

Core items

	Female	Male	**Total**
Size of the cohort (i.e. vital status verified)	2,800	8,399	11,199
Person-years (PY) of observation			75,263
Death cases at the end of follow-up			1,700
Mean age at enrolment of subjects followed up			34
Mean age at death of subjects followed up			
Crude mortality rate (CMR) per 1 000 PY (95% CI)			7.6
Mortality rate in the reference population (e.g., 1.5/1 000)			
Standard mortality ratio, SMR (95% CI)			

Comments on core items	Please specify (e.g., details on rates, or if national or European population or both available, …) 572 overdose deaths, CMR of 7.6 only overdose deaths
	Are causes of death available for analysis in this study? ⊗ Yes ○ No ○ NA If yes: ○ All codes (underlying and contributory)

	⊗ Only underlying cause code ○ Do not know				
Cause-specific mortality	**Cause of death category (ICD-10 code)**	**Number of deaths reported**	**Death cases/100 000 persons per year (cohort)**	**Death cases/100 000 persons per year (standard population)**	**Standard mortality ratio per cause of death (95% CI)**
	COMPULSORY: Underlying cause of death (based on the EMCDDA definition[1])				
	Harmful use, dependence, and other mental and behavioural disorders (F11, F12, F14-F16, F19)				
	Accidental poisoning (X41 & T40.0-T40.9; X42 & T43.6, X44 & T40.0-T40.9)				
	Intentional poisoning (X61 X41 & T40.0-T40.9; X62 & T43.6, X64 & T40.0-T40.9)				
	Poisoning by undetermined intent (Y11 & T40.0-T40.9; Y12 & T43.6, Y14 & T40.0-T40.9)				
	All other (unknown) causes				
	of which, ill-defined conditions				
	All codified cases **based on the EMCDDA definition of drug-induced deaths (overdose)**				
	Unknown causes	0			
	[1] The EMCDDA DRD protocol defines the operational criteria to select the 'overdose' or 'drug-induced deaths' cases, according to the common European definition. These cases are reported annually by the countries to the EMCDDA. The methods pages of the statistical bulletin provides the list of the selected ICD codes. The summary table of this list is available in Annex 1.				
	OPTIONAL: Cause of death categories and corresponding ICD-10 codes based on the standardized definitions adopted from Santo et al. (2022) (note that the overdose cases reported above should be reported below as well)				
	All injury and poisoning (F11-F16, F19, F55, V00-X99, Y00-Y39, Y85-Y87, Y89)				
	Drug-induced deaths				
	Drug use disorders and poisonings (F11- F16, F19, F55, X40- X44, X60-X64, X85, Y10-Y14)	572	760		
	Underlying cause of death (F11.0-F11.5, F11.7-F11.9, F12.0-F12.5, F12.7-F12.9, F13.0-F13.5, F13.7-F13.9, F14.0-F14.5, F14.7-F14.9, F15.0-F15.5, F15.7-F15.9, F16.0-F16.5,				

	F16.7-F16.9, F18.0-F18.5, F18.7-F18.9, F19.0-F19.5, F19.7-F19.9, D52.1, D59.0, D59.2, D61.1, D64.2, E06.4, E16.0, E23.1, E24.2, E27.3, E66.1, G21.1, G24.0, G25.1, G25.4, G25.6, G44.4, G62.0, G72.0, I95.2, J70.2-J70.4, L10.5, L27.0, L27.1, M10.2, M32.0, M80.4, M81.4, M83.5, M87.1,R78.1-R78.5, X40-X44, X60-X64, X85, Y10-Y14)				
	Suicide (X60-X84, Y87.0)				
	Non-poisoning suicided (X66-X85, Y87.0)				
	Violence (X85-Y09, Y87.1)				
	Motor vehicle and transport accidents (V01-V99)				
	Falls / fires / burns / drownings (W00-W19, W65-W74, X00-X09)				
	All liver-related (B15-B19, B94.2, C22, I85.0, K70-K77, O98.4, P35.3)				
	Viral hepatitis (B15-B19, B94.2, I85.0, O98.4, P35.3)				
	All alcohol-related (E24.4, F10, G31.2, G62.1, G72.1, I42.6, K29.2, K85.2, K86.2, K70, K86.0, R78.0, X45, X65, Y15)				
	Cancer (C00-C97, D45-D46, 47.1, D47.3-D47.5)				
	Cardiovascular disease (I00-I99, G45, G46)				
	Chronic respiratory disease (J40-J46)				
	Digestive disorders (including chronic liver disease) (K25-K28, K35-K38, K40-K46, K73, K74, K80-K83, K85-K86, K91.5)				
	HIV-related (B20-B24)				
	Influenza and pneumonia (J10-J18)				
	Injecting-related diseases (A48.0, G06.0, G06.1, G06.2, L02.X, L03.X, L08.8, L08.9, L97, L98.4, L98.8, L98.9, M72.6, R02, B37.6,				

	I33.0, I33.9, I34.0, I34.2, I34.8, I34.9, I35.X, I36.X, I37.X, I38, I39.X, T82.6, A40.X, A41.X, A49.1, A49.8, A49.9, B37.7, R57.2, R65.1, R65.9, M00.X, M86.X, M89.9, M46.2, M46.3, M46.4, I80, I82.2, I82.3, I82.8, I82.9, I87.0, I87.2, I87.8, I87.9, A48.8, A49.0, I26.9				
	Skin or soft tissue infections (A48.0, G06.0, G06.1, G06.2, L02.X, L03.X, L08.8, L08.9, L97, L98.4, L98.8, L98.9, M72.6, R02)				
	Endocarditis (B37.6, I33.0, I33.9, I34.0, I34.2, I34.8, I34.9, I35.X, I36.X, I37.X, I38, I39.X, T82.6)				
	Sepsis and bacteraemia (A40.X, A41.X, A49.1, A49.8, A49.9, B37.7, R57.2, R65.1, R65.9, A48.8, A49.0, I26.9)				
	Septic arthritis (M00.X)				
	Osteomyelitis (M86.X, M89.9, M46.2, M46.3, M46.4)				
	Venous diseases (I80, I82.2, I82.3, I82.8, I82.9, I87.0, I87.2, I87.8, I87.9)				
	All other (unknown) causes				
	of which, ill-defined conditions (R99)				
	All codified cases				
	Unknown causes				
Comments on cause-specific mortality	Please specify (e.g., mean age is at first treatment and not at enrolment; HIV and hepatitis deaths are reported together, …) ……..				
Implications & way forward	Is an update/re-linking of this cohort planned for the next years? ○ Yes ⊗ No ○ NA				
	Are pooled analysis of these data with data from other cohorts planned? ○ Yes ⊗ No ○ NA				

	Are there plans to conduct a survival analysis using this data? ○ Yes ⊗ No ○ NA

References

Please list all publications that were described in this report (either in peer-reviewed journals or in other forms, grey literature)
Thylstrup B, Seid AK, Tjagvad C, Hesse M., “Incidence and predictors of drug overdoses among a cohort of >10,000 patients treated for substance use disorder”. Drug Alcohol Depend. 2020 Jan;206:107714.

Table 4.9:
Overall picture of the study situation (to be filled out once a year by the NFPs)

Overview (nationally)	
Confidentiality, ethical approval and consent	Is there a national legal framework and regulation to link the data of the people enrolled and the data from the mortality registers? ⊗ Yes ○ No ○ Do not know If yes, please add the reference(s) of the framework (law/act.., year, institution) ……
Data linkage	Is there a unique personal identifier for each person in the country? ⊗ Yes ○ No ○ Do not know
	What institution is responsible for the encryption of data? ☐ Ministry of Health ☐ National Institute of Public Health ☐ Prison administration ☐ Drug treatment register ☐ The National Focal Point ☐ Do not know ☒ Other If other, please specify: Statistics Denmark
Way forward	New cohort studies are planned for the coming 3 to 4 years ⊗ Yes ○ No ○ NA If yes, please specify All-cause and overdose mortality among patients in opioid maintenance treatment in Denmark and Czech Republic
Excess mortality and premature deaths	The identified studies found an excess risk of the people enrolled compared to people of the same age and gender in the general population ○ Yes ○ No

	⊗ NA ○ Other If Other, please specify: ……
	The identified studies showed that the deaths among the enrolled persons occured prematurely, on average ☐ Up to 10 years earlier compared to the general popualtion ☐ 11 to 20 years earlier ☐ 21 to 30 years earlier ☐ More than 30 years earlier ☒ NA ☐ Other If Other, please specify: ……
Risk factors	The main risk factors for deaths in the identified studies were (multiple choices): ☒ Injecting drugs ☐ Homelessness ☐ Using drugs alone ☐ Opioid use ☒ Male gender ☐ Female gender ☐ Unemployement ☐ Being out of treatment ☐ Quitting treatment ☐ Older age ☐ Living alone ☐ Unemployment/retirement ☐ NA ☐ Other If Other, please specify: ……..
Comments on risk factors	……..
Main causes of deaths	The **main causes of deaths** in the studies identified were: *Underlying cause of death based on the EMCDDA definition with 'Selection B' of ICD-10 codes (EMCDDA, 2009, p. 29):* ☐ Harmful use, dependence, and other mental and behavioural disorders (F11, F12, F14-F16, F19)

	☐ Accidental poisoning (X41 & T40.0-T40.9; X42 & T43.6) ☐ Intentional poisoning (X61 X41 & T40.0-T40.9; X62 & T43.6), ☐ Poisoning by undetermined intent (Y11 & T40.0-T40.9; Y12 & T43.6) ☐ Unknown causes ☐ NA *Cause of death categories and corresponding ICD-10 codes based on the standardized definitions adopted from Santo et al. (2022)* ☐ All injury and poisoning (F11-F16, F19, F55, V00-X99, Y00-Y39, Y85-Y87, Y89) ☐ Drug-induced deaths: Drug use disorders and poisonings (F11- F16, F19, F55, X40- X44, X60-X64, X85, Y10-Y14) ☐ Drug-induced deaths: Underlying cause of death (F11.0-F11.5, F11.7-F11.9, F12.0-F12.5, F12.7-F12.9, F13.0-F13.5, F13.7-F13.9, F14.0-F14.5, F14.7-F14.9, F15.0-F15.5, F15.7-F15.9, F16.0-F16.5, F16.7-F16.9, F18.0-F18.5, F18.7-F18.9, F19.0-F19.5, F19.7-F19.9, D52.1, D59.0, D59.2, D61.1, D64.2, E06.4, E16.0, E23.1, E24.2, E27.3, E66.1, G21.1, G24.0, G25.1, G25.4, G25.6, G44.4, G62.0, G72.0, I95.2, J70.2-J70.4, L10.5, L27.0, L27.1, M10.2, M32.0, M80.4, M81.4, M83.5, M87.1,R78.1-R78.5, X40-X44, X60-X64, X85, Y10-Y14) ☐ Suicide (X60-X84, Y87.0) ☐ Non-poisoning suicided (X66-X85, Y87.0) ☐ Violence (X85-Y09, Y87.1) ☐ Motor vehicle and transport accidents (V01-V99) ☐ Falls / fires / burns / drownings (W00-W19, W65-W74, X00-X09) ☐ All liver-related (B15-B19, B94.2, C22, I85.0, K70-K77, O98.4, P35.3) ☐ Viral hepatitis (B15-B19, B94.2, I85.0, O98.4, P35.3) ☐ All alcohol-related (E24.4, F10, G31.2, G62.1, G72.1, I42.6, K29.2, K85.2, K86.2, K70, K86.0, R78.0, X45, X65, Y15) ☐ Cancer (C00-C97, D45-D46, 47.1, D47.3-D47.5) ☐ Cardiovascular disease (I00-I99, G45, G46) ☐ Chronic respiratory disease (J40-J46) ☐ Digestive disorders (including chronic liver disease) (K25-K28, K35-K38, K40-K46, K73, K74, K80-K83, K85-K86, K91.5) ☐ HIV-related (B20-B24) ☐ Influenza and pneumonia (J10-J18) ☐ Injecting-related diseases (A48.0, G06.0, G06.1, G06.2, L02.X, L03.X, L08.8, L08.9, L97, L98.4, L98.8, L98.9, M72.6, R02, B37.6, I33.0, I33.9, I34.0, I34.2, I34.8, I34.9, I35.X, I36.X, I37.X, I38, I39.X, T82.6, A40.X, A41.X, A49.1, A49.8, A49.9, B37.7, R57.2, R65.1, R65.9, M00.X, M86.X, M89.9, M46.2, M46.3, M46.4, I80, I82.2, I82.3, I82.8, I82.9, I87.0, I87.2, I87.8, I87.9, A48.8, A49.0, I26.9 ☐ Skin or soft tissue infections (A48.0, G06.0, G06.1, G06.2, L02.X, L03.X, L08.8, L08.9, L97, L98.4, L98.8, L98.9, M72.6, R02) ☐ Endocarditis (B37.6, I33.0, I33.9, I34.0, I34.2, I34.8, I34.9, I35.X, I36.X, I37.X, I38, I39.X, T82.6) ☐ Sepsis and bacteraemia (A40.X, A41.X, A49.1, A49.8, A49.9, B37.7, R57.2, R65.1, R65.9, A48.8, A49.0, I26.9) ☐ Septic arthritis (M00.X) ☐ Osteomyelitis (M86.X, M89.9, M46.2, M46.3, M46.4) ☐ Venous diseases (I80, I82.2, I82.3, I82.8, I82.9, I87.0, I87.2, I87.8, I87.9) ☐ Unknown causes ☒ NA
Comments on main causes of death	……..
Protective factors	Protective factors identified in the studies included:

	☒ Receiving OAT treatment ☐ Receiving other treatment ☐ Other ☐ NA If Other, please specify: ……
Comments on protective factors	……..
Recommendations	On the basis of the identified studies, the following recommendations can be formulated: ☒ Ensure access to OAT ☒ Ensure continuity to OAT ☐ Ensure access to harm reduction for opioid users (e.g., take-home naloxone, overdose prevention training, …) ☐ Other interventions ☐ NA If Other, please specify ……
Additional information	Provide any additional information you would like to share, e.g. information on unpublished studies, plans for future studies, expressions of interest to participate in a cooperation/pooled analysis, networking, willingness to share your study questionnaire etc. ……

5 Conclusions and way forward

This revision aimed to simplify the template, facilitate the reporting by the National Focal Points and their drug-related deaths experts, and encourage more countries to report their findings in this area.

Three countries provided feedback on the revised ST18, its content and structure: Lithuania, Croatia, and Denmark. For pilot testing the ST18, the three countries filled in the revised template with their most recent/relevant study – in liaison with the study researchers, as necessary – and reported any difficulties and suggestions for addition, omission, or clarification in the structure and items of the template. Individual country feedback was reported together with the subsequent changes to the ST18 and integrated in the revised ST18 template.

The revision shall contribute to better inform the excess risk of mortality among people who are using drugs compared to the general population and the situation with regards to current policy concerns (e.g., hepatitis and COVID-19 mortality, ageing, gender differences in mortality risks, …). It has potential to support interested countries in collecting and analysing their data according to harmonised and consistent definitions and improve the comparability and utilization of the findings for policy makers and professionals at European level.

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7 References

EMCDDA. (2009). Standard protocol version 3.2 for the EU Member States to collect data and report figures for the Key indicator drug-related deaths. Lisbon: European Monitoring Centre for Drugs and Drug Addiction

EMCDDA. (2015). Mortality among drug users in Europe: new and old challenges for public health. Luxembourg: Publications Office of the European Union

EMCDDA. (2021). European drug report 2021: trends and developments. Luxembourg: Publications Office of the European Union

Santo, T., Bharat, C., Colledge-Frisby, S., Chrzanowska, A., Man, N., Moran, L., Torrens, E., & Degenhardt, L. (2022). Mortality among people with substance use disorders: A toolkit for classifying major causes of death. Sydney: National Drug and Alcohol Research Centre, UNSW Sydney

Annex

Table A 1:
Summary table of the underlying cause of deaths and corresponding Selected ICD-10 codes, to define the overdose (or 'drug-induced deaths') cases reported annually by the countries to the EMCDDA through standard table 6 (ST6)

Cases are counted when their underlying cause of death is mental and behavioural disorders due to psychoactive substance use (see below) or poisoning (accidental, intentional or by undetermined intent):

- harmful use, dependence, and other mental and behavioural disorders due to: opioids (F11), cannabinoids (F12), cocaine (F14), other stimulants (F15), hallucinogens (F16), multiple drug use (F19);
- accidental poisoning (X41, X42), intentional poisoning (X61, X62), or poisoning by undetermined intent (Y11, Y12) by: opium (T40.0), heroin (T40.1), other opioids (T40.2), methadone (T40.3), other synthetic narcotics (T40.4), cocaine (T40.5), other and unspecified narcotics (T40.6), cannabis (T40.7), lysergide (T40.8), other and unspecified psychodysleptics (T40.9), psychostimulants (T43.6);
- exposure to other and unspecified drugs (X44, X64, Y14) in combination with T codes (see below 'Effect of the ICD-10 update+).

The T-codes are to be selected in combination with the respective X-codes and Y-codes.

Underlying cause of death	Selected ICD-10 code(s)
Disorders	F11–F12, F14–F16, and F19
Accidental poisoning	X42 ([1]), X41 ([2])
Intentional poisoning	X62 ([1]), X61 ([2])
Poisoning, undetermined intent	Y12 ([1]), Y11 ([2])
Exposure to other and unspecified drugs	X44([3]), X64([3]), Y14([3])

([1]) In combination with T-codes: T40.0–40.9.

([2]) In combination with T-code: T43.6.

([3]) In combination with T codes: T40.0-T40.9 or T43.6.

Note: the ST18 template collates the number and rates of these 'overdose' deaths which match exactly the European definition. The mortality rate due to 'overdose' observed in the cohort can be then used to estimate the 'expected number of overdose' deaths at a national level. This estimation can be cross-checked by the national number of 'overdose' reported annually through ST6 to the EMCDDA.

Source: EMCDDA Statistical Bulletin – Methods DRD indicator.
https://www.emcdda.europa.eu/data/stats2022/methods/drd_en

Table A 2:
Overall mortality and causes of death among cohorts of drug users recruited in treatment services – version 1/2020

European Monitoring Centre for Drugs and Drug Addiction

Report ID: ST18_2020_AT_01

Standard Table 18:

Overall mortality and causes of death among cohorts of drug users recruited in treatment services - version 1/2020

1. Introduction

1.1. Notes

This table is part of the Key Indicator "Drug-related deaths and mortality among drug users".

The data is collected from cohort studies drawn from treatment centres within individual countries. In most Member States where the mortality cohorts are conducted, this information is available through national experts that participate in the EMCDDA project on this topic.

1.2. Objectives

To provide basic figures on mortality among problem drug users.
To complement existing tables on drug-induced deaths (Standard Table 05 - Acute deaths and Standard Table 06 - Acute deaths evolution).
To promote one integrated analysis and interpretation of "drug-related deaths" and "mortality among drug users" in Reitox National Reports.

2. Methods

2.1. Basic description of cohort enrolled

2.1.1 Country

2.1.2 EMCDDA data collection year

2.1.3 Study site (geographical coverage)

e.g. Vienna, Denmark...

2.1.4 Setting of enrolment

e.g. Outpatient treatment centres, inpatient treatment centres…

2.1.5 Study population

e.g. Opiate users admitted to outpatient treatment centres...

2.1.6 Period of enrolment

e.g. January 1992 to December 1993

2.1.7 Follow-up period

e.g. January 1992 to October 1998

2.1.8 Number of subjects enrolled at the start of the study

2.1.9 Number of subjects followed up (i.e. vital status verified)

2.1.10 Number of opiate users among subjects followed up

2.1.11 Number of males amongst subjects followed up									
2.1.12 Mean age of enrolment of subjects followed up									
2.1.13 Total number of deaths at end of follow-up									
2.1.14 Mean age at death									
2.1.15 Remarks									
2.2. Contact details of the study									
2.2.1 Contact person									
2.2.2 Institution									
2.2.3 Telephone									
2.2.4 E-mail									
3. Main results									
3.1. Note									
Tables are provided below for the whole cohort (patients followed up), opiate users and two unspecified groups. If possible, please supply information for at least all users and opiate users. The two unspecified groups are available if there are a large number of users unaccounted for by opiates. If this is the case, please specify the drug that accounts for the largest number of remaining cases and complete Other Users 1. If a large number of users remains unaccounted for by opiates and Other Users 1, repeat the process using Other Users 2. If further tables are required submit a second report.									
3.2. Whole cohort (if the cohort includes only opiate users, please fill in only the section for opiate users - from question 3.3 onwards)									
Note: Please include all deaths observed among cohort members during the whole period of follow-up									
3.2.1 Mortality rates from all causes (direct standardised mortality rates)									
	Males Person-years of observation	**Males Number of deaths**	**Males Standardised mortality rate**	**Females Person-years of observation**	**Females Number of deaths**	**Females Standardised mortality rate**	**Total Person-years of observation**	**Total Number of deaths**	**Total Standardised mortality rate**

Overall mortality rates									
3.2.2 Please specify the population used as standard population (e.g. European population)									
3.2.3 Mortality rates by calendar year of follow-up									
	Males Person-years of observation	**Males Number of deaths**	**Males Standardised mortality rate**	**Females Person-years of observation**	**Females Number of deaths**	**Females Standardised mortality rate**	**Total Person-years of observation**	**Total Number of deaths**	**Total Standardised mortality rate**
Year 1									
Year 2									
Year 3									
Year 4									
Year 5									
Year 6									
Year 7									
Year 8									
Year 9									
Year 10									
3.2.4 Cause-specific mortality (distribution of deaths by cause)									
	Number								
AIDS									
Overdoses									
All other causes									
of which, ill-defined conditions									
All codified cases									
Unknown causes									
TOTAL NUMBER of deaths during follow-up									
- Calculated on the basis of all deaths recorded during the follow-up period **Notes on ICD-10 codes:** **AIDS: B20-B24**									

Ill defined: R95-R99
All codified cases: A00-Z99

3.2.5 Please specify the ICD codes included for the Overdoses cases

Reference rate = mortality rate of the general population of the same age

3.2.6 Expected and observed number of deaths and SMR (Standardised Mortality Ratios) (95% Confidence Interval)

	Observed No deaths	Reference rate	Expected No deaths	SMR	SMR Lower CI 95	SMR Upper CI 95
Overall figures Males						
Overall figures Females						
Overall figures Total						

3.2.7 Please specify which year is used as reference

3.3. Opiate users

Note: Please include all deaths observed among cohort members during the whole period of follow-up

3.3.1 Mortality rates from all causes (direct standardised mortality rates)

	Males Person-years of observation	Males Number of deaths	Males Standardised mortality rate	Females Person-years of observation	Females Number of deaths	Females Standardised mortality rate	Total Person-years of observation	Total Number of deaths	Total Standardised mortality rate
Overall mortality rates									

3.3.2 Please specify the population used as standard population (e.g. European population)

3.3.3 Mortality rates by calendar year of follow-up

	Males Person-years of observation	Males Number of deaths	Males Standardised mortality rate	Females Person-years of observation	Females Number of deaths	Females Standardised mortality rate	Total Person-years of observation	Total Number of deaths	Total Standardised mortality rate
Year 1									
Year 2									

Year 3										
Year 4										
Year 5										
Year 6										
Year 7										
Year 8										
Year 9										
Year 10										
3.3.4 Cause-specific mortality (distribution of deaths by cause)										
	Number									
AIDS										
Overdoses										
All other causes										
of which, ill-defined conditions										
All codified cases										
Unknown causes										
TOTAL NUMBER of deaths during fol-low-up										
- Calculated on the basis of all deaths recorded during the follow-up period Notes on ICD-10 codes: AIDS: B20-B24 Ill defined: R95-R99 All codified cases: A00-Z99										
3.3.5 Please specify the ICD codes included for the Overdoses cases										
Reference rate = mortality rate of the general population of the same age										
3.3.6 Expected and observed number of deaths and SMR (Standardised Mortality Ratios) (95% Confidence Interval)										
	Observed No deaths	Reference rate	Expected No deaths	SMR	SMR Lower CI 95	SMR Upper CI 95				
Overall figures Males										

Overall figures Females									
Overall figures Total									
3.3.7 Please specify which year is used as reference									
3.4. Other users (group 1)									
3.4.1 Please describe what is included in "group 1" of other users (other than opiate users) (e.g. cocaine users, amphetamine users,...)									
Note: Please include all deaths observed among cohort members during the whole period of follow-up									
3.4.2 Mortality rates from all causes (direct standardised mortality rates)									
	Males Person-years of observation	Males Number of deaths	Males Standardised mortality rate	Females Person-years of observation	Females Number of deaths	Females Standardised mortality rate	Total Person-years of observation	Total Number of deaths	Total Standardised mortality rate
Overall mortality rates									
3.4.3 Please specify the population used as standard population (e.g. European population)									
3.4.4 Mortality rates by calendar year of follow-up									
	Males Person-years of observation	Males Number of deaths	Males Standardised mortality rate	Females Person-years of observation	Females Number of deaths	Females Standardised mortality rate	Total Person-years of observation	Total Number of deaths	Total Standardised mortality rate
Year 1									
Year 2									
Year 3									
Year 4									
Year 5									
Year 6									
Year 7									
Year 8									
Year 9									
Year 10									

3.4.5 Cause-specific mortality (distribution of deaths by cause)

	Number
AIDS	
Overdoses	
All other causes	
of which, ill-defined conditions	
All codified cases	
Unknown causes	
TOTAL NUMBER of deaths during follow-up	

- Calculated on the basis of all deaths recorded during the follow-up period

Notes on ICD-10 codes:
AIDS: B20-B24
Ill defined: R95-R99
All codified cases: A00-Z99

3.4.6 Please specify the ICD codes included for the Overdoses cases

Reference rate = mortality rate of the general population of the same age

3.4.7 Expected and observed number of deaths and SMR (Standardised Mortality Ratios) (95% Confidence Interval)

	Observed No deaths	Reference rate	Expected No deaths	SMR	SMR Lower CI 95	SMR Upper CI 95
Overall figures Males						
Overall figures Females						
Overall figures Total						

3.4.8 Please specify which year is used as reference

3.5. Other users (group 2)

3.5.1 Please describe what is included in "group 2" of other users (other than opiate users) (e.g. cocaine users, amphetamine users,...)

Note: Please include all deaths observed among cohort members during the whole period of follow-up

3.5.2 Mortality rates from all causes (direct standardised mortality rates)

	Males Person-years of observation	Males Number of deaths	Males Standardised mortality rate	Females Person-years of observation	Females Number of deaths	Females Standardised mortality rate	Total Person-years of observation	Total Number of deaths	Total Standardised mortality rate
Overall mortality rates									

3.5.3 Please specify the population used as standard population (e.g. European population)

3.5.4 Mortality rates by calendar year of follow-up

	Males Person-years of observation	Males Number of deaths	Males Standardised mortality rate	Females Person-years of observation	Females Number of deaths	Females Standardised mortality rate	Total Person-years of observation	Total Number of deaths	Total Standardised mortality rate
Year 1									
Year 2									
Year 3									
Year 4									
Year 5									
Year 6									
Year 7									
Year 8									
Year 9									
Year 10									

3.5.5 Cause-specific mortality (distribution of deaths by cause)

	Number
AIDS	
Overdoses	
All other causes	
of which, ill-defined conditions	
All codified cases	
Unknown causes	

TOTAL NUMBER of deaths during follow-up									
- Calculated on the basis of all deaths recorded during the follow-up period **Notes on ICD-10 codes:** **AIDS: B20-B24** **Ill defined: R95-R99** **All codified cases: A00-Z99**									
3.5.6 Please specify the ICD codes included for the Overdoses cases									
Reference rate = mortality rate of the general population of the same age									
3.5.7 Expected and observed number of deaths and SMR (Standardised Mortality Ratios) (95% Confidence Interval)									
	Observed No deaths	**Reference rate**	**Expected No deaths**	**SMR**	**SMR Lower CI 95**	**SMR Upper CI 95**			
Overall figures Males									
Overall figures Females									
Overall figures Total									
3.5.8 Please specify which year is used as reference									
Report Comments:									
Exported on: 2021-12-13 08:43:29									