# THE LANCET Psychiatry

# Supplementary appendix

This appendix formed part of the original submission and has been peer reviewed. We post it as supplied by the authors.

Supplement to: GBD 2016 Alcohol and Drug Use Collaborators. The global burden of disease attributable to alcohol and drug use in 195 countries and territories, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. *Lancet Psychiatry* 2018; published online Nov 1. http://dx.doi.org/10.1016/S2215-0366(18)30337-7.

# Appendix for

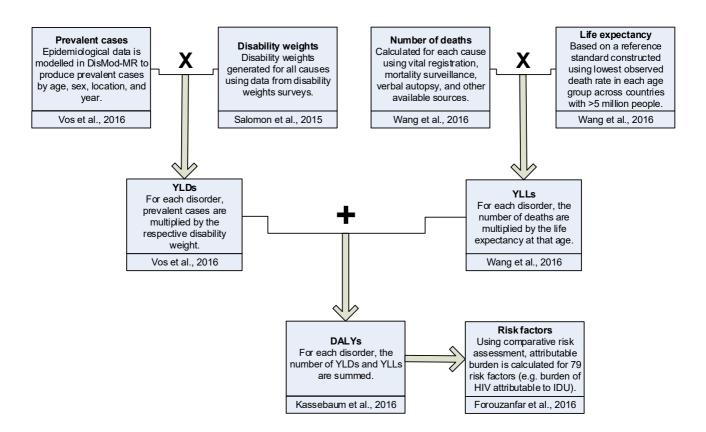
"The global burden of disease attributable to alcohol and illicit drug use in 195 countries and territories: Findings from the 2016 Global Burden of Disease Study"

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Figure A1: Flowchart outlining basic GBD methodology with relevant references for further detail.



Gakidou E, Afshin A, Abajobir AA, Abate KH, Abbafati C, Abbas KM, et al. Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. The Lancet. 2017; **390**(10100): 1345-422. doi: 10.1016/S0140-6736(17)32366-8

Hay SI, Abajobir AA, Abate KH, Abbafati C, Abbas KM, Abd-Allah F, et al. Global, regional, and national disability-adjusted life-years (DALYs) for 333 diseases and injuries and healthy life expectancy (HALE) for 195 countries and territories, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. The Lancet. 2017; **390**(10100): 1260-344. doi: 10.1016/S0140-6736(17)32130-X

Naghavi M, Abajobir AA, Abbafati C, Abbas KM, Abd-Allah F, Abera SF, et al. Global, regional, and national age-sex specific mortality for 264 causes of death, 1980-2016: a systematic analysis for the Global Burden of Disease Study 2016. The Lancet. 2017; **390**(10100): 1151-210. doi: 10.1016/S0140-6736(17)32152-9

Salomon JA, Haagsma JA, Davis A, de Noordhout CM, Polinder S, Havelaar AH, et al. Disability weights for the Global Burden of Disease 2013 study. The Lancet Global health. 2015; **3**(11): e712-23. doi: 10.1016/s2214-109x(15)00069-8

Vos T, Allen C, Arora M, Barber RM, Bhutta ZA, Brown A, et al. Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. The Lancet. 2016; **388**(10053): 1545-602. doi: 10.1016/S0140-6736(16)31678-6

Wang H, Naghavi M, Allen C, Barber RM, Bhutta ZA, Carter A, et al. Global, regional, and national life expectancy, all-cause mortality, and cause-specific mortality for 249 causes of death, 1980-2015: a systematic analysis for the Global Burden of Disease Study 2015. The Lancet. 2016; **388**(10053): 1459-544. doi: 10.1016/S0140-6736(16)31012-1

#### Search terms used in literature searches

# Parameter-specific search terms

- prevalen\* (within title and abstract)
- percent\* (within title and abstract)
- inciden\*(within title and abstract)
- remission (within title and abstract)
- remit\*(within title and abstract)
- mortality (within title and abstract)Prevalence (Mesh term)
- Epidemiology (Mesh term)
- Incidence (Mesh term)
- Mortality (Mesh term)

#### **Cause-specific terms**

- drug (within title and abstract)
- substance (within title and abstract)
- opioid\* (within title and abstract)
- heroin (within title and abstract)
- Cocaine (within title and abstract)
- Marijuana (within title and abstract)
- Cannabis (within title and abstract)
- Amphetamin\* (within title and abstract)
- Methamphetam\* (within title and abstract)
   AND
- abus\*[Title/Abstract]
- dependen\*[Title/Abstract]
- addict\*[Title/Abstract]
- misus\*[Title/Abstract]
- "Amphetamine-related disorders" (Mesh term)
- "Cocaine-related disorders" (Mesh term)
- "Opioid-related disorders" (Mesh term)
- Substance-related disorders (Mesh NoExp)

Table A1a: Number of data sources and proportion of data sources from high-income countries for each disorder in GBD 2016

	Prevalence	Prevalence		Incidence		Remission/Duration		Excess mortality	
Disorder	Total	% High-Income	Total	% High-Income	Total	% High-Income	Total	% High-Income	
Alcohol dependence	185	52·40%	3	66·70%	4	75.00%	38	95.50%	
Fetal alcohol syndrome	81	76-50%	0	-	0	-	5	-	
Amphetamine dependence	88	76·10%	0	-	2	100.00%	6	100.00%	
Cannabis dependence	236	69-90%	0	-	3	100.00%	0	-	
Cocaine dependence	118	61.90%	0	-	3	66·70%	7	91.90%	
Opioid dependence	66	69·70%	0	-	8	75.00%	41	95.50%	
Other drug dependence	4	100-00%	0	-	0	-	0	100.00%	

Table A1b: Number of countries and proportion of countries by super-region and the globe represented by the available data sources in GBD 2016

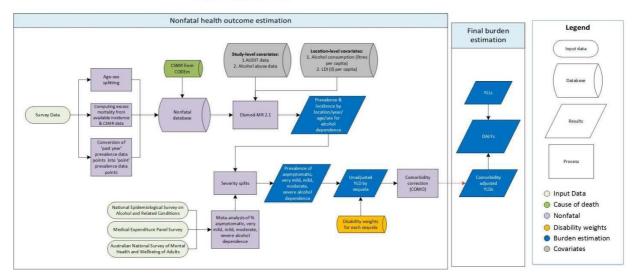
Number of countries represented								
Disorder	<b>Global</b> (n = 195)	Southeast Asia, East Asia, and Oceania (n = 28)	Central Europe, Eastern Europe, and Central Asia (n = 29)	High-income (n = 34)	Latin America and Caribbean (n = 32)	North Africa and Middle East (n = 21)	South Asia (n = 5)	Sub-Saharan Africa (n = 46)
Alcohol dependence	63 (32·3%)	6 (21·4%)	9 (31·0%)	27 (79·4%)	5 (15.6%)	7 (33·3%)	3 (60.0%)	6 (13.0%)
Fetal alcohol syndrome	32 (16·4%)	0 (0.0%)	7 (24·1%)	22 (64·7%)	2 (6·2%)	0 (0.0%)	0 (0.0%)	1 (2·2%)
Amphetamine dependence	56 (28·7%)	3 (10·7%)	13 (44·8%)	25 (73·5%)	9 (28·1%)	3 (14·3%)	1 (20·0%)	2 (4·3%)
Cannabis dependence	94 (48·2%)	6 (21·4%)	17 (58·6%)	30 (88-2%)	27 (84-4%)	3 (14·3%)	2 (40·0%)	9 (19·6%)
Cocaine dependence	65 (33·3%)	2 (7·1%)	12 (41·4%)	28 (82·4%)	19 (59-4%)	2 (9·5%)	1 (20·0%)	1 (2·2%)
Opioid dependence	36 (18·5%)	3 (10·7%)	8 (27·6%)	18 (52·9%)	0 (0.0%)	3 (14·3%)	3 (60·0%)	1 (2·2%)
Other drug dependence	2 (1.0%)	0 (0.0%)	0 (0.0%)	2 (5.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Cannabis dependence	94 (48·2%)	6 (21·4%)	17 (58-6%)	30 (88·2%)	27 (84·4%)	3 (14·3%)	2 (40·0%)	9 (19-6%)

# Summary of modelling process for alcohol dependence

Please note: this appendix material has been reproduced from the appendix of the original publication in which it appeared (Vos et al., *Lancet*, 2017).

#### Flowchart

#### Alcohol use disorders



# Case definition

Alcohol dependence is a substance-related disorder involving a dysfunctional pattern of alcohol use. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) criteria for alcohol dependence, at least three out of seven of the following criteria must be manifested during a 12-month period:

- Tolerance
- Withdrawal symptoms or clinically defined alcohol withdrawal syndrome
- Use in larger amounts or for longer periods than intended
- Persistent desire or unsuccessful efforts to cut down on alcohol use
- Time is spent obtaining alcohol or recovering from effects
- Social, occupational, and recreational pursuits are given up or reduced because of alcohol use
- Use is continued despite knowledge of alcohol-related harm (physical orpsychological)

The DSM-IV codes for alcohol dependence is 303.90, and the corresponding International Classification of Diseases (ICD-10) codes are F10.1 and F10.2.<sup>1,2</sup>

# Input data

#### Model inputs

In GBD 2013 and GBD 2016, systematic reviews of literature were conducted to capture studies of prevalence, incidence, remission, duration, and excess mortality associated with alcohol dependence. In summary, the search was conducted in three stages involving searches of the peer-reviewed literature (via Medline, Embase, and PubMed), the grey literature, and expert consultation.

The inclusion criteria stipulated that (1) "caseness" must be based on clinical threshold as established by the DSM and ICD; (2) sufficient information must be provided on study method and sample characteristics to assess the quality of the study; and (3) study samples must be representative of the general population (ie, inpatient or pharmacological treatment samples (accepted for estimates of mortality), case studies, veterans or refugee samples were excluded).

An adjustment was made outside of DisMod-MR 2.1 to adjust past-year prevalence estimates of alcohol dependence toward the level they would have been had the study measured point prevalence, as the latter is less susceptible to recall bias. Given that remission from alcohol dependence (and hence, average disease duration) vary considerably with age, we also applied an age pattern to this adjustment that cannot be replicated within DisMod-MR 2.1 by use of covariates. The first step was to estimate the average duration by taking the inverse of remission. Next, we applied an adjustment factor from one-year to point prevalence using the following formula where average duration is expressed in years:

adjustment factor 
$$\frac{\text{average duration}}{\text{average duration} + 1}$$

Age-specific adjustment factors were applied to all one-year prevalence estimates propagating sampling uncertainty around the prevalence and remission input data through to the final adjusted prevalence estimates.

Prevalence estimates were split by age and sex where possible outside of DisMod-MR 2.1. Firstly if studies reported prevalence for broad age groups by sex (eg, prevalence in 15 to 65 year old males and females separately), and also by specific age groups but for both sexes combined (eg, prevalence in 15 to 30 year olds, then in 31 to 65 year olds, for males and females combined); age-specific estimates were split by sex using the reported sex ratio and bounds of uncertainty. Secondly, where studies reported estimates across age groups spanning 20 years or more, these were split into five-year age groups using the regional prevalence age pattern estimated by DisMod-MR 2.1.

The final dataset for GBD 2016 included 4,107 prevalence estimates, 25 incidence estimates, 14 remission estimates, and 87 excess mortality estimates. The table below shows the number of studies for each parameter as well as the number of countries/subnationals and GBD world regions covered by the available data

	Prevalence	Incidence	Remission	Mortality
Studies	178	3	4	40
Countries/subnationals	160	3	4	25
GBD world regions	19	2	3	5

#### Severity splits & disability weights

The basis of the GBD disability weight survey assessments are lay descriptions of sequelae highlighting major functional consequences and symptoms. The lay descriptions and disability weights for alcohol dependence severity levels are shown below.

Severity level	Lay description	DW (95% CI)
Very mild	Drinks alcohol daily and has difficulty controlling the urge to drink. When sober, the person functions normally.	0.123 (0.082-0.177)
Mild	Drinks a lot of alcohol and sometimes has difficulty controlling the urge to drink. While intoxicated, the person has difficulty performing daily activities.	0.235 (0.16-0.327)
Moderate	Drinks a lot, gets drunk almost every week and has great difficulty controlling the urge to drink. Drinking and recovering cause great difficulty in daily activities, sleep loss, and fatigue.	0.373 (0.248-0.508)
Severe	Gets drunk almost every day and is unable to control the urge to drink. Drinking and recovering replace most daily activities. The person has difficulty thinking, remembering and communicating, and feels constant pain and fatigue.	0.57 (0.396-0.732)

<sup>\*</sup>asymptomatic cases carried no disability weight

Severity splits used in GBD 2016 were consistent with those used in GBD 2015. The US National Epidemiological Survey on Alcohol and Related Conditions (NESARC, conducted in two waves from 2001-2002 and 2004-2005)<sup>3</sup> and the Australian National Survey of Mental Health and Wellbeing of Adults (NSMHWB, conducted in 1997)<sup>4</sup> were used to estimate the proportion of alcohol dependence cases in the asymptomatic 32.0% (25.3%-40.0%); very mild 58.6% (51.4%-65.3%); mild 3.8% (1.5%-6.6%); moderate 3.3% (1.0%-6.0%); and severe 2.4% (0.5%-5.8%) disease categories.

# **Modelling strategy**

The GBD 2016 epidemiological modelling strategy for alcohol dependence made use of DisMod-MR 2.1 to estimate prevalence by age, sex, year, and location. Standardized mortality ratio and relative risk data were excluded in the modelling process. Instead we pulled in cause-specific mortality rate (CSMR) data from our CODEm and CODcorrect analyses and matched it with prevalence data points for the same geography and study year to estimate priors on excess mortality rates (by dividing CSMR by prevalence). We assumed no incidence and mortality before age 10. An upper limit of 0.6 was placed on remission (in line with data from the US National Epidemiological Survey on Alcohol and Related Conditions (NESARC) as well as a declining trend with age to restrict DisMod-MR 2.1 from straying too far from the data inputs.

Within DisMod-MR 2.1, study-level covariates were used to accommodate for other sources of between-study variability in the raw prevalence data. Combined abuse and dependence prevalence estimates were crosswalked down toward dependence-only estimates. Similarly, prevalence estimates using AUDIT were crosswalked down toward prevalence estimates from diagnostic (non-AUDIT) measures.

Country-level covariates were also included. The LDI covariate represents a moving average of gross domestic product (GDP) over time. LDI was also applied to excess mortality data with a negative relationship assumed. Alcohol consumption was also represented by a covariate representing this in terms of litres of alcohol per capita.

Study/country covariate	Parameter	beta	Exponentiated beta
cv_abuse and dependence	Prevalence	0.61 (0.33-0.89)	1.84 (1.39-2.43)
cv_AUDIT	Prevalence	1.38 (1.16-1.59)	3.98 (3.17-4.91)
cv_Alcohol (litres per capita)	Prevalence	0.37 (0.04-0.72)	1.44 (1.04-2.06)
cv_LDI (I\$ per capita)	Excess mortality	-0.11 (-0.160.1)	0.89 (0.86-0.90)

#### References

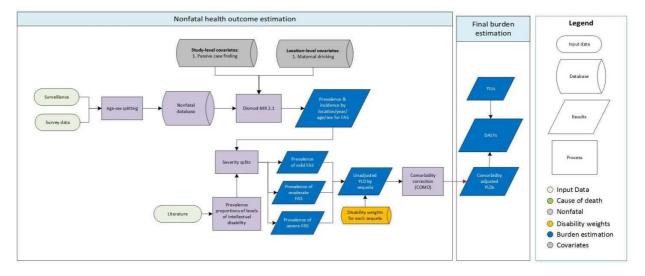
- 1. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR). 4th, Text Revision ed. Washington DC: American Psychiatric Association; 2000.
- 2. World Health Organization. The ICD-10 Classification of Mental and Behavioural Disorders. Clinical descriptions and diagnostic guidelines. Geneva: World Health Organization; 1992.
- 3. Introduction to the National Epidemiologic Survey on Alcohol and Related Conditions [http://pubs.niaaa.nih.gov/publications/arh29-2/74-78.htm]. Access date 1 December 2014.
- 4. Australian Bureau of Statistics. National Survey of Mental Health and Wellbeing of Adults 1997. Canberra: Australian Bureau of Statistics.

# Summary of modelling process for foetal alcohol syndrome

Please note: this appendix material has been reproduced from the appendix of the original publication in which it appeared (Vos et al., *Lancet*, 2017).

#### Flowchart

#### Fetal alcohol syndrome (FAS)



#### Input data and methodological summary

#### Case definition

Fetal alcohol syndrome (FAS; ICD-10: Q86.0) is a disorder caused by maternal drinking during pregnancy and is the most severe form of fetal alcohol spectrum disorder (FASD). In GBD, only FAS cases were included in the model. Other manifestations of FASD including partial fetal alcohol syndrome, alcohol-related neurodevelopmental disorder, and alcohol-related birth defects were not included. FAS is characterized by maternal alcohol exposure which results in certain patterns of facial anomalies such as short palpebral fissures and abnormalities in the premaxillary zone (eg, flat upper lip, flattened philtrum, and flat midface), growth retardation (eg, decelerating weight over time not due to nutrition), and central nervous system neurodevelopmental abnormalities (eg, decreased cranial size at birth) in the offspring.¹ Cases were defined according to diagnostic guidelines set by the US institute of Medicine, the British Pediatric Association, and other recognized bodies in the area.

#### Input data

# Model inputs

A series of systematic literature reviews were conducted to capture studies reporting the prevalence, incidence, remission, and excess mortality of FAS. The reviews incorporated searches of peer-reviewed literature via electronic databases and consultation with experts. In order for a study to be included, it must use recognized classifications of FAS (eg, the US Institute of Medicine) and provide sufficient

details on study methodology and sample characteristics to determine study quality. No limitation was set on the language of publication. Data from the European Surveillance of Congenital Anomalies (EUROCAT) were also included and updated where relevant. This methodology was utilized in GBD 2015. Updates to

systematic reviews are performed on an ongoing schedule across all GBD causes, an update for FAS will be performed in the next 1-2 iterations. The final dataset for GBD 2016 included 170 prevalence estimates and 13 excess mortality estimates (from studies of individuals with intellectual disability).

	Prevalence	Mortality
Studies	76	5
Countries/subnationals	51	4
GBD world regions	7	3

#### Severity split inputs

There were no data available which gave prevalence of FAS by severity. As such, severity splits for FAS were calculated by matching FAS severity to categories of IQ in children for which prevalence data are available. Severe FAS was matched to an IQ of less than 50, moderate FAS to an IQ of 50 to 69, mild FAS to an IQ of 74 to 84, and asymptomatic FAS to an IQ of 85 or higher. Prevalence data for these IQ levels were then used to calculate severity splits for FAS.

Severity level	Lay description	DW (95% CI)
Mild	Is a little slow in developing	0.016 (0.008-0.03)
	physically and mentally, which	
	causes some difficulty in learning but	
	no other	
	difficulties in daily activities.	
Moderate	Is slow in developing physically and	0.056 (0.035-0.083)
	mentally, which causes some	
	difficulty	
	in daily activities.	
Severe	Is very slow in developing physically and	0.179 (0.119-0.257)
	mentally, which causes great	
	difficulty in daily activities.	

#### **Modelling strategy**

Prevalence was set to begin from birth. Incidence was set to zero given cases cannot manifest after birth (despite the fact they may not be diagnosed immediately at birth). Remission was also set to zero. A covariate was included in the model which addressed the heterogeneity introduced by different case- finding methods, ie, active versus passive case-finding. Estimates from known high-drinking populations (eg, indigenous populations) were not considered representative of the general population and were excluded. A country-level covariate was included for GBD 2016 representing the log proportion of pregnant women who drink during their pregnancy, estimated

from a meta-analysis.2

The table below illustrates the covariate, parameter, beta and exponentiated beta values for the model.

Study/country covariate	Parameter	beta	Exponentiated beta
Passive case finding	Prevalence	0.31 (0.084-0.85)	1.37 (1.09-2.33)
Maternal drinking	Prevalence	0.93 (0.036-2.74)	2.54 (1.04-15.53)

#### Reterences

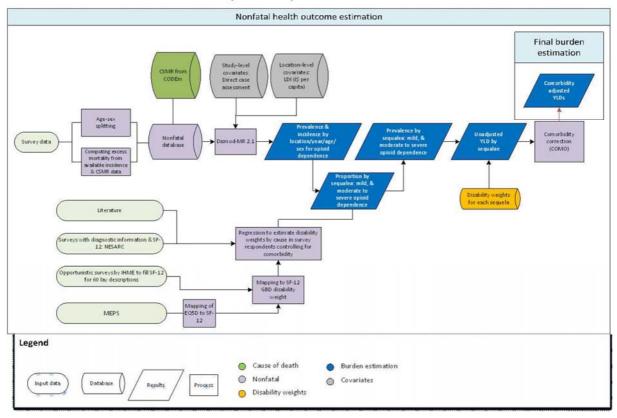
- 1. Stratton K, Howe C, Battaglia F, editors. Fetal alcohol syndrome. Diagnosis, epidemiology, prevention, and treatment. Washington DC: National Academy Press; 1996.
- 2. Popova S, Lange S, Probst C, Gmel G, Rehm J. Estimation of national, regional, and global prevalence of alcohol use during pregnancy and fetal alcohol syndrome: a systematic review and meta-analysis. *The Lancet Global Health* 2017.

# Summary of modelling process for opioid dependence

Please note: this appendix material has been reproduced from the appendix of the original publication in which it appeared (Vos et al., *Lancet*, 2017).

#### **Flowchart**

# Opioid dependence



#### Case Definition

Opioid dependence is a substance-related disorder involving a dysfunctional pattern of opioid use. Included in the GBD disease modelling were cases meeting the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) or the International Classification of Diseases (ICD-10) diagnostic criteria for opioid dependence (DSM: 304.00; ICD: F11.2), excluding those cases due to a general medical condition. According to DSM-IV TR criteria, dependence involves a maladaptive pattern of substance use leading to clinically significant impairment or distress. At least three of the following symptoms must be experienced within the same 12-month period:

- Tolerance, characterized by either
  - o a need for increased amounts of the substance to achieve intoxication; or
  - o markedly diminished effect with continued use of the same amount of thesubstance;
- Withdrawal, characterized by either
  - o Withdrawal symptoms characteristic to dependence; or
  - o the same (or similar) substance is taken to avoid withdrawal symptoms;

- Substance taken in progressively larger amounts or for longer period;
- Persistent desire or unsuccessful efforts to reduce substance use;
- Disproportionate time dedicated to obtaining the substance;
- Other important activities are given up because of the substance use; and
- Substance use is continued despite knowledge of physical or psychological problems occurring as a result of the substance.

# Input data

#### Model inputs

A systematic review of the literature was conducted to capture studies of prevalence, incidence, remission, and excess mortality associated with opioid dependence. In summary, the search was conducted in three stages involving searches of the peer-reviewed literature (via Medline, Embase, and Pubmed), the grey literature and, expert consultation. The agreed-upon approach for mental and substance use disorders was to conduct electronic database searches on a rolling basis. All three stages of GBD 2010's literature review were repeated for GBD 2013 to capture additional data published up to 2013. For GBD 2015, stages 2 and 3 of the literature review were updated, and in GBD 2016, the peer-reviewed database search (stage 1) was conducted via Medline, Embase, and Psycinfo to capture studies published from 2013 to 2016.

The inclusion criteria stipulated that 1) the publication year must be from 1980 onward; 2) "caseness" must be based on clinical threshold as established by the DSM or ICD; 3) sufficient information must be provided on study method and sample characteristics to assess the quality of the study; and (4) study samples must be representative of the general population (ie, inpatient or pharmacological treatment samples, case studies, veterans or refugee samples were excluded). No limitation was set on the language of publication. Methods used for this systematic review have been reported in greater detail elsewhere.<sup>3,4</sup> The table below shows the number of studies included, as well as the number of countries or subnational units and GBD world regions represented.

	Prevalence	Remission	Standardized
			mortality ratio & with- condition mortality rate
Studies	60	8	42
Countries/subnational geographies	32	7	24
GBD world regions	10	5	6

#### Age and sex splitting

In GBD 2016, reported estimates of prevalence were split by age and sex where possible. First, if studies reported prevalence for broad age groups by sex (eg, prevalence in 15 to 65 year old males and females separately), and also by specific age groups but for both sexes combined (eg, prevalence in 15 to 30 year olds, then in 31 to 65 year olds, for males and females combined); age-specific estimates were split by sex

using the reported sex ratio and bounds of uncertainty. Second, where studies reported estimates across age groups spanning 20 years or more, these were split into five-year age groups using the prevalence age pattern estimated by DisMod MR.

#### Severity splits

The basis of the GBD disability weight survey assessments are lay descriptions of sequelae highlighting major functional consequences and symptoms. The lay descriptions and disability weights for opioid dependence severity levels are shown below.

Severity level	Lay description	DW (95% CI)
Mild	Uses heroin (or methadone) daily and has difficulty controlling the habit. When not using, the person functions normally.	0.335 (0.221-0.473)
Moderate to severe	Uses heroin daily and has difficulty controlling the habit. When the effects wear off, the person feels severe nausea, agitation, vomiting, and fever. The person has a lot of difficulty in daily activities.	0.697 (0.510-0.843)

The proportion of people with opioid dependence within each of the severity levels was determined based on available data from US National Epidemiological Survey on Alcohol and Related Conditions (NESARC), conducted in two waves from 2001-2002 and 2004-2005,<sup>5</sup> and the Comorbidity and Trauma study conducted in 2005-2008.<sup>6,7</sup> The estimated distribution of opioid dependent cases by severity were asymptomatic (16%, 13%-19%), mild (37%, 20%-55%), and moderate/severe (47%, 29%-64%).

#### **Modelling strategy**

We ran a DisMod-MR model to produce estimates by age, sex, year, and country. We assumed no incidence and excess mortality before age 15. This minimum age of onset was corroborated with expert feedback and existing literature on opioid dependence. We also assumed no incidence after age 64 as supported by data from various sources including the European Monitoring Centre for Drugs and Drug Addiction.<sup>8</sup> An upper limit of 0.2 was placed on remission consistent with limits in the dataset. Cause- specific mortality rates (CSMR) from the GBD 2016 cause of death model for opioid use disorders were included as data points in the DisMod-MR model.

The prevalence dataset included data points using "direct" or "indirect" survey methods. "Direct" methods of measuring opioid dependence predominantly involve surveys of the general population that ask if respondents use or are dependent on opioid. Surveys tend to underestimate the prevalence of the most harmful and stigmatized forms of illicit drug use in ways that probably vary between countries and cultures. "Indirect" methods are considered superior; they use different sources of data to indirectly estimate the total number of drug users (methods include "multiplier methods," backprojection and capture-recapture methods). Due to insufficient data on dependence from indirect survey methods (considered to be the gold standard for GBD purposes), estimates derived from direct survey methods were included in the modelling. The cv\_direct covariate was then used to adjust for whether a direct or indirect survey method was used. A crosswalk was estimated to convert all

dependence estimates obtained via direct methods in the dataset, into its equivalent value if the study had measured dependence estimates obtained via indirect methods. A direct:indirect dependence ratio of 0.39 (0.22- 0.78) was calculated by DisMod-MR based on comparable direct and indirect dependence estimates in the dataset.

Betas and exponentiated values (which can be interpreted as an odds ratio) for each study-level covariate are shown in the table below:

Study covariate	Parameter	beta	Exponentiated beta
cv direct	Prevalence	-0.95 (-0.950.95)	0.39 (0.39-0.39)

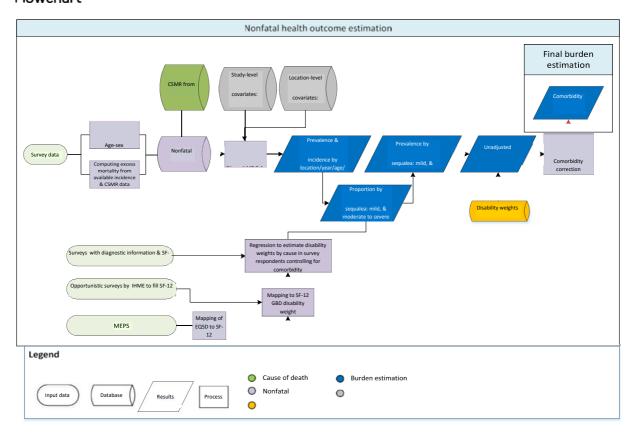
#### Citations

- 1. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR). 4th, Text Revision ed Washington DC: American Psychiatric Association; 2000.
- 2. World Health Organization. The ICD-10 Classification of Mental and Behavioural Disorders. Clinical descriptions and diagnostic guidelines Geneva: World Health Organization; 1992.
- 3. Degenhardt L, Bucello C, Calabria B, Nelson P, Roberts A, Hall W, et al. What data are available on the extent of illicit drug use and dependence globally? Results of four systematic reviews. Drug and alcohol dependence. 2011.
- 4. Calabria B, Degenhardt L, Briegleb C, Vos T, Hall W, Lynskey M, et al. Systematic review of prospective studies investigating "remission" from amphetamine, cannabis, cocaine or opioid dependence. Addictive Behaviors. 2010.
- 5. Grant BF, Dawson DA. National Institute on Alcohol Abuse and Alcoholism. Alcohol Health & Research World. 2006; 29(2): p. 74.
- 6. Shand FL, Slade T, Degenhardt L, Baillie A, Nelson EC. Opioid dependence latent structure: two classes with differing severity? Addiction. 2011; 106(3): p.590-8.
- 7. Shand FL, Degenhardt L, Slade T, Nelson EC. Sex differences amongst dependent heroin users: Histories, clinical characteristics and predictors of other substance dependence. Addictive behaviors. 2011; 36(1): p. 27-36.
- 8. European Montioring Centre for Drugs and Drug Addiction. Lisbon, Portugal; 2014.
- 9. Reuter P, Trautmann F. A Report on Global Illicit Drugs Markets 1998-2007. Utrecht; 2009.

## Summary of modelling process for cocaine dependence

Please note: this appendix material has been reproduced from the appendix of the original publication in which it appeared (Vos et al., *Lancet*, 2017).

#### **Flowchart**



## **Case Definition**

Cocaine dependence is a substance-related disorder involving a dysfunctional pattern of cocaine use. Included in the GBD disease modelling were cases meeting the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) or the International Classification of Diseases (ICD-10) diagnostic criteria for cocaine dependence (DSM: 304.20; ICD: F14.2), excluding those cases due to a general medical condition. According to DSM-IV TR criteria, dependence involves a maladaptive pattern of substance use leading to clinically significant impairment or distress. At least three of the following symptoms must be experienced within the same 12-month period:

- Tolerance, characterized by either
  - o a need for increased amounts of the substance to achieve intoxication; or
  - o markedly diminished effect with continued use of the same amount of thesubstance;
- Withdrawal, characterized by either
  - o Withdrawal symptoms characteristic to dependence; or
  - o the same (or similar) substance is taken to avoid withdrawal symptoms;
- Substance taken in progressively larger amounts or for longer period;

- Persistent desire or unsuccessful efforts to reduce substance use;
- Disproportionate time dedicated to obtaining the substance;
- Other important activities are given up because of the substance use; and
- Substance use is continued despite knowledge of physical or psychological problems occurring as a result of the substance.

## Input data

#### Model inputs

A systematic review of the literature was conducted to capture studies of prevalence, incidence, remission, and excess mortality associated with cocaine dependence. In summary, the search was conducted in three stages involving searches of the peer-reviewed literature (via Medline, Embase, and Pubmed), the grey literature and, expert consultation. The agreed-upon approach for mental and substance use disorders was to conduct electronic database searches on a rolling basis. All three stages of GBD 2010's literature review were repeated for GBD 2013 to capture additional data published up to 2013. For GBD 2015, stages 2 and 3 of the literature review were updated and in GBD 2016, the peer-reviewed database search (stage 1) was conducted via Medline, Embase, and Psycinfo to capture studies published from 2013 to 2016.

The inclusion criteria stipulated that 1) the publication year must be from 1980 onward; 2) "caseness" must be based on clinical threshold as established by the DSM or ICD; 3) sufficient information must be provided on study method and sample characteristics to assess the quality of the study; and (4) study samples must be representative of the general population (ie, inpatient or pharmacological treatment samples, case studies, veterans or refugee samples were excluded). No limitation was set on the language of publication. Methods used for this systematic review have been reported in greater detail elsewhere.<sup>3,4</sup> The table below shows the number of studies included, as well as the number of countries or subnational units and GBD world regions represented.

	Prevalence	Remission	Standardized
			m ortality _ EatiQiitVith mortality
			rate
Studies	105	3	7
Countries/subnational geographies	61	3	7
GBD world regions	13	2	3

# Age and sex splitting

In GBD 2016, reported estimates of prevalence were split by age and sex where possible. First, if studies reported prevalence for broad age groups by sex (eg, prevalence in 15 to 65 year old males and females separately), and also by specific age groups but for both sexes combined (eg, prevalence in 15 to 30 year olds, then in 31 to 65 year olds, for males and females combined); age-specific estimates were split by sex using the reported sex ratio and bounds of uncertainty. Second, where studies reported estimates across

age groups spanning 20 years or more, these were split into five-year age groups using the prevalence age pattern estimated by DisMod-MR.

#### Severity splits

The basis of the GBD disability weight survey assessments are lay descriptions of sequelae highlighting major functional consequences and symptoms. The lay descriptions and disability weights for cocaine dependence severity levels are shown below.

Severity level	Lay description	DW (95% CI)
Mild	Uses cocaine at least once a week and has some difficulty controlling the habit. When not using, the person	0.116 (0.074-0.165)
	functions normally.	
Moderate to severe	Uses cocaine and has difficulty controlling the habit. The person sometimes has mood swings, anxiety, paranoia, hallucinations and sleep problems, and has some difficulty in daily activities.	0.479 (0.324-0.634)

The proportion of people with cocaine dependence within each of the severity levels were determined based on available data from US National Epidemiological Survey on Alcohol and Related Conditions (NESARC), conducted in two waved from 2001-2002 and 2004-2005 <sup>5</sup>. The estimated distribution of cocaine dependent cases by severity were asymptomatic (50%, 37%—64%), mild (25%, 18%—33%), and moderate/severe (25%, 17%—33%).

# **Modelling strategy**

We ran a DisMod-MR model to produce estimates by age, sex, year, and country. We assumed no incidence, remission, and excess mortality before age 15, and an upper limit of 0.2 on remission. The minimum age of onset was corroborated with expert feedback and existing literature from various sources including the European Monitoring Centre for Drugs and Drug Addiction. Cause-specific mortality rates (CSMR) from the GBD 2016 cause of death model for cocaine use disorders was included as data points in the DisMod-MR model.

The prevalence dataset included data points of both use and dependence estimated using "direct" or "indirect" survey methods. "Direct" methods of measuring amphetamine dependence predominantly involve surveys of the general population that ask if respondents use or are dependent on amphetamine. Surveys tend to underestimate the prevalence of the most harmful and stigmatized forms of illicit drug use in ways that probably vary between countries and cultures. "Indirect" methods are considered superior; they use different sources of data to indirectly estimate the total number of drug users (methods include "multiplier methods," back-projection and capture-recapture methods). Due to the lack of data available on cocaine dependence from indirect survey methods (considered to be the gold standard for GBD purposes), estimates of use and/or estimates from direct survey methods were included in the modelling. Study-level covariates were then used to accommodate for between-study variability in the raw prevalence data. The cv\_direct use covariate was used to adjust for whether direct or indirect survey methods were used. This converted all use estimates obtained via direct methods in the dataset, into its equivalent value if the study had measured dependence estimates

obtained via indirect methods. A ratio of direct use:indirect dependence was calculated by comparing similar direct use and indirect dependence estimates in the dataset. To allow for meaningful comparisons, paired direct use and indirect dependence estimates needed to be similar in terms of the country they were from, year, age group, sex, and prevalence type. To maximize the number of data points available for this ratio paired estimates for psychostimulants (ie, both cocaine and amphetamine) were used. Once a dataset was set up with paired direct use and indirect dependence estimates, MetaXL (a meta-analysis add-in for Microsoft Excel) was utilized to estimate a ratio of direct use:indirect dependence, whereby direct use estimates were found to be 3.6 (2.6-5.2) times higher than indirect dependence estimates. This ratio was used in DisMod-MR to adjust all use estimates in the dataset downward, toward the level they would have been had the study reported indirect dependence. A similar method was used to adjust prevalence estimates of cocaine dependence obtained via direct methods toward the level they would have been had the study measured cocaine dependence using indirect methods. The estimated ratio of direct dependence: indirect dependence was 0.5 (0.2-1.1).

Betas and exponentiated values (which can be interpreted as an odds ratio) for each study-level covariate are shown in the table below:

Study covariate	Parameter	beta	Exponentiated beta
cv_direct use	Prevalence	1.29 (1.29-1.29)	3.63 (3.63-3.63)
cv_direct dependence	Prevalence	-0.68 (-0.680.68)	0.51 (0.51-0.51)

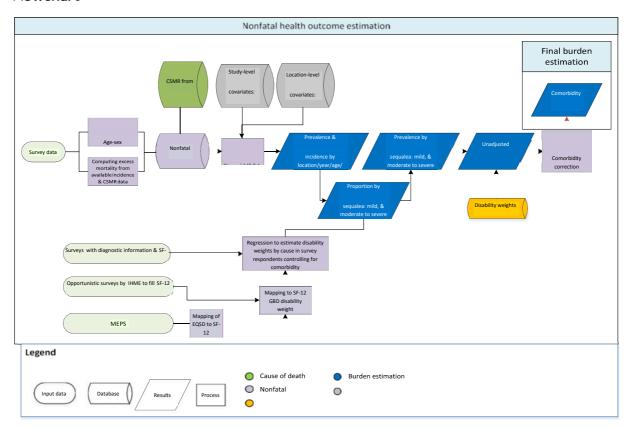
#### Citations

- 1. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR). 4th, Text Revision ed Washington DC: American Psychiatric Association. 2000.
- 2. World Health Organization. The ICD-10 Classification of Mental and Behavioural Disorders. Clinical descriptions and diagnostic guidelines Geneva: World Health Organization. 1992.
- 3. Degenhardt L, Bucello C, Calabria B, Nelson P, Roberts A, Hall W, et al. What data are available on the extent of illicit drug use and dependence globally? Results of four systematic reviews. Drug and alcohol dependence. 2011.
- 4. Calabria B, Degenhardt L, Briegleb C, Vos T, Hall W, Lynskey M, et al. Systematic review of prospective studies investigating "remission" from amphetamine, cannabis, cocaine or opioid dependence. Addictive Behaviors. 2010.
- 5. Grant BF, Dawson DA. National Institute on Alcohol Abuse and Alcoholism. Alcohol Health & Research World. 2006; 29(2): p. 74.
- 6. European Montioring Centre for Drugs and Drug Addiction. Lisbon, Portugal 2014.
- 7. Reuter P, Trautmann F. A Report on Global Illicit Drugs Markets 1998-2007. Utrecht. 2009.

# Summary of modelling process for amphetamine dependence

Please note: this appendix material has been reproduced from the appendix of the original publication in which it appeared (Vos et al., *Lancet*, 2017).

# **Flowchart**



#### **Case definition**

Amphetamine dependence is a substance-related disorder involving a dysfunctional pattern of amphetamine use. Included in the GBD disease modelling were cases meeting the Diagnostic and Statistical Manual of Mental Disorders {DSM-IV-TR} or the International Classification of Diseases {ICD-10} diagnostic criteria for amphetamine dependence {DSM: 304.40; ICD: F1S.2), excluding those cases due to a general medical condition. According to DSM-IV TR criteria, dependence involves a maladaptive pattern of substance use, leading to clinically significant impairment or distress. At least three of the following symptoms must be experienced within the same 12-month period:

- Tolerance, characterized by either
  - o a need for increased amounts of the substance to achieve intoxication; or
  - o markedly diminished effect with continued use of the same amount of thesubstance;
- Withdrawal, characterized by either

- o Withdrawal symptoms characteristic to dependence; or
- o the same (or similar) substance is taken to avoid withdrawal symptoms;
- Substance taken in progressively larger amounts or for longer period;
- Persistent desire or unsuccessful efforts to reduce substance use;
- Disproportionate time dedicated to obtaining the substance;
- Other important activities are given up because of the substance use; and
- Substance use is continued despite knowledge of physical or psychological problems occurring as a result of the substance.

#### Input data

#### Model inputs

A systematic review of the literature was conducted to capture studies of prevalence, incidence, remission, and excess mortality associated with amphetamine dependence. In summary, the search was conducted in three stages involving searches of the peer-reviewed literature {via Medline, Embase and Pubmed}, the grey literature and, expert consultation. The agreed-upon approach for mental and substance use disorders was to conduct electronic database searches on a rolling basis. All three stages of GBD 2010's literature review were repeated for GBD 2013 to capture additional data published up to 2013. For GBD 2015, stages 2 and 3 of the literature review were updated and in GBD 2016, the peer-reviewed database search {stage 1} was conducted via Medline, Embase and Psycinfo to capture studies published from 2013 to 2016.

The inclusion criteria stipulated that: 1) the publication year must be from 1980 onward; 2) "caseness" must be based on clinical threshold as established by the DSM or ICD; 3) sufficient information must be provided on study method and sample characteristics to assess the quality of the study; and {4) study samples must be representative of the general population {ie, inpatient or pharmacological treatment samples, case studies, veterans, or refugee samples were excluded). No limitation was set on the language of publication. Methods used for this systematic review have been reported in greater detail elsewhere.<sup>3,4</sup> The table below shows the number of studies included, as well as the number of countries or subnational units and GBD world regions represented.

	Prevalence	Remission	With- condition
			m ratetality
Studies	81	2	6
Countries/subnational geographies	60	2	6
GBD world regions	13	2	3

#### Age and sex splitting

In GBD 2016, reported estimates of prevalence were split by age and sex where possible. First, if studies reported prevalence for broad age groups by sex {eg, prevalence in 1S to 6S year old males and females separately), and also by specific age groups but for both sexes combined {eg, prevalence in 1S to 30 year olds, then in 31 to 6S year olds, for males and females combined); age-specific estimates were split by sex using the reported sex ratio and bounds of uncertainty. Second, where studies reported estimates across age groups spanning 20 years or more, these were split into five-year age groups using the prevalence age pattern estimated by DisMod MR.

#### Severity splits

The basis of the GBD disability weight survey assessments are lay descriptions of sequelae highlighting major functional consequences and symptoms. The lay descriptions and disability weights for amphetamine dependence severity levels are shown below.

Severity level	Lay description	DW {9S% CI)
Mild	Uses stimulants (drugs) at least once a week and has some difficulty controlling the habit. When not using, the person functions normally.	0.079 (0.051-0.114)
Moderate to severe	Uses stimulants (drugs) and has difficulty controlling the habit. The person sometimes has depression, hallucinations, and mood swings, and has difficulty in daily activities.	0.486 {0.329-0.637)

The proportion of people with amphetamine dependence within each of the severity levels was determined based on available data from US National Epidemiological Survey on Alcohol and Related Conditions (NESARC), conducted in two waves from 2001-2002 and 2004-200S. The estimated distribution of amphetamine dependent cases by severity were asymptomatic (SS%, 40%-71%), mild (19%, 12%-27%), and moderate/severe (26%, 16%-3S%).

#### Modelling strategy

We ran a DisMod-MR model to produce estimates by age, sex, year, and country. We assumed no incidence, remission, and excess mortality before age 1S, and an upper limit of 0.2 on remission. The minimum age of onset was corroborated with expert feedback and existing literature from various sources including the European Monitoring Centre for Drugs and Drug Addiction. Cause-specific mortality rates (CSMR) from the GBD 2016 cause of death model for amphetamine use disorders was included as data-points in the DisMod-MR model.

The prevalence dataset included data points of both use and dependence estimated using "direct" or "indirect" survey methods. "Direct" methods of measuring amphetamine dependence predominantly involve surveys of the general population that ask if respondents use or are dependent on amphetamine. Surveys tend to underestimate the prevalence of the most harmful and stigmatized forms of illicit drug use in ways that probably vary between countries and cultures. "Indirect" methods are considered superior; they use different sources of data to indirectly estimate the total number of drug users

{methods include "multiplier methods," back-projection and capture-recapture methods). Due to the lack of data available on amphetamine dependence from indirect survey methods {considered to be the gold standard for GBD purposes), estimates of use and/or estimates from direct survey methods were included in the modelling. Study-level covariates were then used to accommodate for between-study variability in the raw prevalence data. The cv\_direct use covariate was used to adjust for whether direct or indirect survey methods were used. This converted all use estimates obtained via direct methods in the dataset, into its equivalent value if the study had measured dependence estimates obtained via indirect methods. A ratio of direct use:indirect dependence was calculated by comparing similar direct use and indirect dependence estimates in the dataset. To allow for meaningful comparisons, paired

direct use and indirect dependence estimates needed to be similar in terms of the country they were from, year, age group, sex and, prevalence type. To maximize the number of data points available for this ratio paired estimates for psychostimulants (ie, both cocaine and amphetamine) were used. Once a dataset was set up with paired direct use and indirect dependence estimates, MetaXL (a meta-analysis add-in for Microsoft Excel) was utilized to estimate a ratio of direct use:indirect dependence, whereby direct use estimates were found to be 3.6 (2.6-S.2) times higher than indirect dependence estimates. This ratio was used in DisMod-MR to adjust all use estimates in the dataset downward, toward the level they would have been had the study reported indirect dependence. A similar method was used to adjust prevalence estimates of amphetamine dependence obtained via direct methods towards the level they would have been had the study measured amphetamine dependence using indirect methods. The estimated ratio of direct dependence: indirect dependence was 0.S (0.2-1.1).

Betas and exponentiated values {which can be interpreted as an odds ratio) for each study level covariate are shown in the table below:

Study covariate	Parameter	beta	Exponentiated beta
cv_direct use	Prevalence	1.29 (1.29-1.29)	3.63 (3.63-3.63)
cv_direct dependence	Prevalence	-0.68 (-0.680.68)	0.S1 {0.S1-0.S1)

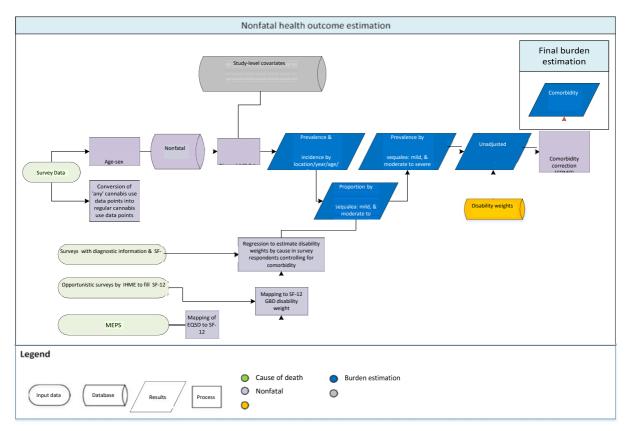
#### Citations

- 1. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders {DSM-IV-TR). 4th, Text Revision ed Washington DC: American Psychiatric Association. 2000.
- 2. World Health Organization. The ICD-10 Classification of Mental and Behavioural Disorders. Clinical descriptions and diagnostic guidelines Geneva: World Health Organization. 1992.
- 3. Degenhardt L, Bucello C, Calabria B, Nelson P, Roberts A, Hall W, et al. What data are available on the extent of illicit drug use and dependence globally? Results of four systematic reviews. Drug and alcohol dependence. 2011.
- 4. Calabria B, Degenhardt L, Briegleb C, Vos T, Hall W, Lynskey M, et al. Systematic review of prospective studies investigating "remission" from amphetamine, cannabis, cocaine or opioid dependence. Addictive Behaviors. 2010.
- S. Grant BF, Dawson DA. National Institute on Alcohol Abuse and Alcoholism. Alcohol Health & Research World. 2006; 29(2): p. 74.
- 6. European Montioring Centre for Drugs and Drug Addiction. Lisbon, Portugal 2014.
- 7. Reuter P, Trautmann F. A Report on Global Illicit Drugs Markets 1998-2007. Utrecht. 2009.

# Summary of modelling process for cannabis dependence

Please note: this appendix material has been reproduced from the appendix of the original publication in which it appeared (Vos et al., *Lancet*, 2017).

# Flowchart



#### Case Definition

Cannabis dependence is a substance-related disorder involving a dysfunctional pattern of cannabis use. Included in GBD disease modelling were cases meeting diagnostic criteria for cannabis dependence according to the Diagnostic and Statistical Manual of Mental Disorders (DSM), or the equivalent diagnosis in the International Classification of Diseases (ICD). These were identified by the following codes: DSM:304.30, ICD:F12.2; excluding those cases due to a general medical condition.<sup>1,2</sup>

According to DSM-IV-TR criteria, cannabis dependence involves a maladaptive pattern of cannabis use, leading to clinically significant impairment or distress. At least three of the following symptoms must be experienced within the same 12-month period:

- Tolerance, characterized by either
  - o a need for increased amounts of the substance to achieve intoxication; or
  - o markedly diminished effect with continued use of the same amount of the substance;

- Withdrawal, characterized by either
  - Withdrawal symptoms characteristic to cannabis dependence; or
  - o the same (or similar) substance is taken to avoid withdrawal symptoms;
- substance taken in progressively larger amounts or for longer period;
- persistent desire or unsuccessful efforts to reduce substance use;
- disproportionate time dedicated to obtaining the substance;
- other important activities are given up because of the substance use; and
- substance use is continued despite knowledge of physical or psychological problems occurring as a result of the substance.

# Input data

Model inputs

For GBD 2010, a systematic review of the literature was conducted to capture studies of prevalence, incidence, remission, and excess mortality associated with cannabis dependence. In summary, the search was conducted in three stages involving electronic searches of the peer-reviewed literature (via Medline, Embase, and PubMed), the grey literature and, expert consultation. The agreed-upon approach for mental and substance use disorders was to conduct electronic database searches on a rolling basis. All three stages of GBD 2010's literature review were repeated for GBD 2013 to capture additional data published up to 2013. For GBD 2015, stages 2 and 3 of the literature review were updated and in GBD 2016, the peer-reviewed database search (stage 1) was conducted via Medline, Embase, and Psycinfo to capture studies published from 2013 to 2016.

The inclusion criteria stipulated that: (1) the publication year must be from 1980 onward; (2) "caseness" must be based on clinical threshold as established by the DSM or ICD; (3) sufficient information must be provided on study method and sample characteristics to assess the quality of the study; and (4) study samples must be representative of the general population (ie, inpatient or pharmacological treatment samples, case studies, veterans or refugee samples were excluded). No limitation was set on the language of publication. Methods used for this systematic review have been reported in greater detail elsewhere.<sup>3-6</sup> The table below shows the number of studies included, as well as the number of countries or subnational units and GBD world regions represented.

	Prevalence	Remission	Mortality
Studies	215	3	-
Countries/subnational geographies	105	3	-
GBD world regions	19	3	-

#### Age and sex splitting

In GBD 2016, reported estimates of prevalence were split by age and sex where possible. First, if studies reported prevalence for broad age groups by sex (eg, prevalence in 15 to 65 year old males and females separately), and also by specific age groups but for both sexes combined (eg, prevalence in 15 to 30 year olds, then in 31 to 65 year olds, for males and females combined); age-specific estimates were split by sex using the reported sex ratio and bounds of uncertainty. Second, where studies reported estimates across age groups spanning 20 years or more, these were split into five-year age groups using the prevalence age pattern estimated by DisMod MR.

#### Severity splits

The basis of the GBD disability weight survey assessments are lay descriptions of sequelae highlighting major functional consequences and symptoms. The lay descriptions and disability weights for cannabis dependence severity levels are shown below.

Severity level	Lay description	DW (95% CI)
Mild	Uses marijuana at least once a week and has some difficulty controlling the habit. When not using, the person functions normally.	0.039 (0.024-0.06)
Moderate to severe	Uses marijuana daily and has difficulty controlling the habit. The person sometimes has mood swings, anxiety, and hallucinations, and has some difficulty in daily activities.	0.266 (0.178-0.364)

The US National Epidemiological Survey on Alcohol and Related Conditions (NESARC, conducted in two waves from 2001-2002 and 2004-2005)<sup>7</sup> was used to estimate the proportion of cannabis dependence cases asymptomatic (58%, 51%-63%), mild (36%, 31%-42%) and moderate to severe (6%, 4%-8%).

#### **Modelling strategy**

The epidemiological modelling strategy for cannabis dependence made use of DisMod-MR. Due to insufficient data, estimates of any cannabis use and regular (ie, weekly) cannabis use were included in the disease modelling of cannabis dependence in a two-step process. At step 1, a crosswalk was estimated to convert estimates of any use in the dataset into its equivalent value if the study had measured regular use. To do this a ratio of use:regular use was calculated by comparing similar regular use and use estimates in the dataset. To allow for meaningful comparisons, paired regular use and use estimates needed to be similar in terms of the country they were from, year, age group, sex, and prevalence type. Once a dataset was set up with paired regular use and use estimates, MetaXL (a meta-analysis add-in for Microsoft Excel) was used to estimate a ratio of use: regular use whereby use estimates were found to be

2.9 (2.5-3.3) times higher than regular use estimates. This ratio was used to adjust all use estimates in the dataset downwards, toward the level they would have been had the study reported regular cannabis use. Step 2 involved the DisMod-MR modelling of the regular cannabis use (from step 1) and cannabis dependence data. This cannabis regular use/dependence dataset was modelled using a study-level covariate which adjusted estimates of regular cannabis use toward the desirable which were estimates of cannabis dependence.

Study-level covariates were used to accommodate for between-study variability in the raw prevalence data. As mentioned previously, a cv\_regular use covariate adjusted all regular use estimates toward the level they would have been if the study had measured cannabis dependence. This covariate was informed by a cannabis regular use: dependence ratio (4.1, 3.9-4.6) estimated outside of DisMod-MR using the same methodology outlined above for the use:regular use ratio. Based on expert advice, a cv\_nesarc covariate adjusted all estimates derived from the NESARC toward the level they would have been if they had been derived by other surveys. Drug use disorders are not well-captured in household surveys. This is especially an issue in NESARC as the sampling strategy used was biased toward less

severe cases of drug use disorders. We also tested a cv\_school survey covariate adjusting estimates derived from school surveys to the level they would have been had the study conducted a fully representative population survey; however, this did not have a statistically significant effect on prevalence. Betas and exponentiated values (which can be interpreted as an odds ratio) for each study-level covariate are shown in the table below.

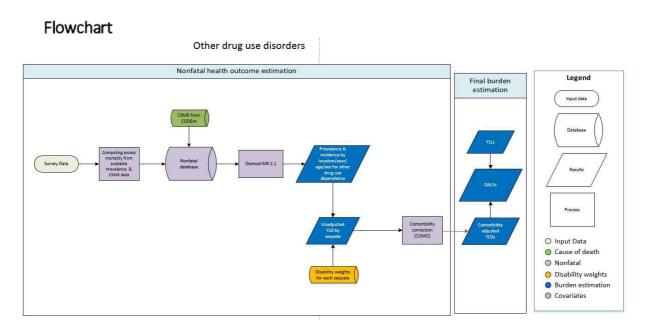
Study covariate	Parameter	beta	Exponentiated beta
cv_regular use	Prevalence	1.40 (1.40-1.40)	4.06 (4.06-4.06)
cv_nesarc	Prevalence	-0.69 (-0.840.53)	0.50 (0.43-0.59)
cv_school survey	Prevalence	-0.059 (-0.15 - 0.035)	0.94 (0.86-1.04)

# References

- 1. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR). 4th, Text Revision ed. Washington DC: American Psychiatric Association; 2000.
- 2. World Health Organization. The ICD-10 Classification of Mental and Behavioural Disorders. Clinical descriptions and diagnostic guidelines. Geneva: World Health Organization; 1992.
- 3. Calabria B, Degenhardt L, Briegleb C, et al. Systematic review of prospective studies investigating "remission" from amphetamine, cannabis, cocaine or opioid dependence. *Addictive Behaviors* 2010; **35**(8): 741-9.
- 4. Calabria B, Degenhardt L, Hall W, Lynskey M. Does cannabis use increase the risk of death? Systematic review of epidemiological evidence on adverse effects of cannabis use. *Drug Alcohol Rev* 2010; **29**(3): 318-30.
- S. Calabria B, Degenhardt L, Nelson P, et al. What do we know about the extent of cannabisuse and dependence? Results of a global systematic review. Sydney: National Drug and Alcohol Research Centre, University of NSW, 2010.
- Degenhardt L, Ferrari AJ, Calabria B, et al. The global epidemiology and contribution of cannabis use and dependence to the global burden of disease: results from the GBD 2010 study. *PloS one* 2013; 8(10): e7663S.
- 7. Introduction to the National Epidemiologic Survey on Alcohol and Related Conditions [http://pubs.niaaa.nih.gov/publications/arh29-2/74-78.htm]. Access date 1 December 2014.

#### Summary of modelling process for other drug use disorders

Please note: this appendix material has been reproduced from the appendix of the original publication in which it appeared (Vos et al., *Lancet*, 2017).



#### **Case definition**

In addition to the four drug use disorders for which we specifically estimate non-fatal burden (opioid, cocaine, amphetamine, and cannabis dependence), we also estimate the burden attributable to a residual cause of "other drug use disorders." This is made up of an aggregate group of other forms of drug dependence. Included in the GBD disease modelling were cases meeting the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR)<sup>1</sup> or the International Classification of Diseases (ICD-10)<sup>2</sup> diagnostic criteria for:

- Hallucinogen dependence
- Inhalant or solvent dependence
- · Sedative dependence
- Tranquilizer dependence
- · Other medicines, drugs, substance dependence

According to DSM-IV TR criteria, dependence involves a maladaptive pattern of substance use, leading to clinically significant impairment or distress. At least three of the following symptoms must be experienced within the same 12-month period:

- Tolerance, characterized by either
  - o a need for increased amounts of the substance to achieve intoxication; or
  - markedly diminished effect with continued use of the same amount of the substance;
- Withdrawal, characterized by either
  - Withdrawal symptoms characteristic to dependence; or
  - o the same (or similar) substance is taken to avoid withdrawal symptoms;
- Substance taken in progressively larger amounts or for longer period;
- Persistent desire or unsuccessful efforts to reduce substance use;
- Disproportionate time dedicated to obtaining the substance;

- · Other important activities are given up because of the substance use; and
- Substance use is continued despite knowledge of physical or psychological problems occurring as a result of the substance.

# Input data

Model inputs

Prevalence estimates were obtained from the Australian National Survey of Mental Health and Wellbeing (NSMHWB) conducted in two waves in 1997 and 2007 <sup>3,4</sup>, and the US National Epidemiological Survey on Alcohol and Related Conditions (NESARC), conducted in two waves in 2001-2002<sup>5</sup> and 2004-2005.<sup>6</sup> Given that other forms of drug dependence often co-occur with the four types of drug dependence for which we estimate non-fatal burden (opioid, cocaine, amphetamine, and cannabis dependence), an adjustment for co-morbidity is important so as not to overestimate the overall burden attributable to drug dependence. Participants meeting criteria for any other form of drug dependence from each of the surveys used were counted as a prevalent case only if they did not simultaneously meet criteria for opioid, cocaine, amphetamine, or cannabis dependence.

#### Severity splits

The basis of the GBD disability weight survey assessments are lay descriptions of sequelae highlighting major functional consequences and symptoms. The average disability weight estimated for cocaine and amphetamine dependence was applied to all cases in this residual group of other drug use disorders. The cocaine and amphetamine lay descriptions and disability weights are shown below;

Severity level	Lay description	DW (95% CI)			
Amphetamine de	Amphetamine dependence				
Mild	Uses stimulants (drugs) at least once a week and has some difficulty controlling the habit. When not using, the person functions normally.	0.079 (0.051-0.114)			
Moderate to severe	Uses stimulants (drugs) and has difficulty controlling the habit. The person sometimes has depression, hallucinations, and mood swings, and has difficulty in daily activities.	0.486 (0.329-0.637)			
Cocaine depende	nce				
Mild	Uses cocaine at least once a week and has some difficulty controlling the habit. When not using, the person functions normally.	0.116 (0.074-0.165)			
Moderate to severe	Uses cocaine and has difficulty controlling the habit. The person sometimes has mood swings, anxiety, paranoia, hallucinations, and sleep problems, and has some difficulty in daily activities.	0.479 (0.324-0.634)			

#### Modelling strategy

The GBD 2016 epidemiological modelling strategy made use of DisMod-MR. A number of additional expert priors were used in order to run a full parameter model. We assumed no incidence and prevalence before age 14, a maximum of 0.001 on incidence and prevalence from 60 years onward, and a maximum remission of 0.2. These priors were corroborated with expert feedback and existing literature on drug use disorders including the European Monitoring Centre for Drugs and Drug Addiction. Finally, cause-specific mortality rates (CSMR) from the GBD 2016 cause of death model for other drug use disorders were included as data points in the DisMod-MR model.

#### References

- 1. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR). 4th, Text Revision ed. Washington DC: 2000.
- 2. World Health Organization. The ICD-10 Classification of Mental and Behavioural Disorders. Clinical descriptions and diagnostic guidelines. Geneva: 1992.
- 3. Australia Bureau of Statistics. Australia National Survey of Mental Health and Wellbeing 1997. Canberra: 1997.
- 4. Australian Bureau of Statistics. Australia National Survey of Mental Health and Wellbeing 2007. Canberra: 2007.
- 5. National Institute on Alcohol Abuse and Alcoholism (NIAAA), National Institutes of Health (NIH). United States National Epidemiologic Survey on Alcohol and Related Conditions 2001-2002. 2002.
- 6. National Institute on Alcohol Abuse and Alcoholism (NIAAA), National Institutes of Health (NIH). United States National Epidemiologic Survey on Alcohol and Related Conditions 2004-2005. 2005.
- 7. European Monitoring Centre for Drugs and Drug Addiction. Lisbon, Portugal: 2014.

Table A2: Outcomes of alcohol and drug use modelled in GBD 2016

	Alcohol	drugs	Amphetamines	Cannabis	Cocaine	Opioids	Injecting drug use
Communicable, maternal,							urug use
neonatal, and nutritional diseases	Yes	Yes	No	No	No	No	Yes
HIV/AIDS and tuberculosis	Yes	Yes	No	No	No	No	Yes
HIV/AIDS	No	Yes	No	No	No	No	Yes
HIV/AIDS mycobacterial	No	Yes	No	No	No	No	Yes
HIV/AIDS other	No	Yes	No	No	No	No	Yes
Tuberculosis	Yes	No	No	No	No	No	
Diarrhoea/Lower respiratory infections	Yes	No	No	No	No	No	No
Lower respiratory tract infections	Yes	No	No	No	No	No	No
Other communicable, maternal, neonatal, and nutritional diseases	No	Yes	No	No	No	No	Yes
Hepatitis	No	Yes	No	No	No	No	Yes
Hepatitis B	No	Yes	No	No	No	No	Yes
Hepatitis C	No	Yes	No	No	No	No	Yes
Non-communicable diseases	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Neoplasms	Yes	Yes	No	No	No	No	Yes
Breast cancer	Yes	No	No	No	No	No	No
Colorectal cancer	Yes	No	No	No	No	No	No
Oesophageal cancer	Yes	No	No	No	No	No	No
Larynx cancer	Yes	No	No	No	No	No	No
Liver cancer	Yes	Yes	No	No	No	No	Yes
Mouth cancer	Yes	No	No	No	No	No	No
Nasopharynx cancer	Yes	No	No	No	No	No	No
Other pharynx cancer	Yes	No	No	No	No	No	No
Cardiovascular diseases	Yes	No	No	No	No	No	No
Ischaemic heart disease	Yes	No	No	No	No	No	No
Cerebrovascular disease	Yes	No	No	No	No	No	No
Ischaemic stroke	Yes	No	No	No	No	No	No
Haemorrhagic stroke	Yes	No	No	No	No	No	No
Hypertensive heart disease	Yes	No	No	No	No	No	No
Atrial fibrillation	Yes	No	No	No	No	No	No
Cirrhosis	Yes	Yes	No	No	No	No	Yes
Digestive diseases	Yes	No	No	No	No	No	No
Pancreatitis	Yes	No	No	No	No	No	No
Neurological disorders	Yes	No	No	No	No	No	No
Epilepsy	Yes	No	No	No	No	No	No
Mental and substance use disorders	Yes	Yes	Yes	Yes	Yes	Yes	No
Alcohol dependence	Yes	No	No	No	No	No	No
Amphetamine dependence	No	Yes	Yes	No	No	No	No
Cannabis dependence	No	Yes	No	Yes	No	No	No
Cocaine dependence	No	Yes	No	No	Yes	No	No
Opioid dependence	No	Yes	No	No	No	Yes	No
Other drug dependence	No	Yes	No	No	No	No	No
Diabetes/urog/blood/endo	Yes	No	No	No	No	No	No
Diabetes	Yes	No	No	No	No	No	No
Injuries	Yes	Yes	Yes	No	Yes	Yes	No
Transport injuries	Yes	No	No	No	No	No	No
Road injuries	Yes	No	No	No	No	No	No
Pedestrian road injuries	Yes	No	No	No	No	No	No
Cyclist road injuries	Yes	No	No	No	No	No	No
Motorcyclist road injuries	Yes	No	No	No	No	No	No
Motor vehicle road injuries	Yes	No	No	No	No	No	No
Other transport or road injuries	Yes	No	No	No	No	No	No
Unintentional injuries	Yes	No	No	No	No	No	No

	Alcohol	drugs	Amphetamines	Cannabis	Cocaine	Opioids	Injecting drug use
Drowning	Yes	No	No	No	No	No	No
Fire and heat	Yes	No	No	No	No	No	No
Mechanical forces	Yes	No	No	No	No	No	No
Poisonings	No	No	No	No	No	No	No
Unintentional firearm	Yes	No	No	No	No	No	No
Unintentional suffocation	Yes	No	No	No	No	No	No
Other mechanical forces	Yes	No	No	No	No	No	No
Other unintentional injuries	Yes	No	No	No	No	No	No
Self-harm and violence	Yes	Yes	Yes	No	Yes	Yes	No
Self-harm	Yes	Yes	Yes	No	Yes	Yes	No
Interpersonal violence	Yes	No	No	No	No	No	No
Assault by firearm	Yes	No	No	No	No	No	No
Assault by sharp object	Yes	No	No	No	No	No	No
Assault by other means	Yes	No	No	No	No	No	No

Table A3: Crude deaths (in thousands) and age-standardised death rate (per 100,000) for substance use disorders, by region, all ages and both sexes combined, 2016

	Alcohol use disorders		Amphetamine use disorders		Cocaine use disorders		Opioid use disorders		Other drug use disorders	
	Number of deaths (in 1000's)	Death rates (per 100,000)	Number of deaths (in 1000's)	Death rates (per 100,000)	Number of deaths (in 1000's)	Death rates (per 100,000)	Number of deaths (in 1000's)	Death rates (per 100,000)	Number of deaths (in 1000's)	Death rates (per 100,000)
Andean Latin America	0.9 (0.7-1.5)	1.8 (1.5-2.9)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-0.1)	<0.1 (<0.1-0.1)	0.1 (0.1-0.1)	0.4 (0.3-0.5)	0.8 (0.7-1.0)	0.2 (0.2-0.3)	0.5 (0.4-0.6)
Australasia	0.5 (0.5-0.6)	1.4 (1.3-1.5)	0.1 (<0.1-0.1)	0.2 (0.1-0.2)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)	0.6 (0.5-0.7)	1.9 (1.5-2.2)	0.5 (0.4-0.6)	1.6 (1.2-1.9)
Caribbean	1.2 (1.1-1.5)	2.7 (2.3-3.2)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)	0.1 (<0.1-0.1)	0.2 (0.2-0.3)	0.5 (0.5-0.7)	0.1 (0.1-0.2)	0.3 (0.3-0.4)
Central Asia	3.5 (3.0-4.1)	4.4 (3.8-5.1)	0.1 (0.1-0.1)	0.1 (0.1-0.1)	0.1 (0.1-0.2)	0.1 (0.1-0.2)	1.5 (1.2-1.7)	1.8 (1.5-2.0)	0.4 (0.4-0.5)	0.6 (0.5-0.7)
Central Europe	6.7 (6.1-7.4)	4.3 (3.9-4.8)	0.1 (<0.1-0.1)	0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)	0.9 (0.7-1.0)	0.6 (0.5-0.8)	0.8 (0.7-0.9)	0.5 (0.4-0.6)
Central Latin America	7-2 (6-4-8-0)	3.2 (2.9-3.5)	0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	0.1 (0.1-0.1)	<0.1 (<0.1-<0.1)	1.2 (1.0-1.5)	0.5 (0.4-0.6)	0.6 (0.4-0.7)	0.3 (0.2-0.3)
Central Sub-Saharan Africa	1.0 (0.7-2.2)	1.6 (1.1-3.5)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)	0.5 (0.4-0.7)	0.7 (0.5-0.8)	0.1 (0.1-0.2)	0.2 (0.1-0.2)
East Asia	22.6 (13.2-25.5)	1.3 (0.8-1.5)	1.2 (0.9-1.9)	0.1 (0.1-0.1)	2.2 (1.7-3.2)	0.1 (0.1-0.2)	19.6 (15.5-26.2)	1.3 (1.0-1.7)	10·3 (8·5-14·2)	0.7 (0.6-0.9)
Eastern Europe	43.4 (32.4-56.3)	16-2 (12-1-21-1)	0.7 (0.3-1.1)	0.3 (0.1-0.4)	1.4 (0.6-1.9)	0.5 (0.2-0.7)	15.0 (10.8-20.5)	6.0 (4.3-8.2)	5.4 (2.9-7.3)	2.1 (1.1-2.8)
Eastern Sub-Saharan Africa	4.0 (3.4-5.4)	2.5 (2.1-3.3)	<0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	0.7 (0.5-0.9)	0.3 (0.2-0.4)	0.2 (0.1-0.2)	0.1 (0.1-0.1)
High-income Asia Pacific	1.7 (1.3-2.5)	0.7 (0.5-1.0)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	0.4 (0.4-0.6)	0.2 (0.1-0.2)	0.5 (0.4-0.5)	0.1 (0.1-0.1)
High-income North America	12.7 (12.2-13.2)	2.8 (2.7-2.9)	1.8 (1.4-2.9)	0.5 (0.4-0.7)	3.3 (2.3-5.4)	0.8 (0.6-1.4)	19-1 (9-3-21-2)	5.0 (2.5-5.6)	11·1 (9·8-17·9)	2.8 (2.5-4.6)
North Africa and Middle East	1.5 (1.1-2.0)	0.3 (0.2-0.4)	0.1 (0.1-0.2)	<0.1 (<0.1-<0.1)	0.2 (0.2-0.3)	<0.1 (<0.1-0.1)	5.1 (3.8-6.0)	1.0 (0.8-1.2)	1.2 (0.7-1.4)	0.3 (0.2-0.3)
Oceania	0.1 (<0.1-0.2)	0.8 (0.5-2.3)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-0.1)	<0.1 (<0.1-0.1)	0.3 (0.1-0.5)	<0.1 (<0.1-<0.1)	0.3 (0.2-0.4)
South Asia	29.7 (19.0-34.4)	2.1 (1.4-2.4)	0.4 (0.2-0.7)	<0.1 (<0.1-<0.1)	0.7 (0.3-1.2)	0.1 (<0.1-0.1)	8.0 (6.7-9.4)	0.5 (0.4-0.6)	3.8 (2.7-4.3)	0.3 (0.2-0.3)
Southeast Asia	7-4 (6-0-9-1)	1.2 (1.0-1.5)	0.1 (0.1-0.1)	<0.1 (<0.1-<0.1)	0.1 (0.1-0.2)	<0.1 (<0.1-<0.1)	2.9 (2.4-3.4)	0.5 (0.4-0.5)	1.1 (0.8-1.3)	0.2 (0.1-0.2)
Southern Latin America	1.3 (1.1-1.5)	1.8 (1.6-2.1)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-0.1)	0.1 (0.1-0.1)	0.4 (0.4-0.5)	0.6 (0.5-0.7)	0.5 (0.4-0.6)	0.7 (0.6-0.7)
Southern Sub-Saharan Africa	1.1 (0.9-1.6)	2.0 (1.7-3.0)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-0.1)	0.1 (<0.1-0.1)	1.1 (0.8-2.4)	1.5 (1.1-3.2)	0.3 (0.2-0.4)	0.6 (0.4-0.7)
Tropical Latin America	9.3 (8.7-10.0)	4.2 (4.0-4.5)	<0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	0.2 (0.1-0.2)	0.1 (<0.1-0.1)	0.9 (0.8-1.3)	0.4 (0.4-0.6)	0.6 (0.3-0.7)	0.3 (0.2-0.3)
Western Europe	15.3 (14.1-16.3)	2.5 (2.3-2.6)	0.3 (0.2-0.4)	0.1 (<0.1-0.1)	0.1 (0.1-0.1)	<0.1 (<0.1-<0.1)	4.5 (3.7-5.3)	1.0 (0.8-1.2)	5.5 (4.5-6.2)	1.0 (0.8-1.1)
Western Sub-Saharan Africa	2.7 (2.1-3.9)	1.5 (1.2-2.0)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)	0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	2.8 (1.5-3.8)	1.0 (0.5-1.4)	0.3 (0.1-0.4)	0.2 (0.1-0.3)
Global	173·9 (145·5- 190·9)	2-4 (2-0-2-6)	5·2 (4·3-6·9)	0·1 (0·1-0·1)	8-8 (7-1-11-3)	0·1 (0·1-0·2)	86·2 (72·7-94·7)	1.2 (1.0-1.3)	43·5 (39·4-52·9)	0.6 (0.6-0.7)

Data in parenthese are 95% uncertainty intervals; deaths are in thousands for all ages; mortality rates are per 100,000 age-standardised.

Table A4: Regional substance use disorder crude DALYs (in thousands) and age-standardised DALY rate (per 100,000), all ages and both sexes combined, 2016

	Alcohol use disorders		Amphetamine use disorders		Cannabis use disorders		Cocaine use disorders		Opioid use disorders		Other drug use disorders	
	Number of DALYs (in 1000's)	DALY rates (per 100,000)										
Andean Latin America	116·5 (86·1- 152·0)	201·7 (150·2- 261·1)	8·7 (5·1-14·2)	13.6 (8.0-22.0)	12·1 (7·9-17·4)	20.2 (13.3-28.8)	79.7 (58.9-102.6)	137·6 (102·2- 175·7)	21.3 (15.8-28.2)	35-9 (26-8-46-6)	116·5 (86·1- 152·0)	201·7 (150·2- 261·1)
Australasia	53·1 (40·8-68·3)	173·9 (132·5- 226·1)	23.0 (15.1-33.3)	84-8 (55-2-122-8)	9.7 (6.2-13.7)	33-4 (21-2-47-7)	77-1 (60-5-93-6)	260·6 (204·8- 316·7)	45.0 (35.2-56.3)	155·1 (120·6- 196·2)	53·1 (40·8-68·3)	173·9 (132·5- 226·1)
Caribbean	112·9 (88·5- 142·0)	243·1 (190·5- 305·7)	1.1 (0.8-1.6)	2.5 (1.8-3.4)	9-3 (6-2-13-1)	20·1 (13·4-28·2)	58-4 (42-6-75-8)	126·9 (92·6- 164·5)	13·3 (10·2-16·7)	28.7 (22.1-36.0)	112·9 (88·5- 142·0)	243·1 (190·5- 305·7)
Central Asia	318·5 (254·3- 390·5)	356·7 (286·1- 434·3)	12-4 (8-1-18-0)	13·1 (8·6-18·7)	14.0 (10.4-18.5)	15.5 (11.6-20.4)	166·8 (132·8- 202·0)	181·7 (146·3- 218·7)	33.9 (26.9-41.5)	38-0 (30-4-46-5)	318·5 (254·3- 390·5)	356·7 (286·1- 434·3)
Central Europe	446·3 (370·5- 529·6)	326·1 (267·9- 391·7)	19·1 (12·6-28·1)	18-8 (12-1-27-5)	11.1 (7.1-15.8)	9-4 (5-9-13-6)	113·2 (88·4- 140·2)	90-7 (70-2-112-1)	50-4 (40-5-61-7)	41.1 (32.5-51.4)	446·3 (370·5- 529·6)	326·1 (267·9- 391·7)
Central Latin America	686·7 (549·2- 848·0)	269·6 (217·2- 329·8)	33-2 (20-2-51-5)	12.0 (7.3-18.5)	38.0 (24.8-55.0)	14·5 (9·5-20·8)	311·3 (229·7- 400·1)	118·1 (87·5- 150·7)	73.7 (54.4-97.2)	28·1 (20·9-36·7)	686·7 (549·2- 848·0)	269·6 (217·2- 329·8)
Central Sub- Saharan Africa	171·5 (124·9- 237·5)	196·0 (143·6- 277·6)	1.7 (1.0-2.6)	1.6 (1.0-2.4)	3.1 (2.0-4.3)	3.4 (2.2-4.7)	118·0 (88·3- 154·6)	126·2 (95·4- 162·9)	10·1 (7·3-13·0)	11.6 (8.5-14.9)	171·5 (124·9- 237·5)	196·0 (143·6- 277·6)
East Asia	2539·6 (1940·3- 3222·6)	149·6 (114·3- 192·2)	208·6 (136·8- 307·4)	14-4 (9-2-21-6)	139·8 (108·5- 188·8)	8.5 (6.6-11.5)	2624·1 (2027·3- 3247·3)	161·8 (125·1- 200·6)	549·8 (451·4- 704·9)	35·3 (28·9-45·2)	2539·6 (1940·3- 3222·6)	149·6 (114·3- 192·2)
Eastern Europe	2637·1 (2076·9- 3246·2)	1054·7 (832·9- 1302·2)	62.5 (41.8-86.0)	29·1 (19·7-40·6)	88-4 (54-7-117-7)	38.0 (24.1-50.1)	1117·1 (861·1- 1406·2)	472·4 (364·6- 594·1)	263·0 (165·6- 342·1)	112·4 (71·9- 145·8)	2637·1 (2076·9- 3246·2)	1054·7 (832·9- 1302·2)
Eastern Sub- Saharan Africa	651·9 (477·6- 862·3)	224·8 (171·7- 289·4)	5.0 (2.7-7.9)	1.4 (0.8-2.3)	9-2 (5-4-13-7)	3.0 (1.7-4.5)	311·7 (218·5- 421·1)	99·1 (71·0-131·9)	24.7 (18.3-31.8)	8-4 (6-4-10-7)	651·9 (477·6- 862·3)	224·8 (171·7- 289·4)
High-income Asia Pacific	222·3 (165·9- 291·1)	119·9 (88·0- 158·4)	20-4 (12-0-31-3)	13.8 (7.9-21.8)	37-5 (23-9-53-0)	21·1 (13·4-30·2)	203·8 (145·3- 268·3)	111·3 (77·8- 149·8)	56-9 (40-3-75-8)	31.8 (22.1-43.4)	222·3 (165·9- 291·1)	119·9 (88·0- 158·4)
High-income North America	1110·5 (903·6- 1347·8)	287·0 (231·0- 352·3)	184·3 (138·5- 249·0)	52·3 (38·9-71·5)	395·0 (294·0- 516·7)	107·4 (79·4- 141·0)	2605·9 (1999·1- 3143·2)	725·0 (556·5- 876·9)	751·0 (616·6- 1057·5)	204·7 (167·7- 288·9)	1110·5 (903·6- 1347·8)	287·0 (231·0- 352·3)
North Africa & Middle East	404·7 (291·8- 540·0)	70.0 (50.9-92.3)	17-6 (11-9-24-8)	2.9 (2.0-4.0)	47-7 (33-0-66-9)	8·2 (5·7-11·5)	1962·4 (1426·7- 2540·3)	331·0 (241·3- 425·0)	104·8 (77·2- 129·9)	18-6 (13-9-22-9)	404·7 (291·8- 540·0)	70.0 (50.9-92.3)
Oceania	12.0 (8.4-19.0)	117·4 (82·6- 186·6)	1.1 (0.6-1.8)	8-8 (5-1-14-1)	0.4 (0.3-0.6)	3.9 (2.7-5.3)	8-9 (6-1-12-1)	85.0 (58.8-115.1)	1.9 (1.3-2.7)	18-2 (12-3-25-5)	12.0 (8.4-19.0)	117·4 (82·6- 186·6)
South Asia	3210·8 (2488·5- 4045·4)	195·4 (152·5- 244·5)	30.0 (17.8-45.2)	1.8 (1.0-2.7)	85-9 (54-3-123-4)	5·2 (3·2-7·4)	2616·5 (1911·3- 3356·8)	148·6 (109·4- 190·3)	240·3 (193·1- 288·2)	15.0 (12.0-17.8)	3210·8 (2488·5- 4045·4)	195·4 (152·5- 244·5)
Southeast Asia	838·1 (652·9- 1059·4)	124·1 (97·4- 156·5)	123·7 (70·5- 198·1)	17-6 (10-0-28-1)	19-7 (13-6-27-0)	2.9 (2.0-4.0)	700·2 (524·8- 895·2)	103·6 (77·5- 131·8)	161·0 (116·0- 221·2)	23-4 (17-0-32-0)	838·1 (652·9- 1059·4)	124·1 (97·4- 156·5)
Southern Latin America	157·0 (118·2- 204·7)	233·2 (175·1- 304·8)	16·3 (9·5-25·7)	24-9 (14-4-39-3)	24-9 (16-2-35-6)	37.5 (24.3-53.5)	88-2 (64-8-114-7)	130·2 (95·5- 169·7)	37-9 (27-0-51-8)	56·1 (39·7-77·4)	157·0 (118·2- 204·7)	233·2 (175·1- 304·8)
Southern Sub- Saharan Africa	152·9 (115·0- 199·7)	211·7 (162·7- 271·6)	4.3 (2.7-6.5)	5.0 (3.2-7.5)	4.0 (2.6-5.2)	5.8 (3.8-7.5)	182·8 (132·3- 261·2)	225·0 (165·4- 317·7)	20-2 (14-6-24-4)	27-2 (19-9-32-5)	152·9 (115·0- 199·7)	211·7 (162·7- 271·6)
Tropical Latin America	957·5 (764·1- 1200·6)	411·5 (328·8- 515·1)	37·7 (22·1-59·5)	16·4 (9·5-25·9)	99-9 (64-5-141-2)	43·3 (28·1-61·4)	258·5 (192·2- 331·2)	111·4 (83·1- 142·3)	113·4 (80·2- 151·8)	49-4 (35-0-66-0)	957·5 (764·1- 1200·6)	411·5 (328·8- 515·1)
Western Europe	958·1 (796·5- 1159·6)	198·5 (160·7- 247·2)	66-7 (44-9-95-7)	18·6 (12·3-27·0)	95.9 (62.1-135.0)	23·4 (15·2-33·2)	669·2 (527·3- 805·6)	158·7 (125·0- 191·9)	324·0 (261·6- 381·9)	76·2 (61·3-90·8)	958·1 (796·5- 1159·6)	198·5 (160·7- 247·2)
Western Sub- Saharan Africa	484·4 (359·5- 638·7)	158·6 (120·2- 204·5)	4.3 (2.6-6.6)	1.3 (0.8-1.9)	8.7 (5.5-12.2)	2.9 (1.9-4.1)	514·1 (378·8- 652·1)	156·7 (116·8- 197·0)	25.8 (18.5-34.3)	9.6 (6.9-12.5)	484·4 (359·5- 638·7)	158·6 (120·2- 204·5)
Global	16244·7 (13003·1- 19955·3)	214·4 (172·0- 262·9)	881·7 (599·5- 1243·1)	11·5 (7·9-16·3)	1154·2 (847·2- 1512·1)	15·3 (11·2-20·0)	14788·8 (11380·5- 18259·7)	194·3 (149·8- 239·6)	2922·5 (2425·1- 3504·3)	38·8 (32·3-46·4)	16244·7 (13003·1- 19955·3)	214·4 (172·0- 262·9)

Note. Data in parentheses are 95% uncertainty intervals; DALYs are in thousands for all ages; DALYs rates are per 100,000 age-standardised.

Table A5: Alcohol and drug use disorder DALY, YLD, YLL, deaths (in thousands), 2016, by country

		Drug use disc	orders burden			Alcohol use di	sorders burden	
Country	DALYs	YLDs	YLLs	Deaths	DALYs	YLDs	YLLs	Deaths
Afghanistan	123.7 (83.3-172.7)	110-8 (75-2-151-9)	12-9 (3-5-36-3)	0.3 (0.1-0.7)	22·6 (15·3-32·5)	16.8 (11.3-23.6)	5.8 (2.0-12.8)	0.1 (<0.1-0.3)
Albania	4.5 (3.5-5.6)	3.4 (2.4-4.5)	1.1 (0.8-1.5)	<0.1 (<0.1-<0.1)	5-4 (3-7-7-2)	4.8 (3.3-6.7)	0.5 (0.4-0.9)	<0.1 (<0.1-<0.1)
Algeria	130·3 (93·9-171·1)	115-6 (79-2-155-2)	14.7 (10.9-18.7)	0.4 (0.3-0.5)	28·3 (20·1-38·5)	24-4 (16-3-34-4)	3.9 (2.8-5.4)	0.1 (0.1-0.1)
American Samoa	0.1 (0.1-0.1)	0.1 (0.1-0.1)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)	0.1 (0.1-0.1)	0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)
Andorra	0.5 (0.5-0.3)	0.1 (0.1-0.2)	0.1 (0.1-0.1)	<0.1 (<0.1-<0.1)	0.1 (0.1-0.2)	0.1 (0.1-0.1)	<0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)
Angola	29.5 (22.0-38.5)	22.9 (15.6-31.4)	6.6 (4.4-9.6)	0.1 (0.1-0.2)	36·6 (27·1-48·9)	28·5 (19·4-40·7)	8-1 (5-4-12-4)	0.2 (0.1-0.3)
Antigua and Barbuda	0.2 (0.1-0.2)	0.1 (0.1-0.2)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)	0.3 (0.3-0.4)	0.2 (0.1-0.3)	0.1 (0.1-0.2)	<0.1 (<0.1-<0.1)
Argentina	128·3 (96·3-164·4)	108-6 (76-4-144-6)	19.6 (17.2-22.0)	0.9 (0.8-1.0)	95·3 (71·4-124·6)	73.7 (50.2-102.6)	21.6 (18.9-24.6)	0.7 (0.7-0.8)
Armenia	6.6 (5.1-8.1)	5.0 (3.5-6.4)	1.7 (1.4-2.0)	<0.1 (<0.1-0.1)	6.6 (4.9-8.7)	5-3 (3-6-7-4)	1.3 (1.1-1.6)	<0.1 (<0.1-0.1)
Australia	146·2 (117·0-177·7)	99-3 (71-0-130-8)	46.9 (41.0-52.4)	1.1 (0.9-1.2)	44·3 (34·2-56·8)	31·1 (21·3-43·5)	13·2 (11·8-14·6)	0.5 (0.4-0.5)
Austria	28·6 (22·8-34·0)	18-7 (13-5-23-6)	9.9 (7.5-11.9)	0.2 (0.2-0.2)	26·8 (21·7-33·1)	15·3 (10·5-21·2)	11.5 (9.9-13.0)	0.4 (0.4-0.5)
Azerbaijan	27-9 (21-6-34-6)	17.5 (12.5-23.0)	10.4 (7.0-14.3)	0.2 (0.2-0.3)	51·1 (36·3-86·8)	26-2 (17-6-35-9)	24.9 (14.4-60.3)	0.8 (0.5-1.6)
Bahrain	5.8 (4.2-7.7)	5·2 (3·6-7·0)	0.6 (0.4-0.9)	<0.1 (<0.1-<0.1)	1.5 (1.1-2.0)	1.1 (0.8-1.6)	0.4 (0.3-0.6)	<0.1 (<0.1-<0.1)
Bangladesh	277-6 (195-8-373-6)	242·1 (162·8-338·7)	35.5 (25.0-52.0)	0.8 (0.6-1.2)	259-1 (180-6-353-5)	238-7 (161-6-334-6)	20.4 (16.3-30.1)	0.7 (0.5-0.9)
Barbados	0.4 (0.3-0.5)	0.3 (0.2-0.5)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)	0.6 (0.4-0.7)	0.4 (0.3-0.6)	0.1 (0.1-0.2)	<0.1 (<0.1-<0.1)
Belarus	48·3 (39·2-57·7)	22·3 (15·8-28·7)	26.0 (19.9-32.6)	0.6 (0.5-0.8)	97·5 (67·0-127·4)	41.7 (28.7-56.9)	55.8 (31.5-81.9)	1.6 (0.9-2.3)
Belgium	25·7 (20·7-31·0)	16-9 (12-0-22-1)	8-8 (6-9-10-8)	0.3 (0.2-0.3)	28.0 (23.1-33.8)	14·1 (9·8-19·2)	13.9 (12.0-16.1)	0.5 (0.4-0.5)
Belize	0.6 (0.4-0.8)	0.5 (0.4-0.7)	0.1 (0.1-0.1)	<0.1 (<0.1-<0.1)	0.9 (0.7-1.1)	0.6 (0.4-0.8)	0.3 (0.5-0.4)	<0.1 (<0.1-<0.1)
Benin	16.4 (12.3-20.9)	11.9 (8.1-16.3)	4.4 (2.6-6.1)	0.1 (0.1-0.1)	15·2 (10·7-23·2)	11·3 (7·6-15·8)	3.9 (2.1-10.8)	0.1 (0.1-0.3)

		Drug use disc	orders burden			Alcohol use d	isorders burden	
Country	DALYs	YLDs	YLLs	Deaths	DALYs	YLDs	YLLs	Deaths
Bermuda	0.2 (0.1-0.2)	0.1 (0.1-0.2)	<0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	0.1 (0.1-0.2)	0.1 (0.1-0.1)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)
Bhutan	1.6 (1.2-2.1)	1.4 (0.9-1.9)	0.3 (0.2-0.4)	<0.1 (<0.1-<0.1)	2.5 (1.7-3.5)	2.0 (1.3-2.8)	0.5 (0.2-1.3)	<0.1 (<0.1-<0.1)
Bolivia	27-8 (20-4-36-3)	23·2 (16·2-31·6)	4.6 (3.4-6.2)	0.1 (0.1-0.2)	22.6 (16.2-30.8)	15·3 (10·4-21·3)	7.3 (4.5-13.9)	0.2 (0.1-0.4)
Bosnia and Herzegovina	5.6 (4.0-7.1)	4.3 (3.1-5.6)	1.3 (0.2-1.9)	<0.1 (<0.1-<0.1)	15-9 (11-3-22-3)	11.5 (7.9-16.0)	4.3 (2.7-10.1)	0.1 (0.1-0.3)
Botswana	8-2 (5-8-11-3)	5.1 (3.5-6.8)	3-2 (1-4-5-4)	0.1 (<0.1-0.1)	5.0 (3.4-6.7)	3.7 (2.5-5.1)	1.4 (0.6-2.3)	<0.1 (<0.1-0.1)
Brazil	518-4 (388-9-657-6)	446-4 (316-4-589-2)	72.0 (61.5-84.0)	1.7 (1.5-1.9)	935-1 (745-9-1171-7)	606-9 (419-2-845-3)	328-2 (304-3-358-1)	9.1 (8.5-9.8)
Brunei	0.9 (0.7-1.2)	0.9 (0.6-1.2)	<0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	0.4 (0.3-0.5)	0.4 (0.2-0.5)	<0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)
Bulgaria	11.5 (8.8-14.4)	8-7 (6-2-11-4)	2.8 (2.1-3.8)	0.1 (0.1-0.1)	15·3 (11·5-19·8)	12·1 (8·3-16·7)	3.2 (2.6-4.0)	0.1 (0.1-0.1)
Burkina Faso	16.9 (12.0-22.9)	15.5 (10.6-21.4)	1.5 (1.0-1.9)	<0.1 (<0.1-<0.1)	23.9 (17.9-30.9)	17-9 (12-2-24-9)	6.1 (4.8-8.0)	0.2 (0.1-0.2)
Burundi	10.9 (7.9-14.5)	9.7 (6.7-13.3)	1.3 (0.8-1.8)	<0.1 (<0.1-<0.1)	19-4 (14-2-25-7)	14·5 (9·9-20·6)	4.9 (3.0-7.5)	0.1 (0.1-0.2)
Cambodia	24.9 (18.3-32.9)	20.8 (14.7-28.2)	4.1 (2.4-7.4)	0.1 (0.1-0.1)	24·1 (17·0-34·1)	12.9 (8.9-18.0)	11.2 (6.3-19.9)	0.3 (0.2-0.4)
Cameroon	41.7 (31.5-53.1)	28·7 (19·7-39·6)	13.0 (6.9-19.3)	0.3 (0.1-0.4)	36-9 (26-7-50-9)	25·6 (17·5-36·2)	11.3 (6.4-22.5)	0.3 (0.2-0.6)
Canada	214-0 (169-6-258-4)	146-9 (105-0-190-2)	67·1 (54·3-82·3)	1.6 (1.3-2.0)	86-4 (69-3-106-8)	53.8 (36.8-73.9)	32.6 (29.7-35.9)	1.1 (1.0-1.2)
Cape Verde	2·1 (1·6-2·7)	1.3 (0.9-1.7)	0.8 (0.5-1.3)	<0.1 (<0.1-<0.1)	0.9 (0.6-1.2)	0.7 (0.4-0.9)	0.2 (0.1-0.5)	<0.1 (<0.1-<0.1)
Central African Republic	6-4 (4-5-8-7)	5.0 (3.4-6.7)	1.4 (0.8-3.1)	<0.1 (<0.1-0.1)	8.8 (6.0-12.0)	6-3 (4-3-8-8)	2.4 (1.1-4.6)	0.1 (<0.1-0.1)
Chad	18·1 (13·4-23·2)	13·5 (9·2-18·4)	4.6 (2.6-6.5)	0.1 (0.1-0.1)	15.9 (11.5-21.8)	12.9 (8.7-18.2)	3.1 (1.6-4.5)	0.1 (<0.1-0.1)
Chile	39-4 (29-3-51-0)	35·1 (24·5-46·5)	4.4 (3.3-5.8)	0.1 (0.1-0.2)	56-2 (41-7-73-0)	42-4 (28-8-59-4)	13.9 (9.9-18.9)	0.4 (0.3-0.6)
China	3557·8 (2834·5- 4304·6)	2472·0 (1789·1- 3188·7)	1085·8 (949·1- 1525·3)	32·2 (28·2-41·5)	2456·8 (1882·5- 3109·6)	1666·7 (1145·2- 2289·0)	790·1 (459·9-895·6)	21.9 (12.8-24.8)
Colombia	90·3 (65·4-120·9)	81.6 (57.4-111.5)	8-7 (6-7-10-9)	0.5 (0.5-0.3)	93.0 (65.4-125.1)	88-8 (61-1-120-5)	4·3 (3·5-5·1)	0.1 (0.1-0.1)
Comoros	0.8 (0.6-1.1)	0.7 (0.5-1.0)	0.1 (0.1-0.1)	<0.1 (<0.1-<0.1)	1.3 (0.9-1.7)	1.0 (0.7-1.5)	0.2 (0.1-0.4)	<0.1 (<0.1-<0.1)

		Drug use dis	orders burden			Alcohol use di	sorders burden	
Country	DALYs	YLDs	YLLs	Deaths	DALYs	YLDs	YLLs	Deaths
Congo	6.4 (4.8-8.4)	4.8 (3.2-6.5)	1.7 (1.0-2.6)	<0.1 (<0.1-0.1)	7.6 (5.7-10.0)	5.7 (3.9-7.9)	1.9 (1.2-2.9)	<0.1 (<0.1-0.1)
Costa Rica	8.5 (6.3-11.0)	7-4 (5-1-9-9)	1.1 (1.0-1.3)	<0.1 (<0.1-<0.1)	8.6 (6.3-11.3)	6.9 (4.7-9.7)	1.7 (1.5-2.0)	<0.1 (<0.1-0.1)
Cote d'Ivoire	38·2 (28·4-48·3)	26.6 (18.3-36.1)	11.6 (6.1-17.1)	0.2 (0.1-0.4)	32·1 (23·7-42·0)	23.5 (16.0-33.0)	8-6 (5-4-12-7)	0.2 (0.2-0.3)
Croatia	9.7 (7.9-11.6)	5.8 (4.1-7.5)	3.9 (3.1-4.7)	0.1 (0.1-0.1)	15·1 (12·3-18·4)	8-2 (5-7-11-1)	6.9 (5.7-8.3)	0.3 (0.2-0.3)
Cuba	18·8 (13·8-24·6)	17·3 (12·2-23·0)	1.5 (1.3-1.8)	0.1 (0.1-0.1)	37-0 (30-0-44-6)	21.0 (14.3-28.9)	16.0 (13.8-18.6)	0.6 (0.5-0.6)
Cyprus	2.0 (1.6-2.5)	1.2 (0.9-1.6)	0.8 (0.6-1.2)	<0.1 (<0.1-<0.1)	1.2 (0.9-1.6)	1.0 (0.7-1.4)	0.2 (0.2-0.3)	<0.1 (<0.1-<0.1)
Czech Republic	21·5 (16·9-26·4)	15.0 (10.6-19.9)	6.5 (5.7-7.3)	0.2 (0.2-0.2)	28·3 (22·7-34·9)	17·1 (11·8-23·3)	11.2 (9.7-12.6)	0.3 (0.3-0.4)
Democratic Republic of the Congo	92.4 (69.8-119.0)	70·2 (48·3-95·4)	22-2 (14-8-29-4)	0.5 (0.3-0.6)	113-9 (81-0-166-9)	87-1 (59-8-123-0)	26.8 (15.5-71.9)	0.7 (0.4-1.7)
Denmark	19·3 (16·0-22·7)	10.0 (7.3-13.1)	9.2 (7.2-11.1)	0.5 (0.5-0.3)	29.7 (25.4-34.7)	9.8 (6.9-13.7)	19.8 (16.8-23.5)	0.7 (0.6-0.9)
Djibouti	1.1 (0.8-1.4)	0.9 (0.6-1.3)	0.1 (0.1-0.2)	<0.1 (<0.1-<0.1)	1.6 (1.1-2.2)	1.3 (0.9-1.8)	0.3 (0.1-0.5)	<0.1 (<0.1-<0.1)
Dominica	0.1 (0.1-0.2)	0.1 (0.1-0.1)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)	0.2 (0.2-0.3)	0.1 (0.1-0.2)	0.1 (0.1-0.1)	<0.1 (<0.1-<0.1)
Dominican Republic	16·1 (11·6-21·1)	14·3 (9·9-19·2)	1.8 (1.2-3.8)	0.1 (<0.1-0.1)	19.8 (14.4-26.3)	15.6 (10.6-21.9)	4.2 (2.9-7.9)	0.1 (0.1-0.2)
Ecuador	34.0 (25.5-43.2)	28.0 (19.6-37.3)	6.0 (5.1-6.9)	0.5 (0.5-0.5)	40·1 (31·5-49·9)	25.5 (17.4-35.0)	14.6 (12.4-17.0)	0.4 (0.4-0.5)
Egypt	247-2 (166-0-344-0)	243.8 (162.5-340.4)	3.4 (1.7-5.3)	0.1 (<0.1-0.1)	59·2 (41·4-80·4)	52·2 (34·9-72·9)	7.0 (4.4-9.4)	0.2 (0.1-0.2)
El Salvador	8.4 (6.1-11.3)	7.5 (5.2-10.4)	0.9 (0.7-1.3)	<0.1 (<0.1-<0.1)	48·3 (38·8-61·2)	15.5 (10.7-21.5)	32·8 (25·0-44·6)	0.9 (0.7-1.2)
England	239.6 (196.3-281.2)	149.0 (108.2-190.9)	90.6 (82.2-95.7)	2.0 (1.8-2.1)	97.0 (75.5-123.6)	68-4 (47-0-94-7)	28·6 (27·5-29·7)	0.8 (0.8-0.9)
Equatorial Guinea	1.2 (0.9-1.6)	0.9 (0.6-1.2)	0.3 (0.1-0.5)	<0.1 (<0.1-<0.1)	1.5 (1.1-2.1)	1.1 (0.8-1.6)	0.4 (0.2-0.7)	<0.1 (<0.1-<0.1)
Eritrea	5.4 (3.9-7.3)	4.8 (3.2-6.7)	0.6 (0.5-0.9)	<0.1 (<0.1-<0.1)	8.9 (6.4-12-3)	7.0 (4.8-9.9)	1.9 (1.2-4.3)	0.1 (<0.1-0.1)
Estonia	8.3 (6.8-9.8)	3.7 (2.6-4.8)	4.6 (3.6-5.7)	0.1 (0.1-0.1)	14.0 (11.4-16.9)	5.5 (3.8-7.6)	8.5 (6.7-10.5)	0.2 (0.2-0.3)
Ethiopia	113-2 (85-3-148-4)	92·3 (62·6-127·3)	21.0 (15.0-28.8)	0.5 (0.3-0.6)	229-5 (166-2-307-3)	187-3 (126-2-263-4)	42·2 (31·2-56·8)	1.3 (1.0-1.7)

		Drug use dis	orders burden		Alcohol use disorders burden				
Country	DALYs	YLDs	YLLs	Deaths	DALYs	YLDs	YLLs	Deaths	
Federated States of Micronesia	0.2 (0.1-0.2)	0.1 (0.1-0.2)	<0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	0-1 (0-1-0-2)	0.1 (0.1-0.1)	<0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	
Fiji	1.2 (0.9-1.5)	1.0 (0.7-1.3)	0.2 (0.1-0.3)	<0.1 (<0.1-<0.1)	0.8 (0.6-1.1)	0.7 (0.5-1.0)	0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	
Finland	23·3 (19·2-27·7)	11.5 (8.4-14.7)	11.8 (9.0-14.5)	0.3 (0.2-0.3)	31.7 (26.3-37.6)	14-4 (10-0-20-0)	17·3 (14·8-20·0)	0.6 (0.5-0.7)	
France	154-4 (124-7-187-3)	107-3 (77-0-139-3)	47·1 (39·5-53·3)	1.9 (1.6-2.1)	194-0 (163-4-229-5)	86-9 (60-3-119-3)	107·1 (94·1-119·5)	3.6 (3.2-4.0)	
Gabon	2·7 (2·1-3·6)	2.0 (1.4-2.8)	0.7 (0.4-1.1)	<0.1 (<0.1-<0.1)	3-2 (2-4-4-2)	2.4 (1.6-3.3)	0.8 (0.5-1.2)	<0.1 (<0.1-<0.1)	
Georgia	8·1 (6·3-10·1)	5.8 (4.1-7.6)	2·3 (1·8-3·0)	0.1 (0.1-0.1)	8.6 (6.3-11.4)	7.1 (4.8-9.8)	1.5 (1.1-2.0)	<0.1 (<0.1-0.1)	
Germany	183·3 (147·7-220·0)	119.0 (85.7-154.6)	64-3 (52-8-75-8)	1.6 (1.4-1.9)	304·3 (255·2-363·5)	144-1 (100-6-199-1)	160-2 (139-6-181-6)	5.6 (4.9-6.3)	
Ghana	46·5 (34·1-59·4)	34.0 (23.0-45.6)	12.5 (6.3-18.1)	0.3 (0.1-0.4)	38·5 (28·6-50·7)	29.7 (20.1-42.0)	8.8 (6.7-12.3)	0.2 (0.2-0.3)	
Greece	28·2 (22·8-33·6)	16·1 (11·5-20·9)	12·1 (9·3-15·3)	0.2 (0.2-0.3)	12.0 (8.3-16.1)	10.9 (7.3-15.1)	1.1 (0.9-1.2)	<0.1 (<0.1-<0.1)	
Greenland	0.3 (0.2-0.3)	0.2 (0.1-0.2)	0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	0.4 (0.3-0.7)	0.1 (0.1-0.2)	0.3 (0.2-0.5)	<0.1 (<0.1-<0.1)	
Grenada	0.2 (0.2-0.3)	0.2 (0.1-0.2)	0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	0.3 (0.2-0.3)	0.2 (0.1-0.3)	0.1 (0.1-0.1)	<0.1 (<0.1-<0.1)	
Guam	0.3 (0.2-0.3)	0.2 (0.1-0.3)	0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	0.5 (0.5-0.3)	0.2 (0.1-0.2)	0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	
Guatemala	43·4 (33·4-54·5)	27.7 (19.2-36.5)	15.7 (10.9-21.4)	0.3 (0.2-0.4)	101-2 (78-4-128-2)	38.0 (26.0-53.1)	63·2 (44·0-88·4)	1.5 (1.1-2.1)	
Guinea	17.9 (13.3-22.8)	13·2 (9·0-17·7)	4.7 (2.7-6.8)	0.1 (0.1-0.1)	15-4 (11-1-20-6)	12·3 (8·3-17·2)	3.1 (1.9-4.6)	0.1 (0.1-0.1)	
Guinea-Bissau	3.1 (2.3-4.0)	2·2 (1·5-2·9)	0.9 (0.5-1.6)	<0.1 (<0.1-<0.1)	2.6 (1.9-3.5)	1.9 (1.3-2.7)	0.7 (0.4-1.0)	<0.1 (<0.1-<0.1)	
Guyana	1.7 (1.3-2.1)	1.2 (0.9-1.6)	0.4 (0.3-0.6)	<0.1 (<0.1-<0.1)	2·2 (1·8-2·7)	1.3 (0.9-1.8)	0.9 (0.7-1.1)	<0.1 (<0.1-<0.1)	
Haiti	17·8 (13·0-23·4)	14-4 (10-0-19-4)	3.4 (1.9-6.3)	0.1 (<0.1-0.1)	27·0 (19·5-36·1)	17·2 (11·8-24·0)	9-8 (6-0-15-8)	0.3 (0.2-0.4)	
Honduras	14-4 (10-7-18-9)	11.2 (7.7-15.1)	3·2 (1·7-5·9)	0.1 (<0.1-0.1)	22.7 (16.8-30.5)	12.9 (8.7-17.9)	9-8 (5-7-15-7)	0.3 (0.2-0.4)	
Hungary	15.4 (11.8-19.6)	12.2 (8.6-16.4)	3.2 (2.6-3.8)	0.1 (0.1-0.1)	33·1 (26·7-41·0)	19·3 (13·3-26·3)	13.8 (11.5-16.2)	0.5 (0.4-0.5)	
Iceland	1.1 (0.9-1.2)	0.6 (0.4-0.8)	0.5 (0.4-0.5)	<0.1 (<0.1-<0.1)	0.7 (0.6-0.8)	0.4 (0.3-0.5)	0.3 (0.3-0.3)	<0.1 (<0.1-<0.1)	

		Drug use disc	3175-6)       2113-8)       1179-3)         195-8 (146-9-259-8)       153-1 (102-6-214-6)       42-7 (28-5-52-0)       1-0 (0-7-1-3)         48-4 (35-0-65-3)       41-8 (28-2-58-2)       6-6 (4-3-8-7)       0-2 (0-1-0-2)         25-3 (18-6-33-5)       19-5 (13-2-27-4)       5-8 (4-0-8-9)       0-1 (0-1-0-2)         11-6 (9-0-14-8)       8-4 (5-8-11-8)       3-2 (2-7-3-7)       0-1 (0-1-0-1)         6-1 (4-7-7-8)       4-0 (2-7-5-7)       2-1 (1-6-2-7)       0-1 (0-1-0-1)         35-4 (26-8-45-5)       25-7 (17-4-35-7)       9-7 (8-5-11-0)       0-4 (0-4-0-4)         4-6 (3-2-6-2)       4-1 (2-8-5-8)       0-4 (0-3-0-6)       <0-1 (<0-1-<0-1         75-4 (56-0-98-7)       60-2 (40-4-83-6)       15-3 (13-9-16-9)       0-6 (0-5-0-6)         4-9 (3-5-6-6)       4-3 (2-9-6-0)       0-6 (0-4-0-9)       <0-1 (<0-1-<0-1         94-0 (74-5-115-0)       45-7 (31-3-63-1)       48-3 (38-1-61-1)       1-3 (1-0-1-6)         54-2 (39-2-72-6)       44-3 (30-1-62-1)       9-8 (7-3-12-8)       0-3 (0-2-0-4)         0-1 (0-1-0-1)       0-1 (0-1-0-1)       <0-1 (<0-1-<0-1)       <0-1 (<0-1-<0-1)					
Country	DALYs	YLDs	YLLs	Deaths	DALYs	YLDs	YLLs	Deaths
India	2262·5 (1720·8- 2837·4)	1818·0 (1274·4- 2389·4)	444.5 (378.1-516.0)	10-9 (9-1-12-5)	•	•	`	27·1 (17·5-31·2)
Indonesia	351-9 (266-6-453-5)	308-7 (222-8-409-0)	43·2 (28·8-50·0)	1.0 (0.6-1.1)	195-8 (146-9-259-8)	153-1 (102-6-214-6)	42.7 (28.5-52.0)	1.0 (0.7-1.3)
Iran	521-0 (400-1-646-9)	393-6 (279-8-515-2)	127-4 (77-2-169-5)	2.7 (1.8-3.5)	48-4 (35-0-65-3)	41.8 (28.2-58.2)	6.6 (4.3-8.7)	0.2 (0.1-0.2)
Iraq	236·6 (176·9-303·5)	179-3 (126-3-238-1)	57·3 (33·9-83·0)	1.1 (0.7-1.6)	25·3 (18·6-33·5)	19.5 (13.2-27.4)	5.8 (4.0-8.9)	0.1 (0.1-0.2)
Ireland	17.8 (14.4-21.2)	9-4 (6-8-12-1)	8-4 (6-5-10-5)	0.2 (0.1-0.2)	11.6 (9.0-14.8)	8.4 (5.8-11.8)	3.2 (2.7-3.7)	0.1 (0.1-0.1)
Israel	13·6 (10·0-17·4)	11.0 (7.8-14.6)	2.6 (1.8-3.6)	0.1 (0.1-0.1)	6·1 (4·7-7·8)	4.0 (2.7-5.7)	2·1 (1·6-2·7)	0.1 (0.1-0.1)
Italy	157-2 (119-4-192-7)	129-9 (94-2-165-7)	27-3 (22-4-31-8)	0.8 (0.6-0.9)	35·4 (26·8-45·5)	25.7 (17.4-35.7)	9.7 (8.5-11.0)	0.4 (0.4-0.4)
Jamaica	5.6 (4.0-7.3)	5.2 (3.7-7.0)	0.4 (0.3-0.6)	<0.1 (<0.1-<0.1)	4.6 (3.2-6.2)	4.1 (2.8-5.8)	0.4 (0.3-0.6)	<0.1 (<0.1-<0.1)
Japan	220·6 (163·5-280·2)	203.6 (146.5-263.1)	16.9 (14.9-18.3)	0.8 (0.6-0.8)	75-4 (56-0-98-7)	60.2 (40.4-83.6)	15·3 (13·9-16·9)	0.6 (0.5-0.6)
Jordan	28-2 (20-6-36-9)	24.0 (16.4-32.2)	4-2 (2-9-6-1)	0.1 (0.1-0.1)	4-9 (3-5-6-6)	4-3 (2-9-6-0)	0.6 (0.4-0.9)	<0.1 (<0.1-<0.1)
Kazakhstan	71.0 (58.1-84.9)	34.8 (24.8-45.4)	36·2 (28·2-45·5)	0.9 (0.7-1.1)	94·0 (74·5-115·0)	45.7 (31.3-63.1)	48·3 (38·1-61·1)	1.3 (1.0-1.6)
Kenya	42·2 (30·5-55·3)	39.6 (28.0-52.6)	2·7 (2·0-4·0)	0.1 (<0.1-0.1)	54·2 (39·2-72·6)	44-3 (30-1-62-1)	9.8 (7.3-12.8)	0.3 (0.2-0.4)
Kiribati	0.3 (0.2-0.4)	0.5 (0.1-0.5)	0.1 (<0.1-0.2)	<0.1 (<0.1-<0.1)	0.1 (0.1-0.1)	0.1 (0.1-0.1)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)
Kuwait	15.7 (11.1-21.2)	14.0 (9.5-19.4)	1.7 (1.0-2.6)	<0.1 (<0.1-0.1)	3·3 (2·3-4·5)	3.0 (2.0-4.2)	0.3 (0.2-0.5)	<0.1 (<0.1-<0.1)
Kyrgyzstan	18.0 (14.8-21.4)	10.0 (7.1-13.1)	8.0 (6.6-9.4)	0.2 (0.2-0.2)	29·6 (24·3-36·2)	14-6 (10-1-20-0)	15.0 (12.5-17.6)	0.4 (0.3-0.5)
Laos	11-7 (8-6-15-4)	9-9 (7-0-13-5)	1.8 (1.1-2.9)	<0.1 (<0.1-0.1)	8.9 (6.5-11.9)	5·2 (3·5-7·3)	3.6 (2.1-5.8)	0.1 (<0.1-0.1)
Latvia	6.8 (5.4-8.3)	4.5 (3.2-5.8)	2·3 (1·8-2·8)	0.1 (<0.1-0.1)	17·1 (13·9-20·6)	7.5 (5.2-10.1)	9.6 (7.8-11.6)	0.3 (0.2-0.3)
Lebanon	20.7 (15.0-27.2)	18·1 (12·5-24·4)	2.7 (1.4-4.3)	0.1 (<0.1-0.1)	4.7 (3.3-6.5)	4-4 (2-9-6-1)	0.4 (0.2-0.6)	<0.1 (<0.1-<0.1)
Lesotho	6.4 (4.9-8.5)	4.0 (2.8-5.5)	2.4 (1.5-4.1)	<0.1 (<0.1-0.1)	4-2 (3-0-6-1)	3-1 (2-1-4-4)	1.1 (0.6-2.6)	<0.1 (<0.1-0.1)
Liberia	6.5 (4.9-8.3)	4.7 (3.2-6.4)	1.8 (1.0-2.5)	<0.1 (<0.1-0.1)	5.6 (4.2-7.4)	4.4 (3.0-6.2)	1.2 (0.8-1.8)	<0.1 (<0.1-<0.1)

		Drug use dis	orders burden	24·4 (20·3-29·0)       10·9 (7·5-14·9)       13·5 (11·4·15·7)       0·4 (0·3·0·4)         1·5 (1·2·1·8)       0·8 (0·5·1·1)       0·7 (0·6·0·9)       <0·1 (<0·1-<0·1         4·3 (3·2·5·8)       3·7 (2·5·5·1)       0·7 (0·5·1·0)       <0·1 (<0·1-<0·1         38·5 (27·5·52·4)       31·1 (21·1·43·3)       7·4 (4·9·14·3)       0·2 (0·2·0·4)         27·5 (20·1·36·9)       21·8 (14·9·30·7)       5·7 (3·9·7·5)       0·2 (0·1·0·2)         35·9 (27·6·47·3)       18·8 (12·8·25·6)       17·0 (11·9·28·2)       0·5 (0·3·0·8)         0·3 (0·2·0·4)       0·3 (0·2·0·4)       <0·1 (<0·1-<0·1)       <0·1 (<0·1-<0·1         18·5 (13·0·25·6)       15·8 (10·6·22·3)       2·7 (0·7·5·4)       0·1 (<0·1-<0·1         0·5 (0·4·0·7)       0·4 (0·3·0·6)       0·1 (0·1-0·1)       <0·1 (<0·1-<0·1         0·1 (0·1-0·1)       0·1 (0·1-0·1)       <0·1 (<0·1-<0·1         4·9 (3·4·6·7)       4·1 (2·8·5·9)       0·7 (0·2-1·7)       <0·1 (<0·1-<0·1         3·3 (2·7·4·1)       1·4 (1·0·2·0)       1·9 (1·5·2·4)       0·1 (<0·1-0·1)         3·3·5 (27·6·40·2)       15·7 (10·8·21·6)       17·9 (15·2·21·2)       0·5 (0·4·0·6)			Alcohol use disorders burden				
Country	DALYs	YLDs	YLLs	Deaths	DALYs	YLDs	YLLs	Deaths			
Libya	22.8 (16.9-29.6)	19.4 (13.3-25.9)	3.5 (2.0-5.4)	0.1 (<0.1-0.1)	4.5 (3.3-6.0)	3.8 (2.5-5.3)	0.7 (0.5-1.1)	<0.1 (<0.1-<0.1)			
Lithuania	13.9 (11.7-16.0)	5.6 (4.0-7.2)	8-3 (7-1-9-7)	0.2 (0.2-0.3)	24·4 (20·3-29·0)	10.9 (7.5-14.9)	13.5 (11.4-15.7)	0.4 (0.3-0.4)			
Luxembourg	1.8 (1.5-2.2)	1.0 (0.7-1.4)	0.8 (0.6-1.0)	<0.1 (<0.1-<0.1)	1.5 (1.2-1.8)	0.8 (0.5-1.1)	0.7 (0.6-0.9)	<0.1 (<0.1-<0.1)			
Macedonia	2.8 (2.1-3.6)	2·3 (1·6-3·0)	0.5 (0.3-0.7)	<0.1 (<0.1-<0.1)	4.3 (3.2-5.8)	3.7 (2.5-5.1)	0.7 (0.5-1.0)	<0.1 (<0.1-<0.1)			
Madagascar	23.7 (16.9-31.8)	21·3 (14·6-29·3)	2.4 (1.6-3.4)	0.1 (<0.1-0.1)	38·5 (27·5-52·4)	31·1 (21·1-43·3)	7-4 (4-9-14-3)	0.2 (0.2-0.4)			
Malawi	16.7 (12.0-22.3)	14-8 (10-3-20-3)	1.9 (1.2-2.6)	<0.1 (<0.1-0.1)	27·5 (20·1-36·9)	21.8 (14.9-30.7)	5.7 (3.9-7.5)	0.2 (0.1-0.2)			
Malaysia	71.4 (53.9-93.3)	53·2 (38·1-70·7)	18·2 (12·3-35·9)	0.4 (0.3-0.8)	35.9 (27.6-47.3)	18-8 (12-8-25-6)	17.0 (11.9-28.2)	0.5 (0.3-0.8)			
Maldives	0.6 (0.5-0.8)	0.5 (0.4-0.7)	0.1 (0.1-0.2)	<0.1 (<0.1-<0.1)	0.3 (0.2-0.4)	0.3 (0.2-0.4)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)			
Mali	20-4 (15-0-26-6)	16.0 (10.9-21.9)	4.5 (2.4-6.9)	0.1 (<0.1-0.1)	18·5 (13·0-25·6)	15.8 (10.6-22.3)	2.7 (0.7-5.4)	0.1 (<0.1-0.1)			
Malta	1.1 (0.9-1.4)	0.8 (0.6-1.0)	0.3 (0.5-0.4)	<0.1 (<0.1-<0.1)	0.5 (0.4-0.7)	0.4 (0.3-0.6)	0.1 (0.1-0.1)	<0.1 (<0.1-<0.1)			
Marshall Islands	0.1 (0.1-0.1)	0.1 (0.1-0.1)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)	0.1 (0.1-0.1)	0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)			
Mauritania	6-2 (4-4-8-2)	4.6 (3.1-6.2)	1.6 (0.5-2.9)	<0.1 (<0.1-0.1)	4.9 (3.4-6.7)	4.1 (2.8-5.9)	0.7 (0.2-1.7)	<0.1 (<0.1-<0.1)			
Mauritius	2·2 (1·7-2·8)	1.8 (1.2-2.4)	0.5 (0.4-0.6)	<0.1 (<0.1-<0.1)	3·3 (2·7-4·1)	1.4 (1.0-2.0)	1.9 (1.5-2.4)	0.1 (<0.1-0.1)			
Mexico	231·3 (174·8-289·0)	188-7 (133-7-245-8)	42.6 (36.6-48.6)	1.0 (0.9-1.1)	333-8 (270-7-410-0)	202·0 (139·7-278·2)	131-9 (120-6-148-0)	3.8 (3.5-4.3)			
Moldova	15.7 (12.9-18.7)	8-8 (6-4-11-6)	6.9 (5.7-8.2)	0.5 (0.5-0.5)	33·5 (27·6-40·2)	15.7 (10.8-21.6)	17.9 (15.2-21.2)	0.5 (0.4-0.6)			
Mongolia	6.3 (4.8-7.9)	4.4 (3.1-5.8)	1.8 (1.2-2.4)	<0.1 (<0.1-0.1)	30.9 (16.8-40.8)	10.6 (7.1-14.4)	20.4 (7.2-28.7)	0.5 (0.2-0.7)			
Montenegro	1.7 (1.3-2.0)	0.9 (0.7-1.2)	0.7 (0.6-0.9)	<0.1 (<0.1-<0.1)	1.5 (1.1-1.9)	1.0 (0.7-1.4)	0.4 (0.3-0.6)	<0.1 (<0.1-<0.1)			
Morocco	104·7 (75·5-137·1)	93.9 (64.8-126.5)	10.8 (8.0-14.4)	0.3 (0.2-0.3)	20.0 (14.6-26.6)	16.4 (11.1-22.9)	3.7 (2.6-5.3)	0.1 (0.1-0.1)			
Mozambique	25·3 (18·2-34·7)	22.7 (15.9-31.7)	2.6 (1.8-3.7)	0.1 (<0.1-0.1)	43·4 (31·9-57·9)	33.8 (23.2-47.7)	9.6 (6.7-15.3)	0.3 (0.2-0.5)			
Myanmar	78-4 (57-8-100-7)	62·3 (44·3-85·1)	16·1 (11·1-26·9)	0.3 (0.3-0.6)	81.7 (60.4-106.6)	45·1 (31·1-63·0)	36·7 (22·4-55·3)	0.9 (0.6-1.3)			

Drug use disorders burden						Alcohol use disorders burden				
Country	DALYs	YLDs	YLLs	Deaths	DALYs	YLDs	YLLs	Deaths		
Namibia	7.0 (5.3-8.7)	4.5 (3.1-6.0)	2.5 (1.5-3.5)	<0.1 (<0.1-0.1)	4.9 (3.6-6.4)	3.6 (2.5-5.0)	1.3 (0.8-2.2)	<0.1 (<0.1-0.1)		
Nepal	46.6 (33.3-61.5)	39.0 (26.4-53.1)	7.5 (5.5-10.0)	0.2 (0.1-0.2)	52·0 (37·5-69·2)	40·1 (27·4-54·9)	11.9 (6.4-22.6)	0.3 (0.2-0.6)		
Netherlands	32.8 (25.1-40.9)	25.9 (18.3-34.0)	6.9 (5.9-7.9)	0.2 (0.2-0.2)	23·2 (18·8-28·5)	12.5 (8.5-17.5)	10.7 (9.4-12.2)	0.4 (0.4-0.5)		
New Zealand	14.5 (11.1-18.5)	11.5 (8.3-15.4)	3.0 (2.5-3.5)	0.1 (0.1-0.1)	8.8 (6.5-11.7)	7.2 (5.0-10.1)	1.6 (1.4-1.8)	0.1 (<0.1-0.1)		
Nicaragua	9.0 (6.6-12.0)	7.9 (5.4-10.8)	1.2 (0.8-1.8)	<0.1 (<0.1-<0.1)	23.9 (18.5-30.1)	11.4 (7.7-15.9)	12.6 (8.5-17.0)	0.3 (0.2-0.5)		
Niger	21.5 (15.5-28.1)	16·5 (11·4-22·4)	5.1 (2.6-7.9)	0.1 (0.1-0.2)	20·2 (14·3-27·0)	16.5 (11.4-23.3)	3.6 (2.1-5.9)	0.1 (0.1-0.2)		
Nigeria	265·5 (188·6-347·7)	195-9 (133-6-264-1)	69.6 (26.9-121.3)	1.4 (0.6-2.5)	214·3 (151·1-290·3)	176-7 (118-7-249-3)	37.7 (20.2-70.1)	1.0 (0.6-1.8)		
North Korea	65·1 (48·9-81·9)	41.7 (29.7-54.6)	23·3 (12·3-34·0)	0.6 (0.4-0.9)	40·4 (28·8-54·0)	27.5 (18.2-37.7)	12.9 (5.7-20.6)	0.3 (0.2-0.5)		
Northern Ireland	5.5 (4.4-6.8)	3.8 (2.7-4.9)	1.8 (1.4-2.2)	<0.1 (<0.1-<0.1)	4.5 (3.8-5.4)	1.9 (1.3-2.6)	2.7 (2.2-3.1)	0.1 (0.1-0.1)		
Norway	26-9 (22-6-31-2)	12·3 (8·9-15·9)	14.6 (12.1-17.1)	0.3 (0.3-0.4)	15.4 (12.5-18.9)	8·3 (5·7-11·5)	7-1 (6-0-8-2)	0.3 (0.5-0.3)		
Oceania	13.7 (10.1-17.8)	11.5 (8.1-15.5)	2·2 (1·3-4·1)	<0.1 (<0.1-0.1)	12.0 (8.4-19.0)	8.8 (6.0-12.3)	3.2 (1.6-9.9)	0.1 (<0.1-0.2)		
Oman	19.0 (12.8-26.2)	18.0 (11.8-25.2)	1.1 (0.8-1.5)	<0.1 (<0.1-<0.1)	4·3 (3·0-5·9)	3.8 (2.6-5.5)	0.4 (0.3-0.5)	<0.1 (<0.1-<0.1)		
Pakistan	496·0 (343·7-656·4)	446.6 (292.5-609.6)	49-4 (37-3-65-3)	1.1 (0.8-1.4)	334-0 (232-6-458-1)	269-8 (183-2-377-5)	64·1 (21·1-116·8)	1.6 (0.5-2.9)		
Palestine	17.0 (12.5-22.3)	14.5 (10.0-19.7)	2.5 (1.9-4.0)	0.1 (<0.1-0.1)	2.8 (2.0-3.9)	2.5 (1.7-3.6)	0.3 (0.2-0.5)	<0.1 (<0.1-<0.1)		
Panama	6.2 (4.7-8.1)	5.2 (3.7-7.0)	1.0 (0.7-1.3)	<0.1 (<0.1-<0.1)	6.4 (4.6-8.7)	5.5 (3.8-7.8)	0.9 (0.7-1.1)	<0.1 (<0.1-<0.1)		
Papua New Guinea	9-3 (6-6-12-4)	7.8 (5.5-10.6)	1.5 (0.6-3.2)	<0.1 (<0.1-0.1)	8.6 (5.7-15.3)	6.1 (4.1-8.5)	2.5 (1.0-9.2)	0.1 (<0.1-0.2)		
Paraguay	9-2 (6-6-12-1)	8·3 (5·8-11·3)	0.8 (0.6-1.1)	<0.1 (<0.1-<0.1)	22.5 (17.1-29.2)	15.7 (10.8-21.9)	6.8 (4.5-8.7)	0.2 (0.1-0.3)		
Peru	62-9 (47-8-79-7)	48-9 (34-3-65-7)	14.0 (10.2-18.9)	0.4 (0.3-0.5)	53.8 (37.6-74.9)	44.5 (29.7-62.2)	9.4 (5.5-23.4)	0.3 (0.5-0.7)		
Philippines	157-6 (117-1-204-8)	134-0 (95-5-181-4)	23.5 (17.5-31.5)	0.5 (0.4-0.7)	127-2 (100-1-158-9)	77·1 (53·1-107·2)	50·1 (39·8-62·1)	1.3 (1.0-1.6)		
Poland	69·1 (54·0-86·0)	50.7 (36.2-67.6)	18-4 (15-3-21-6)	0.5 (0.4-0.6)	221-3 (186-9-257-7)	78·7 (53·9-107·5)	142-6 (123-6-164-9)	4.0 (3.5-4.7)		

		Drug use dis	orders burden		DALYS   YLDS   YLLS   Deaths				Alcohol use disorders burden				
Country	DALYs	YLDs	YLLs	Deaths	DALYs	YLDs	YLLs	Deaths					
Portugal	18-3 (14-1-22-6)	14.2 (10.1-18.4)	4.1 (3.4-4.7)	0.1 (0.1-0.2)	16·3 (12·8-20·6)	10.5 (7.1-14.6)	5.8 (5.1-6.6)	0.2 (0.2-0.2)					
Puerto Rico	16.8 (13.2-20.6)	8.9 (6.3-11.7)	7.8 (5.6-10.6)	0.5 (0.1-0.5)	10.2 (8.1-12.7)	6.4 (4.5-8.8)	3.8 (3.2-4.4)	0.1 (0.1-0.1)					
Qatar	10.6 (7.2-14.5)	10.2 (6.8-14.0)	0.4 (0.2-0.9)	<0.1 (<0.1-<0.1)	2.4 (1.7-3.3)	2·1 (1·4-3·0)	0.3 (0.2-0.5)	<0.1 (<0.1-<0.1)					
Romania	36-6 (30-4-43-2)	19.6 (14.1-25.3)	17·1 (14·8-19·5)	0.6 (0.5-0.6)	50.9 (40.7-62.4)	30-4 (20-8-41-6)	20·5 (17·6-23·5)	0.6 (0.5-0.7)					
Russian Federation	1213·2 (910·4- 1543·2)	482.0 (348.1-620.5)	731-3 (493-9-1017-6)	17-9 (12-3-24-5)	*	727-9 (495-4-999-7)	,	31.8 (21.7-44.5)					
Rwanda	12·3 (9·0-16·6)	11.1 (7.8-15.3)	1.2 (0.8-1.6)	<0.1 (<0.1-<0.1)	27·3 (19·6-37·2)	23.6 (15.8-33.1)	3.7 (2.6-5.8)	0.1 (0.1-0.2)					
Saint Lucia	0.3 (0.3-0.4)	0.3 (0.2-0.4)	0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	0.5 (0.4-0.6)	0.3 (0.2-0.4)	0.2 (0.1-0.2)	<0.1 (<0.1-<0.1)					
Saint Vincent and the Grenadines	0.2 (0.2-0.3)	0-2 (0-1-0-2)	<0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	0-4 (0-4-0-5)	0.2 (0.2-0.3)	0.5 (0.5-0.5)	<0.1 (<0.1-<0.1)					
Samoa	0.5 (0.5-0.3)	0.2 (0.1-0.3)	<0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	0.2 (0.1-0.2)	0.1 (0.1-0.2)	<0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)					
Sao Tome and Principe	0.5 (0.5-0.3)	0.2 (0.1-0.2)	<0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	0.3 (0.2-0.4)	0.2 (0.1-0.3)	0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)					
Saudi Arabia	103.6 (75.7-133.3)	92.7 (64.7-122.5)	10.9 (6.5-14.3)	0.2 (0.1-0.3)	22.9 (16.4-31.1)	20·1 (13·6-28·5)	2.8 (1.9-3.5)	0.1 (<0.1-0.1)					
Scotland	36.9 (30.4-43.0)	18.0 (13.1-22.8)	18-9 (15-6-22-9)	0.4 (0.3-0.5)	21.7 (17.8-26.4)	10.5 (7.2-14.5)	11.2 (9.6-13.0)	0.4 (0.3-0.4)					
Senegal	22.0 (16.1-28.3)	16·3 (11·1-22·1)	5.7 (3.2-8.1)	0.1 (0.1-0.2)	18.6 (12.7-25.3)	14.9 (10.2-21.2)	3.7 (1.0-6.6)	0.1 (<0.1-0.2)					
Serbia	12·2 (9·4-15·1)	8-1 (5-8-10-7)	4.1 (2.5-5.1)	0.1 (0.1-0.1)	26.8 (20.8-33.4)	16·2 (11·3-22·5)	10.6 (8.1-14.4)	0.4 (0.3-0.4)					
Seychelles	0.5 (0.5-0.3)	0.2 (0.1-0.2)	0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	0.1 (0.1-0.2)	0.1 (0.1-0.1)	0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)					
Sierra Leone	9.4 (7.0-12.0)	6.9 (4.7-9.4)	2.5 (1.5-3.7)	0.1 (<0.1-0.1)	8-4 (6-2-11-1)	6.5 (4.4-9.1)	1.9 (1.3-3.0)	0.1 (<0.1-0.1)					
Singapore	8·2 (6·0-10·9)	7.7 (5.4-10.3)	0.5 (0.4-0.7)	<0.1 (<0.1-<0.1)	2·1 (1·5-2·9)	1.9 (1.2-2.6)	0.3 (0.5-0.4)	<0.1 (<0.1-<0.1)					
Slovakia	8.6 (6.8-10.8)	6.3 (4.5-8.4)	2·3 (1·8-2·9)	0.1 (<0.1-0.1)	19·1 (14·5-24·6)	13.0 (8.9-18.1)	6.1 (3.9-8.2)	0.5 (0.1-0.5)					
Slovenia	3.8 (3.0-4.7)	2.6 (1.9-3.4)	1.2 (0.9-1.5)	<0.1 (<0.1-<0.1)	9-4 (7-7-11-5)	4-4 (3-0-6-0)	5·1 (4·1-6·1)	0.5 (0.5-0.5)					

		Drug use dis	Alcohol use disorders burden					
Country	DALYs	YLDs	YLLs	Deaths	DALYs	YLDs	YLLs	Deaths
Solomon Islands	0.7 (0.5-1.0)	0.6 (0.4-0.8)	0.1 (0.1-0.3)	<0.1 (<0.1-<0.1)	0.6 (0.4-0.8)	0.4 (0.3-0.6)	0.5 (0.1-0.3)	<0.1 (<0.1-<0.1)
Somalia	9.4 (6.7-12.6)	8.5 (5.8-11.7)	0.9 (0.6-1.4)	<0.1 (<0.1-<0.1)	15·3 (10·7-20·8)	12·3 (8·4-17·4)	2.9 (1.7-4.7)	0.1 (0.1-0.1)
South Africa	151·3 (111·9-225·7)	101.7 (71.9-134.3)	49.6 (33.4-120.0)	1.0 (0.7-2.4)	105.7 (78.3-139.8)	82-8 (57-2-115-1)	22.9 (18.4-39.8)	0.7 (0.6-1.2)
South Korea	104.9 (75.8-137.0)	99-2 (70-1-131-5)	5.7 (3.6-12.0)	0.2 (0.1-0.3)	144-4 (105-7-192-0)	106-9 (71-7-149-1)	37.5 (23.5-62.2)	1.2 (0.7-1.9)
South Sudan	11.6 (8.1-15.5)	10.7 (7.3-14.7)	0.8 (0.4-1.3)	<0.1 (<0.1-<0.1)	18·2 (12·8-24·6)	15-4 (10-5-21-6)	2.8 (1.5-4.7)	0.1 (0.1-0.1)
Spain	111-8 (86-1-137-6)	81·1 (56·8-106·0)	30.7 (25.4-35.2)	0.9 (0.8-1.0)	48·1 (35·8-63·1)	37·1 (25·1-51·9)	11.0 (9.7-12.4)	0.4 (0.4-0.4)
Sri Lanka	29.8 (22.2-38.8)	25·2 (17·9-33·7)	4.6 (3.0-8.6)	0.1 (0.1-0.2)	27·0 (20·0-34·6)	16-2 (11-0-22-5)	10.8 (7.0-15.5)	0.3 (0.2-0.4)
Sudan	103.8 (74.1-137.7)	91.9 (62.8-124.4)	11.9 (6.9-20.2)	0.3 (0.1-0.4)	26·7 (18·5-37·1)	21·3 (14·4-30·0)	5.4 (2.3-11.9)	0.1 (0.1-0.3)
Suriname	1.0 (0.8-1.3)	0.8 (0.5-1.0)	0.5 (0.5-0.3)	<0.1 (<0.1-<0.1)	1.3 (1.0-1.7)	0.9 (0.6-1.3)	0.4 (0.3-0.6)	<0.1 (<0.1-<0.1)
Swaziland	3.7 (2.8-4.7)	2.4 (1.7-3.3)	1·3 (0·7-1·9)	<0.1 (<0.1-<0.1)	2.5 (1.8-3.3)	1.9 (1.3-2.6)	0.6 (0.3-1.0)	<0.1 (<0.1-<0.1)
Sweden	32·6 (27·0-38·4)	16-8 (12-2-21-7)	15·8 (13·1-18·7)	0.4 (0.3-0.4)	24.9 (19.9-30.9)	14-6 (10-0-20-1)	10·3 (8·9-12·0)	0.4 (0.3-0.5)
Switzerland	23.8 (18.6-29.2)	14.0 (10.2-18.2)	9.7 (6.8-13.3)	0.2 (0.2-0.3)	17·3 (13·5-21·8)	10-4 (7-1-14-6)	6.9 (5.2-9.2)	0.3 (0.2-0.3)
Syria	53.0 (38.3-69.6)	46.7 (32.5-62.7)	6.3 (4.8-8.5)	0.1 (0.1-0.2)	10.0 (7.1-13.7)	8-9 (6-0-12-6)	1.1 (0.8-1.6)	<0.1 (<0.1-<0.1)
Taiwan	55.9 (43.2-69.7)	40.2 (28.2-53.1)	15.7 (9.6-20.3)	0.4 (0.3-0.5)	42·4 (31·0-54·9)	29·3 (19·9-40·5)	13·1 (6·3-17·3)	0.3 (0.2-0.4)
Tajikistan	21.0 (16.6-25.8)	13.0 (9.2-17.3)	8.0 (5.8-10.9)	0.2 (0.1-0.2)	21.0 (15.3-27.6)	14-8 (10-0-20-6)	6.3 (3.7-10.0)	0.2 (0.1-0.2)
Tanzania	49-3 (34-9-66-4)	45.0 (30.8-62.0)	4.2 (2.8-6.1)	0.1 (0.1-0.1)	86·6 (64·0-113·9)	67·1 (45·6-93·6)	19·5 (14·1-25·4)	0.6 (0.5-0.8)
Thailand	148-9 (112-7-192-3)	121-2 (85-9-162-6)	27·6 (19·0-35·4)	0.6 (0.5-0.8)	140-5 (110-3-171-5)	61.0 (40.9-84.1)	79·5 (55·5-98·9)	2·1 (1·5-2·6)
The Bahamas	0.8 (0.6-1.0)	0.6 (0.4-0.8)	0.2 (0.1-0.2)	<0.1 (<0.1-<0.1)	1.2 (1.0-1.5)	0.8 (0.5-1.0)	0.5 (0.4-0.6)	<0.1 (<0.1-<0.1)
The Gambia	2.7 (2.0-3.5)	2.0 (1.4-2.7)	0.7 (0.4-1.0)	<0.1 (<0.1-<0.1)	2·2 (1·5-2·9)	1.8 (1.3-2.6)	0.3 (0.2-0.5)	<0.1 (<0.1-<0.1)
Timor-Leste	1.5 (1.1-2.0)	1.3 (0.9-1.8)	0.2 (0.1-0.4)	<0.1 (<0.1-<0.1)	1.1 (0.7-1.5)	0.7 (0.5-1.0)	0.3 (0.1-0.7)	<0.1 (<0.1-<0.1)

		Alcohol use di	sorders burden					
Country	DALYs	YLDs	YLLs	Deaths	DALYs	YLDs	YLLs	Deaths
Togo	12·6 (9·4-16·0)	8·7 (5·9-11·9)	3.8 (2.1-5.2)	0.1 (<0.1-0.1)	10.0 (7.4-13.2)	7.6 (5.2-10.9)	2.4 (1.7-3.5)	0.1 (<0.1-0.1)
Tonga	0.1 (0.1-0.2)	0.1 (0.1-0.1)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)	0.1 (0.1-0.1)	0.1 (0.1-0.1)	<0.1 (<0.1-<0.1)	<0.1 (<0.1-<0.1)
Trinidad and Tobago	2.5 (1.9-3.2)	2·1 (1·5-2·7)	0.5 (0.3-0.6)	<0.1 (<0.1-<0.1)	3·2 (2·4-4·0)	2·3 (1·6-3·1)	0.9 (0.7-1.0)	<0.1 (<0.1-<0.1)
Tunisia	37-7 (27-4-48-5)	33.4 (23.0-44.4)	4.3 (3.0-5.9)	0.1 (0.1-0.1)	8.0 (5.7-10.7)	7.0 (4.7-9.7)	1.0 (0.6-1.5)	<0.1 (<0.1-<0.1)
Turkey	231-7 (162-5-310-2)	216·1 (147·4-295·5)	15·5 (11·8-22·0)	0.4 (0.4-0.6)	76·5 (53·0-104·6)	70-7 (47-1-98-6)	5.9 (3.9-7.9)	0.5 (0.1-0.5)
Turkmenistan	13·3 (10·5-16·2)	8.5 (6.0-11.3)	4.8 (3.4-5.7)	0.1 (0.1-0.1)	16·8 (13·1-21·2)	11·1 (7·6-15·4)	5·7 (4·5-6·8)	0.1 (0.1-0.2)
Uganda	36·5 (26·3-49·4)	31.8 (21.6-44.5)	4.7 (3.3-6.2)	0.1 (0.1-0.1)	50.8 (37.1-69.1)	37.0 (25.1-51.4)	13.8 (8.8-26.5)	0.4 (0.3-0.8)
Ukraine	239·7 (187·9-297·3)	104·8 (73·7-135·8)	134·8 (92·8-185·7)	3.4 (2.4-4.6)	520·2 (375·0-725·1)	203.0 (139.6-277.1)	317·2 (193·1-509·4)	8.6 (5.3-13.8)
United Arab Emirates	51.9 (37.1-67.8)	44.7 (30.3-60.8)	7.2 (4.7-10.4)	0.1 (0.1-0.2)	11·1 (7·9-14·9)	8.6 (5.9-12.2)	2.5 (1.4-4.1)	0.1 (<0.1-0.1)
United States	3807·0 (3147·6- 4439·1)	2323·9 (1661·2- 2934·9)	1483·1 (1401·5- 1549·8)	33.7 (32.2-35.1)	1023·5 (832·8- 1243·2)	633.9 (440.3-852.1)	389-6 (370-3-410-1)	11.6 (11.1-12.1)
Uruguay	7·3 (5·5-9·4)	6.3 (4.5-8.4)	1.0 (0.9-1.1)	<0.1 (<0.1-<0.1)	5.5 (4.5-6.8)	3-2 (2-2-4-5)	2·3 (2·0-2·6)	0.1 (0.1-0.1)
Uzbekistan	61·5 (48·3-76·6)	43.9 (31.1-58.8)	17.5 (14.3-21.0)	0.4 (0.3-0.4)	59-9 (43-4-79-6)	50.6 (34.3-70.5)	9-3 (7-7-11-1)	0.2 (0.2-0.3)
Vanuatu	0.3 (0.5-0.4)	0.3 (0.2-0.4)	0.1 (<0.1-0.1)	<0.1 (<0.1-<0.1)	0.3 (0.2-0.4)	0.2 (0.1-0.3)	0.1 (0.1-0.2)	<0.1 (<0.1-<0.1)
Venezuela	53·4 (39·9-69·4)	43·1 (29·8-58·5)	10.3 (7.1-14.8)	0.2 (0.2-0.3)	48·6 (34·0-66·4)	44-4 (29-7-62-0)	4.2 (3.1-5.8)	0.1 (0.1-0.2)
Vietnam	198-9 (145-3-257-8)	144-6 (102-7-194-6)	54·2 (24·3-81·9)	1.2 (0.6-1.6)	191.4 (138.3-257.1)	156-2 (103-9-217-8)	35.2 (21.6-49.3)	0.9 (0.6-1.3)
Virgin Islands, U·S·	0.3 (0.5-0.3)	0.2 (0.1-0.2)	0.1 (0.1-0.1)	<0.1 (<0.1-<0.1)	0.5 (0.4-0.6)	0.2 (0.1-0.3)	0.3 (0.2-0.4)	<0.1 (<0.1-<0.1)
Wales	15·3 (12·3-18·1)	9.0 (6.4-11.5)	6.3 (5.1-7.6)	0.1 (0.1-0.2)	5.6 (4.3-7.1)	3.9 (2.6-5.4)	1.7 (1.5-2.0)	0.1 (<0.1-0.1)
Yemen	72·7 (52·2-96·7)	64·1 (44·1-87·7)	8.6 (5.3-15.0)	0.2 (0.1-0.3)	16.8 (11.9-22.5)	14·3 (9·8-20·2)	2.5 (1.5-4.1)	0.1 (<0.1-0.1)
Zambia	15.7 (11.2-21.0)	14.0 (9.6-19.3)	1.7 (1.1-2.4)	<0.1 (<0.1-<0.1)	29.4 (22.1-38.6)	21.7 (14.8-30.2)	7.7 (5.1-10.9)	0.2 (0.2-0.3)
Zimbabwe	39.8 (30.5-49.6)	25·9 (17·6-34·6)	13-9 (10-2-18-5)	0.3 (0.2-0.4)	30·5 (22·3-40·3)	21.8 (14.6-30.3)	8-7 (4-9-12-3)	0.3 (0.1-0.4)

Data in parentheses are 95% uncertainty intervals; Data are in thousands for all ages.

Table A6: Uncertainty intervals around global burden attributable to alcohol use by outcome, measured via DALYs, deaths, YLLs and YLDs, 2016

	DALYs		Deaths		YLLs		YLDs	
Cause	Number (in 1000s)	ASR (per 100,000)	Number (in 1000s)	ASR (per 100,000)	Number (in 1000s)	ASR (per 100,000)	Number (in 1000s)	ASR (per 100,000)
All causes	99204·9 (88310·4- 111168·3)	1352·0 (1198·4- 1521·4)	2814·6 (2371·2- 3292·7)	40·4 (33·7-47·8)	81959·3 (73271·7- 91558·3)	1120·1 (995·8-1255·0)	17245-6 (12120-3-22858-3)	231-9 (163-0-307-2)
Communicable, maternal, neonatal, and nutritional diseases	12868-9 (10148-8-15512-3)	174-6 (137-4-210-7)	394·1 (296·3-489·0)	5.6 (4.2-7.1)	12156-2 (9562-1-14659-0)	164-9 (129-7-199-0)	712·7 (459·6-1016·1)	9.7 (6.3-13.8)
HIV/AIDS and tuberculosis	10169-5 (7909-1-12435-4)	136.8 (106.6-167.7)	280·5 (213·6-350·6)	3.9 (3.0-4.9)	9479-7 (7386-6-11667-7)	127-4 (99-1-157-6)	689-8 (440-9-988-4)	9-4 (6-0-13-5)
Tuberculosis	10169·5 (7909·1-12435·4)	136.8 (106.6-167.7)	280·5 (213·6-350·6)	3.9 (3.0-4.9)	9479-7 (7386-6-11667-7)	127-4 (99-1-157-6)	689-8 (440-9-988-4)	9-4 (6-0-13-5)
Diarrhea, lower respiratory, and other common infectious diseases	2699·4 (1437·6-3944·7)	37·8 (19·5-55·5)	113-6 (47-4-175-3)	1.7 (0.7-2.7)	2676·5 (1425·5-3912·9)	37·5 (19·3-55·2)	22-9 (10-9-37-2)	0.3 (0.2-0.5)
Lower respiratory infections	2699-4 (1437-6-3944-7)	37·8 (19·5-55·5)	113-6 (47-4-175-3)	1.7 (0.7-2.7)	2676·5 (1425·5-3912·9)	37·5 (19·3-55·2)	22.9 (10.9-37.2)	0.3 (0.2-0.5)
Non-communicable diseases	65381·3 (57365·5-74084·9)	900-4 (785-3-1029-4)	1982·3 (1629·1- 2367·0)	28·9 (23·3-34·9)	51421·6 (44973·0- 58187·3)	713·3 (619·9-811·4)	13959-8 (9694-7-18813-7)	187·1 (129·8-251·6)
Neoplasms	14750·5 (13472·7-16084·8)	207·8 (189·7-226·3)	606·5 (550·6-665·4)	9.0 (8.1-9.8)	14374·6 (13134·9- 15642·1)	202·3 (185·0-220·7)	375·9 (276·3-495·0)	5-4 (4-0-7-2)
Esophageal cancer	3052.6 (2475.2-3672.4)	43.3 (35.0-52.2)	130.6 (104.9-157.8)	1.9 (1.5-2.3)	3017-9 (2444-0-3628-3)	42.8 (34.7-51.6)	34.7 (23.5-48.0)	0.5 (0.3-0.7)
Liver cancer	2924·5 (2462·2-3399·5)	41.8 (35.4-48.4)	129·2 (109·7-150·4)	1.9 (1.6-2.2)	2890-9 (2437-2-3360-0)	41.3 (34.9-47.9)	33.6 (23.4-45.5)	0.5 (0.3-0.7)
Liver cancer due to alcohol use	2924·5 (2462·2-3399·5)	41.8 (35.4-48.4)	129·2 (109·7-150·4)	1.9 (1.6-2.2)	2890-9 (2437-2-3360-0)	41.3 (34.9-47.9)	33.6 (23.4-45.5)	0.5 (0.3-0.7)
Larynx cancer	764-4 (497-3-976-4)	10.7 (7.0-13.7)	29.8 (19.3-38.6)	0.4 (0.3-0.6)	741.5 (482.1-946.6)	10-4 (6-8-13-2)	22.8 (13.2-33.0)	0.3 (0.2-0.5)
Breast cancer	1565-9 (1245-7-1961-0)	21.8 (17.4-27.1)	59-2 (47-4-72-5)	0.9 (0.7-1.1)	1470-7 (1170-1-1851-5)	20.4 (16.3-25.6)	95·2 (65·5-135·1)	1.4 (0.9-1.9)
Colon and rectum cancer	2544-9 (2029-3-3047-1)	36.6 (29.1-43.8)	116.8 (92.1-141.8)	1.8 (1.4-2.2)	2452·2 (1962·1-2941·4)	35-2 (28-1-42-2)	92.7 (63.6-125.4)	1.4 (0.9-1.9)
Lip and oral cavity cancer	1769-4 (1482-5-2028-8)	24.5 (20.5-28.2)	66-2 (54-7-77-0)	1.0 (0.8-1.1)	1715-9 (1433-0-1967-3)	23.7 (19.8-27.2)	53·5 (37·3-72·8)	0.8 (0.5-1.0)
Nasopharynx cancer	843.7 (766.1-922.5)	11.5 (10.4-12.6)	28-4 (25-6-31-2)	0.4 (0.4-0.4)	826·1 (751·1-902·7)	11.2 (10.2-12.3)	17·5 (12·4-23·7)	0.2 (0.2-0.3)
Other pharynx cancer	1285·1 (1045·9-1530·2)	17.7 (14.3-21.0)	46-3 (37-3-55-4)	0.7 (0.5-0.8)	1259-3 (1021-7-1498-3)	17-3 (14-0-20-6)	25·8 (17·8-35·3)	0.4 (0.2-0.5)
Cardiovascular diseases	20833.0 (14936.0-27060.5)	293·9 (206·2-387·8)	797-9 (489-6-1130-6)	11·8 (6·8-17·0)	18975·8 (13272·7- 24900·3)	266·8 (184·3-352·0)	1857-3 (1180-7-2637-5)	27·1 (17·1-39·1)
Ischemic heart disease	1084-0 (-3136-9-5557-0)	12·2 (-49·2-77·8)	-24·2 (-241·5-206·2)	-0·7 (-4·0-2·9)	1076.6 (-3005.8-5393.0)	12·2 (-46·9-75·5)	7-4 (-160-5-190-7)	-0.0 (-2.5-2.7)
Cardiomyopathy and myocarditis	2590·3 (2055·1-3239·6)	35·2 (28·0-43·8)	83·3 (67·2-102·9)	1.2 (1.0-1.4)	2493·5 (1966·7-3150·8)	33.8 (26.7-42.5)	96·8 (65·5-137·9)	1.4 (0.9-1.9)
Ischemic stroke	2931-0 (1519-9-4397-6)	43·1 (22·1-65·4)	124-2 (55-7-200-8)	1.9 (0.8-3.2)	2297·7 (1214·4-3412·2)	33.9 (17.9-50.9)	633-2 (270-0-1054-2)	9-2 (3-8-15-4)
Hypertensive heart disease	2547·3 (1757·7-3394·8)	37.4 (25.7-50.1)	131.9 (86.8-177.0)	2·1 (1·4-2·8)	2337·8 (1598·2-3101·5)	34-3 (23-4-45-6)	209.5 (129.5-317.5)	3.1 (1.9-4.7)
Atrial fibrillation and flutter	722-9 (496-2-1010-0)	11.2 (7.6-15.6)	25.0 (16.9-35.5)	0.4 (0.3-0.6)	260.6 (182.1-350.0)	4-2 (2-9-5-6)	462·2 (291·6-695·9)	7.0 (4.4-10.5)
Cirrhosis and other chronic liver diseases	9748·7 (8868·5-10855·8)	133·4 (121·5-148·2)	334·7 (306·3-371·7)	4·8 (4·4-5·3)	9435·2 (8596·4-10517·8)	129·1 (117·6-143·6)	313·5 (219·4-430·7)	4·4 (3·1-6·0)
Cirrhosis and other chronic liver diseases due to alcohol use	9748-7 (8868-5-10855-8)	133-4 (121-5-148-2)	334-7 (306-3-371-7)	4.8 (4.4-5.3)	9435-2 (8596-4-10517-8)	129·1 (117·6-143·6)	313·5 (219·4-430·7)	4-4 (3-1-6-0)
Digestive diseases	1196·6 (955·0-1487·1)	16·2 (12·9-20·1)	37·3 (28·8-47·0)	0.5 (0.4-0.7)	1174.8 (932.6-1461.9)	15·9 (12·7-19·8)	21.8 (13.6-32.7)	0-3 (0-2-0-5)
Pancreatitis	1196·6 (955·0-1487·1)	16-2 (12-9-20-1)	37·3 (28·8-47·0)	0.5 (0.4-0.7)	1174-8 (932-6-1461-9)	15.9 (12.7-19.8)	21.8 (13.6-32.7)	0.3 (0.2-0.5)
Neurological disorders	1903·2 (1362·8-2511·4)	25·5 (18·2-33·6)	22.0 (16.7-27.5)	0·3 (0·2-0·4)	876-7 (658-3-1096-3)	11-6 (8-7-14-5)	1026-5 (636-2-1496-1)	13.8 (8.5-20.2)
Epilepsy	1903-2 (1362-8-2511-4)	25.5 (18.2-33.6)	22.0 (16.7-27.5)	0.3 (0.2-0.4)	876-7 (658-3-1096-3)	11.6 (8.7-14.5)	1026-5 (636-2-1496-1)	13.8 (8.5-20.2)
Mental and substance use disorders	16237·2 (12996·8-19945·8)	214·3 (171·9-262·8)	173·8 (145·5-190·8)	2·4 (2·0-2·6)	6211-8 (5161-8-6875-2)	82·6 (68·6-91·3)	10025-4 (6878-8-13779-5)	131-8 (90-6-180-8)
Alcohol use disorders	16237-2 (12996-8-19945-8)	214-3 (171-9-262-8)	173·8 (145·5-190·8)	2.4 (2.0-2.6)	6211-8 (5161-8-6875-2)	82.6 (68.6-91.3)	10025-4 (6878-8-13779-5)	131.8 (90.6-180.8)

	DALYs		Deaths		YLLs		YLDs	
Cause	Number (in 1000s)	ASR (per 100,000)						

Diabetes, urogenital, blood, and endocrine diseases	712·2 (-881·2-2352·0)	9·3 (-13·2-32·5)	10·1 (-24·4-45·2)	0·1 (-0·4-0·7)	372·8 (-343·2-1112·3)	5.0 (-5.6-15.5)	339·4 (-520·4-1260·0)	4·3 (-7·6-17·1)
Diabetes mellitus	712-2 (-881-2-2352-0)	9-3 (-13-2-32-5)	10·1 (-24·4-45·2)	0.1 (-0.4-0.7)	372.8 (-343.2-1112.3)	5.0 (-5.6-15.5)	339-4 (-520-4-1260-0)	4·3 (-7·6-17·1)
Injuries	20954-6 (15921-2-26296-4)	277-1 (210-2-348-5)	438·3 (332·4-551·5)	5·9 (4·5-7·4)	18381·5 (14006·2- 22750·6)	241-9 (184-7-299-6)	2573·1 (1532·6-4011·2)	35·1 (21·0-54·7)
Transport injuries	9294·3 (5442·5-13873·1)	123·3 (72·1-183·9)	182-2 (104-7-271-3)	2.5 (1.4-3.7)	7611-9 (4436-5-11382-2)	100-2 (58-4-150-0)	1682·4 (880·0-2843·0)	23.0 (12.1-38.9)
Road injuries	8577-2 (5022-8-12835-8)	113.7 (66.5-169.8)	170-3 (97-9-253-1)	2·3 (1·3-3·4)	7118-2 (4145-1-10648-4)	93.7 (54.5-140.3)	1459-0 (761-4-2446-5)	20.0 (10.5-33.5)
Pedestrian road injuries	2791.7 (1612.7-4240.5)	37-2 (21-6-56-6)	66-2 (38-3-99-8)	0.9 (0.5-1.4)	2485·5 (1431·1-3752·2)	33.0 (19.1-49.9)	306·3 (160·5-517·3)	4-2 (2-2-7-1)
Cyclist road injuries	647·1 (367·8-990·1)	8.7 (4.9-13.3)	10·1 (5·8-15·0)	0.1 (0.1-0.2)	371-2 (213-5-558-8)	4.9 (2.8-7.4)	275-9 (145-4-463-2)	3.8 (2.0-6.4)
Motorcyclist road injuries	1857-7 (1065-7-2828-5)	24-4 (14-0-37-1)	32-4 (18-5-49-4)	0.4 (0.2-0.6)	1522-0 (873-7-2343-1)	19.8 (11.4-30.5)	335.7 (173.5-573.1)	4.6 (2.4-7.8)
Motor vehicle road injuries	3120.5 (1833.4-4562.3)	41.2 (24.3-60.3)	60.0 (34.5-88.4)	0.8 (0.5-1.2)	2675-4 (1558-9-3974-1)	35·1 (20·4-52·1)	445.1 (238.4-738.5)	6·1 (3·3-10·1)
Other road injuries	160-2 (89-4-251-2)	2.2 (1.2-3.4)	1.6 (0.9-2.5)	<0.1 (<0.1-<0.1)	64-1 (37-1-98-3)	0.8 (0.5-1.3)	96.0 (48.7-163.0)	1·3 (0·7-2·2)
Other transport injuries	717·1 (414·6-1080·9)	9.5 (5.5-14.4)	11.9 (7.0-17.7)	0.2 (0.1-0.2)	493.8 (287.7-738.3)	6.5 (3.8-9.7)	223-3 (117-1-381-7)	3.0 (1.6-5.2)
Unintentional injuries	1824-2 (806-9-3022-4)	24·4 (10·8-40·4)	33.9 (14.9-55.1)	0.5 (0.2-0.8)	1339-3 (578-9-2160-6)	17·7 (7·6-28·5)	485.0 (198.6-880.8)	6.6 (2.7-12.0)
Drowning	632·3 (274·7-1023·8)	8-4 (3-7-13-6)	15·2 (6·7-24·7)	0.2 (0.1-0.3)	618·3 (270·0-1001·6)	8-2 (3-6-13-2)	14.0 (5.8-25.8)	0.2 (0.1-0.4)
Fire, heat, and hot substances	386-4 (172-7-635-9)	5-2 (2-3-8-6)	7.0 (3.2-11.4)	0.1 (<0.1-0.2)	226.6 (101.5-364.3)	3.1 (1.4-4.9)	159-8 (63-9-295-3)	2·2 (0·9-4·0)
Poisonings	150-1 (67-3-244-4)	2.0 (0.9-3.2)	3.4 (1.5-5.5)	<0.1 (<0.1-0.1)	129-3 (56-8-211-1)	1.7 (0.8-2.8)	20.7 (8.6-39.1)	0.3 (0.1-0.5)
Exposure to mechanical forces	87.0 (38.4-146.5)	1.1 (0.5-1.9)	1.6 (0.7-2.7)	<0.1 (<0.1-<0.1)	70.0 (31.1-119.7)	0.9 (0.4-1.6)	16.9 (6.6-32.3)	0.2 (0.1-0.4)
Unintentional firearm injuries	87.0 (38.4-146.5)	1.1 (0.5-1.9)	1.6 (0.7-2.7)	<0.1 (<0.1-<0.1)	70.0 (31.1-119.7)	0.9 (0.4-1.6)	16.9 (6.6-32.3)	0.2 (0.1-0.4)
Other unintentional injuries	568-5 (246-3-967-3)	7.6 (3.3-13.0)	6.8 (2.9-11.1)	0.1 (<0.1-0.1)	295.0 (123.7-482.4)	3.9 (1.6-6.3)	273·5 (113·3-504·1)	3.8 (1.6-6.9)
Self-harm and interpersonal violence	9836·1 (6944·0-12764·0)	129·5 (91·3-168·3)	222·1 (153·6-291·8)	3·0 (2·1-3·9)	9430·3 (6634·5-12259·7)	124-0 (87-0-161-5)	405·8 (237·3-646·3)	5·5 (3·2-8·8)
Self-harm	6499·1 (3868·4-9041·5)	85-8 (51-3-119-4)	160-7 (96-1-223-6)	2.2 (1.3-3.0)	6406·5 (3808·1-8903·6)	84.6 (50.5-117.7)	92.6 (44.4-159.5)	1.3 (0.6-2.2)
Interpersonal violence	3337.0 (1991.3-4892.8)	43.6 (26.0-63.7)	61.5 (35.9-90.9)	0.8 (0.5-1.2)	3023-8 (1780-7-4450-6)	39.4 (23.2-58.0)	313-2 (172-9-513-7)	4-2 (2-3-6-9)

Table A7: Uncertainty intervals around global burden attributable to illicit drug use by outcome, measured via DALYs, deaths, YLLs and YLDs, 2016

	DALYS		Deaths		YLLs		YLDs	
Cause	Number (in 1000s)	ASR (per 100,000)	Number (in 1000s)	ASR (per 100,000)	Number (in 1000s)	ASR (per 100,000)	Number (in 1000s)	ASR (per 100,000)
All causes	31836·3 (27445·9-36580·0)	421.0 (363.7-483.1)	451-8 (420-4-486-8)	6.2 (5.8-6.7)	16782-3 (15548-5-18171-2)	223·1 (206·5-241·5)	15053-9 (10807-9-19567-3)	197-9 (142-2-257-3)
Communicable, maternal, neonatal, and nutritional diseases	3223-6 (2615-6-3966-7)	42·1 (34·2-51·9)	64·6 (53·0-78·4)	0.8 (0.7-1.0)	2973·2 (2429·7-3645·3)	38·8 (31·7-47·6)	250-4 (149-8-414-0)	3·3 (2·0-5·4)
HIV/AIDS and tuberculosis	3193.8 (2587.9-3939.1)	41.7 (33.8-51.5)	63·8 (52·2-77·7)	0.8 (0.7-1.0)	2944-6 (2400-8-3611-2)	38·5 (31·3-47·2)	249-2 (149-0-412-9)	3·3 (2·0-5·4)
HIV/AIDS	3193.8 (2587.9-3939.1)	41.7 (33.8-51.5)	63.8 (52.2-77.7)	0.8 (0.7-1.0)	2944-6 (2400-8-3611-2)	38·5 (31·3-47·2)	249-2 (149-0-412-9)	3·3 (2·0-5·4)
HIV/AIDS resulting in other diseases	2670·8 (2142·4-3303·7)	34.9 (28.0-43.3)	53·2 (43·0-65·7)	0.7 (0.6-0.9)	2460·8 (1978·9-3057·3)	32·1 (25·9-39·9)	210·0 (119·6-366·2)	2.8 (1.6-4.8)
Other communicable, maternal, neonatal, and nutritional diseases	29·8 (23·6-37·6)	0-4 (0-3-0-5)	0.8 (0.6-1.0)	<0.1 (<0.1-<0.1)	28·6 (22·7-36·3)	0-4 (0-3-0-5)	1.2 (0.7-2.0)	<0.1 (<0.1-<0.1)
Hepatitis	29-8 (23-6-37-6)	0.4 (0.3-0.5)	0.8 (0.6-1.0)	<0.1 (<0.1-<0.1)	28.6 (22.7-36.3)	0.4 (0.3-0.5)	1.2 (0.7-2.0)	<0.1 (<0.1-<0.1)
Hepatitis B	11.5 (8.9-14.7)	0.2 (0.1-0.2)	0.3 (0.2-0.4)	<0.1 (<0.1-<0.1)	11·1 (8·5-14·2)	0.1 (0.1-0.2)	0.4 (0.3-0.7)	<0.1 (<0.1-<0.1)
Hepatitis C	18·2 (13·8-23·8)	0.2 (0.2-0.3)	0.5 (0.4-0.6)	<0.1 (<0.1-<0.1)	17.5 (13.3-23.0)	0.2 (0.2-0.3)	0.7 (0.4-1.5)	<0.1 (<0.1-<0.1)
Non-communicable diseases	26806-4 (22556-6-31216-4)	355-3 (299-6-412-9)	349-9 (325-2-377-4)	4.9 (4.5-5.2)	12025-7 (11133-8-13050-2)	161-0 (149-3-174-5)	14780-7 (10582-8-19263-5)	194-3 (139-4-252-9)
Neoplasms	1636·6 (1436·2-1850·9)	22·8 (20·1-25·8)	65·0 (56·9-73·5)	0.9 (0.8-1.1)	1617·5 (1418·1-1829·4)	22.6 (19.8-25.5)	19·1 (13·5-25·8)	0·3 (0·2-0·4)
Liver cancer	1636-6 (1436-2-1850-9)	22.8 (20.1-25.8)	65.0 (56.9-73.5)	0.9 (0.8-1.1)	1617·5 (1418·1-1829·4)	22.6 (19.8-25.5)	19·1 (13·5-25·8)	0.3 (0.2-0.4)
Liver cancer due to hepatitis B	78·1 (59·6-101·5)	1.1 (0.8-1.4)	2.6 (2.0-3.3)	<0.1 (<0.1-<0.1)	77-2 (58-8-100-3)	1.0 (0.8-1.4)	0.8 (0.5-1.2)	<0.1 (<0.1-<0.1)
Liver cancer due to hepatitis C	1558·5 (1357·8-1774·2)	21.8 (19.0-24.8)	62·5 (54·8-70·8)	0.9 (0.8-1.0)	1540·3 (1341·2-1750·8)	21.5 (18.8-24.5)	18·3 (12·8-24·7)	0.3 (0.2-0.4)
Cirrhosis and other chronic liver diseases	4784·9 (4195·0-5494·0)	64-2 (56-4-73-4)	141·2 (124·3-160·3)	1.9 (1.7-2.2)	4622·0 (4053·2-5304·8)	62·0 (54·4-71·0)	162-9 (109-4-226-1)	2·2 (1·5-3·1)
Cirrhosis and other chronic liver diseases due to hepatitis B	82·8 (61·0-109·0)	1·1 (0·8-1·5)	2·4 (1·8-3·2)	<0.1 (<0.1-<0.1)	80·1 (58·8-105·4)	1·1 (0·8-1·4)	2.7 (1.7-4.1)	<0.1 (<0.1-0.1)
Cirrhosis and other chronic liver diseases due to hepatitis C	4702·2 (4121·5-5404·7)	63·1 (55·4-72·4)	138-7 (122-4-157-7)	1.9 (1.7-2.2)	4542.0 (3980.8-5227.7)	60.9 (53.5-69.9)	160-2 (107-5-222-3)	2·2 (1·5-3·0)
Mental and substance use disorders	20384-8 (16197-5-24659-0)	268-3 (213-4-323-8)	143.7 (130.2-158.7)	2.0 (1.8-2.2)	5786·1 (5263·4-6425·4)	76·5 (69·6-84·9)	14598·7 (10458·9-19034·2)	191.8 (137.5-249.7)
Drug use disorders	20384-8 (16197-5-24659-0)	268-3 (213-4-323-8)	143.7 (130.2-158.7)	2.0 (1.8-2.2)	5786·1 (5263·4-6425·4)	76.5 (69.6-84.9)	14598·7 (10458·9-19034·2)	191-8 (137-5-249-7)
Opioid use disorders	14782-0 (11375-4-18250-9)	194-2 (149-7-239-5)	86·2 (72·7-94·7)	1.2 (1.0-1.3)	3656·1 (3097·5-4047·6)	48·1 (40·8-53·3)	11125-8 (7720-9-14568-7)	146·1 (101·5-191·1)
Cocaine use disorders	1153-6 (846-8-1511-3)	15·3 (11·2-20·0)	8.8 (7.1-11.3)	0.1 (0.1-0.2)	356-9 (288-9-463-8)	4.7 (3.8-6.1)	796-7 (501-0-1140-1)	10.6 (6.6-15.1)
Amphetamine use disorders	881-4 (599-3-1242-6)	11.5 (7.8-16.2)	5·2 (4·3-6·9)	0.1 (0.1-0.1)	224-2 (185-2-300-3)	2.9 (2.4-3.9)	657-2 (385-5-1037-5)	8.6 (5.0-13.6)
Cannabis use disorders	646-5 (400-6-944-9)	8·5 (5·2-12·4)	NA (NA-NA)	NA (NA-NA)	NA (NA-NA)	NA (NA-NA)	646·5 (400·6-944·9)	8.5 (5.2-12.4)
Other drug use disorders	2921-4 (2424-3-3503-0)	38.8 (32.3-46.4)	43.5 (39.4-52.9)	0.6 (0.6-0.7)	1548-9 (1395-3-1961-2)	20.7 (18.7-26.0)	1372-5 (918-4-1910-8)	18·1 (12·1-25·2)
Injuries	1806-2 (1221-2-2586-3)	23.6 (15.9-33.8)	37·3 (25·4-53·0)	0.5 (0.3-0.7)	1783·4 (1208·7-2560·3)	23·3 (15·8-33·4)	22.8 (12.5-38.1)	0-3 (0-2-0-5)
Self-harm and interpersonal violence	1806-2 (1221-2-2586-3)	23.6 (15.9-33.8)	37·3 (25·4-53·0)	0.5 (0.3-0.7)	1783-4 (1208-7-2560-3)	23·3 (15·8-33·4)	22-8 (12-5-38-1)	0·3 (0·2-0·5)
Self-harm	1806-2 (1221-2-2586-3)	23.6 (15.9-33.8)	37·3 (25·4-53·0)	0.5 (0.3-0.7)	1783-4 (1208-7-2560-3)	23·3 (15·8-33·4)	22.8 (12.5-38.1)	0.3 (0.2-0.5)

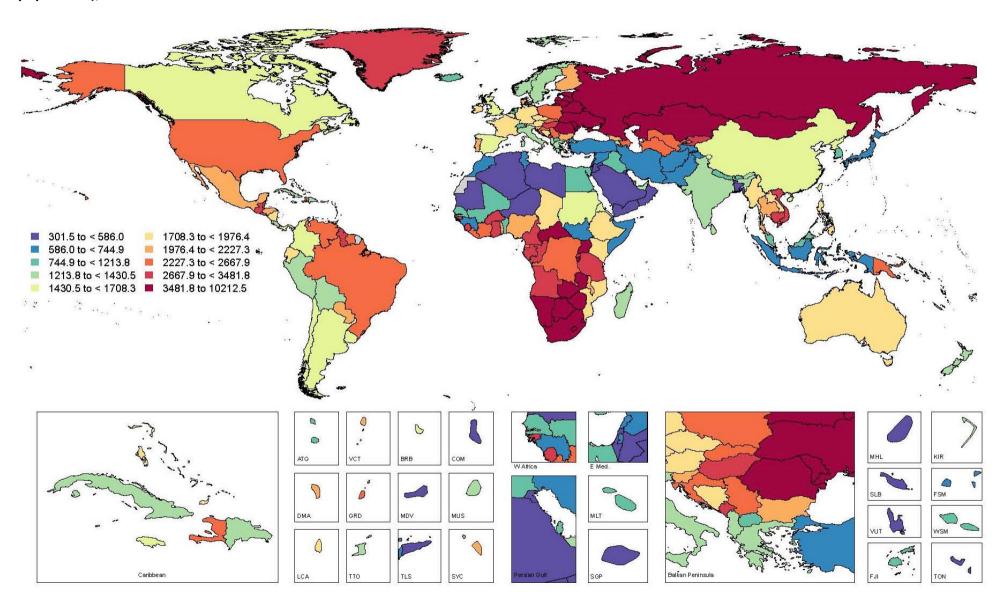
Table A8: Number and age-standardised rate (per 100,000) of DALYs, deaths, YLLs and YLDs attributable to alcohol use by region, 2016

	DALYs		Deaths		YLLs		YLDs	
Location	Number (in 1000s)	ASR (per 100,000)	Number (in 1000s)	ASR (per 100,000)	Number (in 1000s)	ASR (per 100,000)	Number (in 1000s)	ASR (per 100,000)
Andean Latin America	595-4 (482-9-727-2)	1115-9 (897-5-1372-3)	15.0 (11.2-19.3)	31·3 (22·9-41·1)	465-9 (371-9-581-3)	888-3 (700-7-1118-2)	129-4 (89-1-180-1)	227-6 (157-3-315-4)
Australasia	346·3 (265·5-435·2)	1017-0 (799-8-1253-6)	9-4 (5-4-13-8)	25-4 (16-3-35-1)	262·5 (199·8-329·0)	759-0 (589-6-937-3)	83·8 (55·8-116·2)	258-0 (176-0-351-1)
Caribbean	620-4 (509-4-744-9)	1348-0 (1105-6-1617-3)	16.6 (12.4-21.4)	36·7 (27·4-47·6)	509·1 (413·5-614·3)	1107-4 (895-4-1341-3)	111-2 (77-2-151-0)	240.6 (167.0-325.6)
Central Asia	1780-3 (1402-8-2195-7)	2151-6 (1632-1-2745-4)	43.8 (28.8-62.1)	59·4 (33·7-92·6)	1489.0 (1145.0-1877.1)	1816-3 (1337-9-2381-1)	291-4 (205-4-394-5)	335-3 (236-1-455-0)
Central Europe	3576·7 (2697·8-4466·8)	2229.6 (1713.1-2745.0)	130-5 (85-4-177-6)	73·3 (49·5-98·2)	3009·3 (2230·1-3803·9)	1845-5 (1394-1-2290-3)	567-4 (367-6-776-5)	384-1 (255-2-526-9)
Central Latin America	3789·5 (3293·4-4370·2)	1596.0 (1372.6-1843.3)	94·8 (79·7-110·8)	44.8 (37.2-53.3)	3108·3 (2676·7-3565·8)	1319-9 (1138-9-1510-1)	681·2 (463·2-935·7)	276-1 (186-7-380-9)
Central Sub-Saharan Africa	1849-9 (1246-9-2585-7)	2733-4 (1738-6-3961-7)	46·3 (28·2-69·0)	86-2 (47-4-137-7)	1659-6 (1097-8-2377-5)	2510-9 (1550-0-3721-9)	190-3 (126-9-263-2)	222-5 (143-8-316-5)
East Asia	22213·1 (19192·0-25298·4)	1295-8 (1115-8-1485-4)	730-5 (609-0-857-3)	45·9 (37·5-54·6)	18406-4 (15822-3-21040-7)	1071.5 (912.0-1228.5)	3806·7 (2670·6-5094·2)	224-3 (157-4-300-8)
Eastern Europe	12349·8 (9271·6-16063·8)	4730-9 (3591-3-6104-9)	331·3 (232·7-459·7)	118-9 (84-1-163-4)	10744-6 (7747-2-14297-2)	4091.5 (2957.0-5385.7)	1605·2 (1134·7-2164·4)	639·5 (455·3-862·7)
Eastern Sub-Saharan Africa	4687·4 (3827·3-5571·1)	2010-6 (1582-4-2467-0)	111·5 (85·1-140·0)	62·7 (45·1-82·5)	3980·1 (3190·5-4843·7)	1775-5 (1373-8-2212-2)	707·3 (481·3-956·7)	235-1 (161-3-317-3)
High-income Asia Pacific	1144·8 (708·4-1599·0)	534-4 (364-5-713-8)	29·1 (9·3-51·4)	11.6 (6.0-17.5)	936-8 (567-9-1311-4)	412.1 (261.1-563.3)	208·0 (95·6-342·8)	122-4 (71-9-177-8)
High-income North America	4588·4 (3472·1-5788·8)	1139-3 (874-3-1414-8)	98·1 (61·3-142·1)	22.5 (15.4-31.0)	3484·3 (2614·8-4469·7)	852-4 (651-4-1076-6)	1104.0 (727.6-1567.3)	286-8 (193-4-399-5)
North Africa and Middle East	1311-8 (1055-6-1625-3)	264-6 (204-8-342-2)	27·3 (19·1-37·1)	6.9 (4.5-10.2)	885-4 (686-4-1118-1)	189-5 (139-1-246-5)	426-4 (291-2-594-1)	75·1 (50·4-105·0)
Oceania	159.0 (95.3-229.6)	1706-4 (941-4-2599-4)	3.5 (1.8-5.6)	45·2 (18·7-79·9)	142-4 (82-4-209-4)	1535-6 (826-0-2394-3)	16.6 (10.2-23.6)	170.8 (98.7-253.3)
South Asia	14501-1 (12413-8-16876-2)	967-0 (810-3-1135-3)	350-4 (277-9-423-1)	26.9 (20.5-33.4)	11630-2 (9665-9-13646-2)	789-5 (645-0-935-6)	2870-9 (2017-4-3869-3)	177-6 (123-9-239-2)
Southeast Asia	7575.6 (6499.4-8644.9)	1255-7 (1072-4-1439-0)	224.8 (188.7-261.9)	44.7 (36.0-53.5)	6473·8 (5570·5-7393·5)	1081-8 (923-8-1242-3)	1101-8 (772-1-1485-2)	173-9 (122-5-235-6)
Southern Latin America	792-2 (549-1-1059-1)	1159.8 (819.5-1540.8)	20·4 (9·9-33·5)	28·8 (14·9-46·2)	613·0 (408·7-841·2)	894-7 (602-0-1217-1)	179-2 (116-5-255-1)	265-1 (172-7-376-6)
Southern Sub-Saharan Africa	2054-4 (1710-3-2409-4)	3178.8 (2599.8-3759.5)	50.6 (40.3-60.9)	94.0 (71.2-116.5)	1827-2 (1515-2-2155-2)	2856-6 (2327-1-3387-6)	227-2 (157-2-309-3)	322-2 (218-0-442-5)
Tropical Latin America	12433·3 (10547·1-14476·7)	2075-5 (1701-3-2495-9)	303·8 (245·5-370·0)	65-9 (49-5-85-4)	10714-7 (9036-7-12669-1)	1844-7 (1507-5-2232-7)	1718-7 (1184-8-2324-7)	230-8 (160-0-311-8)
Western Europe	4347.6 (3601.0-5101.9)	1921-8 (1578-9-2267-7)	99-6 (77-0-122-3)	47·3 (35·6-59·3)	3490·1 (2854·1-4139·1)	1549-5 (1246-5-1846-3)	857-4 (601-6-1154-0)	372-3 (260-2-502-5)
Western Sub-Saharan Africa	7079-6 (5951-2-8252-9)	1166-0 (997-1-1346-1)	285-9 (213-6-361-3)	37-9 (30-4-45-8)	5593·4 (4712·7-6497·7)	894-2 (769-0-1017-4)	1486·1 (1032·7-2008·0)	271.8 (192.5-364.8)
Global	99204-9 (88310-4-111168-3)	1352-0 (1198-4-1521-4)	2814-6 (2371-2-3292-7)	40-4 (33-7-47-8)	81959-3 (73271-7-91558-3)	1120-1 (995-8-1255-0)	17245-6 (12120-3-22858-3)	231-9 (163-0-307-2)

Table A9: Number and age-standardised rate (per 100,000) of DALYs, deaths, YLLs and YLDs attributable to drug use by region, 2016

	DALYs		Deaths		YLLs			YLDs
Location	Number (in 1000s)	ASR (per 100,000)	Number (in 1000s)	ASR (per 100,000)	Number (in 1000s)	ASR (per 100,000)	Number (in 1000s)	ASR (per 100,000)
Andean Latin America	167-5 (135-1-203-2)	293·4 (238·0-352·0)	2.0 (1.6-2.3)	4.0 (3.3-4.7)	66·5 (55·5-78·4)	123.6 (102.8-146.7)	101-0 (71-7-134-3)	169-7 (120-9-224-3)
Australasia	202-9 (169-2-238-1)	686-4 (567-8-814-4)	2.4 (2.2-2.7)	7-3 (6-5-8-1)	90.9 (80.9-101.6)	295.4 (260.6-333.4)	112-0 (80-4-147-7)	391.0 (279.7-517.8)
Caribbean	156-2 (132-6-179-9)	339-4 (288-4-391-3)	2.9 (2.6-3.2)	6-4 (5-8-7-1)	87-6 (78-1-98-6)	190-7 (170-2-215-1)	68·6 (48·3-90·9)	148·7 (104·8-196·8)
Central Asia	516·1 (455·4-573·3)	596.6 (529.7-660.1)	10.0 (9.0-11.0)	13.0 (11.8-14.4)	366-7 (332-3-403-5)	435·1 (395·0-477·7)	149-4 (107-0-196-6)	161·5 (115·8-211·3)
Central Europe	470-8 (402-2-547-9)	339.6 (291.0-394.4)	11-2 (9-3-13-4)	6.8 (5.7-8.1)	323-7 (270-6-384-3)	215.9 (181.1-253.9)	147-0 (106-2-192-7)	123·7 (88·2-163·7)
Central Latin America	1050-8 (917-0-1199-0)	423·1 (368·9-480·4)	18·5 (16·2-20·7)	8-2 (7-2-9-3)	659-3 (588-4-736-7)	274-8 (243-4-307-4)	391-5 (278-5-520-1)	148·3 (105·4-195·3)
Central Sub-Saharan Africa	180-5 (144-3-220-3)	199-3 (161-2-240-5)	1.5 (1.2-1.9)	2·1 (1·7-2·5)	72·9 (58·4-88·6)	85.0 (68.2-102.9)	107-6 (74-4-145-7)	114-3 (80-1-152-9)
East Asia	5315·2 (4530·8-6123·9)	321.8 (272.4-373.3)	81.9 (75.3-93.5)	4.9 (4.5-5.6)	2701-8 (2480-8-3197-8)	157-5 (144-8-186-8)	2613·4 (1889·8-3377·7)	164·3 (118·9-212·9)
Eastern Europe	3005·5 (2477·8-3590·1)	1252-3 (1029-6-1498-4)	57-6 (46-6-70-5)	22-4 (18-1-27-5)	2324-9 (1865-1-2857-1)	957.0 (766.8-1184.0)	680-7 (488-4-880-9)	295·3 (211·7-383·3)
Eastern Sub-Saharan Africa	726-3 (564-8-913-4)	251-4 (194-3-320-2)	8-4 (6-2-11-9)	3.5 (2.6-4.9)	376-6 (275-7-532-9)	140-9 (103-2-201-0)	349-7 (242-3-472-2)	110·5 (78·1-147·7)
High-income Asia Pacific	592.7 (492.9-703.0)	305·2 (247·6-371·4)	8.6 (7.3-10.1)	3-4 (2-9-4-1)	272-3 (229-9-323-0)	123.6 (104.3-148.4)	320-4 (229-6-416-5)	181.6 (130.3-241.0)
High-income North America	5146·5 (4410·5-5852·5)	1380-3 (1173-9-1579-0)	71·1 (67·7-74·9)	16.8 (16.0-17.8)	2631.0 (2490.0-2792.8)	676.8 (636.5-721.3)	2515·6 (1806·9-3187·3)	703·5 (505·7-893·0)
North Africa and Middle East	2881-6 (2299-6-3522-1)	512·3 (414·7-619·2)	26·1 (21·8-31·2)	5.7 (4.7-6.9)	1007-6 (856-8-1191-3)	196-3 (165-4-232-9)	1874-0 (1318-6-2486-9)	316·0 (223·1-415·2)
Oceania	20·5 (16·3-25·4)	190-5 (150-4-233-3)	0.2 (0.1-0.3)	2.0 (1.5-2.7)	9.6 (7.1-13.2)	90·3 (67·0-123·3)	10.9 (7.7-14.6)	100·1 (71·4-134·1)
South Asia	4408.8 (3568.7-5339.6)	253·3 (206·2-305·4)	40·1 (34·3-47·3)	2.6 (2.2-3.0)	1812-2 (1538-6-2169-3)	106-4 (91-1-126-7)	2596·6 (1829·2-3410·5)	146-9 (103-6-191-9)
Southeast Asia	2235·1 (1918·1-2601·2)	329.9 (284.0-382.0)	32·2 (28·4-36·9)	5·2 (4·6-5·9)	1287-9 (1124-4-1472-7)	191-3 (168-2-218-7)	947-1 (685-3-1264-7)	138·7 (100·4-185·0)
Southern Latin America	327-2 (275-8-384-4)	482·3 (405·9-567·6)	5.9 (5.2-6.8)	8·3 (7·3-9·6)	172-1 (149-6-201-4)	250-6 (217-0-294-0)	155-1 (109-2-204-3)	231·7 (162·8-306·0)
Southern Sub-Saharan Africa	434-6 (359-9-522-3)	584.0 (490.1-692.2)	6.3 (5.3-7.9)	9.9 (8.4-12.0)	276-2 (226-4-357-8)	387-3 (322-0-488-5)	158-4 (112-6-207-7)	196.6 (139.9-254.1)
Tropical Latin America	724-6 (582-9-875-5)	312-4 (251-5-378-2)	6-2 (5-2-7-5)	2.8 (2.3-3.3)	264-8 (218-4-324-6)	113-8 (94-0-139-2)	459-8 (325-4-606-0)	198·7 (140·8-261·4)
Western Europe	1994-5 (1745-2-2248-7)	425-2 (366-5-486-3)	41-4 (37-4-45-8)	6.7 (6.1-7.4)	1157-6 (1050-0-1274-6)	223.6 (203.4-243.8)	837-0 (607-9-1069-9)	201-6 (146-4-259-9)
Western Sub-Saharan Africa	1278-5 (1045-3-1568-9)	410.5 (341.3-492.1)	17·3 (13·8-22·0)	6-3 (5-1-7-7)	820-2 (644-7-1067-2)	270-2 (217-3-341-5)	458·3 (318·5-611·5)	140-3 (98-0-183-8)
Global	31836·3 (27445·9-36580·0)	421.0 (363.7-483.1)	451-8 (420-4-486-8)	6-2 (5-8-6-7)	16782-3 (15548-5-18171-2)	223-1 (206-5-241-5)	15053-9 (10807-9-19567-3)	197-9 (142-2-257-3)

Figure A2: Map showing distribution of DALYs attributable to substance use (alcohol and illicit drugs combined; age-standardised rate per 100,000 population), 2016



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