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C. Bucello, L. Degenhardt, B. Calabria, P. Nelson, A. Roberts, ME Medina-Mora & WM Compton

What do we know about the extent of cocaine use and dependence? Results of a global systematic review

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WHAT DO WE KNOW ABOUT THE EXTENT OF COCAINE USE AND DEPENDENCE? RESULTS OF A GLOBAL SYSTEMATIC REVIEW

Chiara Bucello, Louisa Degenhardt, Bianca Calabria, Paul Nelson, Anna Roberts, Maria Elena Medina-Mora and Wilson M. Compton

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This paper is a result of continuing work by the Mental Disorders and Illicit Drug Use work group for the Global Burden of Disease (GBD) study that commenced in 2007. Systematic reviews of the prevalence, incidence, remission and associated mortality of dependence on cannabis, meth/amphetamine, cocaine and opioids are being conducted at the National Drug and Alcohol Research Centre, Sydney, Australia. Drug use is also being investigated as a risk factor for outcomes. More information about the work being carried out can be found on the Mental Disorders and Illicit Drug Use Expert Group website: www.gbd.unsw.edu.au. The data presented in this paper has not been presented elsewhere and is currently being reviewed by the core consortium. We would like to thank those who have assisted in the development of this paper. First, thank you to the global burden of disease expert group on mental disorders and illicit drug use who have provided advice: Professor Louisa Degenhardt (co-chair), Professor Harvey Whiteford (co-chair), Professor John McGrath, Professor Wayne Hall, Dr Guilherme Polanczyk, Dr Shekhar Saxena, Professor Oye Gureje, Dr Ronald Kessler, Dr Cille Kennedy, Dr Maria Elena Medina-Mora, and Professor Martin Prince. Many people have contributed to or commented upon various stages of the work undertaken (see http://www.gbd.unsw.edu.au/gbdweb.nsf/page/Contribution%20of%20Data). Second, thank you to Ms Eva Congreve, Archivist, NDARC, University of NSW, provided patient assistance with literature searches and help in finding articles and reports. A number of research assistants provided important help on this project including: Linda Sigmundsdottir (whose untiring efforts scouring the WWW were much appreciated), Jessica Singleton, Christina Briegleb, Bridget Callaghan, Johanna Thomas, Jennifer McLaren and Hayley West. Thanks to those involved in developing the quality index: Amanda Baxter, Jennifer McLaren, and Jessica Singleton; and John McGrath and Sukanta Saha, who provided their previously developed quality index. Some financial support was provided by the National Drug and Alcohol Research Centre (NDARC), which receives funding from the Australian Government Department of Health and Ageing. Louisa Degenhardt is the recipient of an NHMRC Senior Research Fellowship, and Wayne Hall, an NHMRC Australia Fellowship.

EXECUTIVE SUMMARY

Aims: Systematically review existing data on the global prevalence of cocaine use and dependence. The aims of this paper are to: (1) describe the available international data on cocaine use and dependence and make broad geographical comparisons; (2) identify priorities for improving the comparability, quality and coverage of such estimates; and (3) establish a baseline for future research to compare geographic changes over time.

Methods: According to an approach being used across searches undertaken for the 2005 Global Burden of Disease project (GBD), a systematic review was undertaken for cocaine dependence and use. Multiple search strategies were used with: a) peer-reviewed literature searches (1990-2008) using methods recommended by the Meta-analysis of Observational Studies in Epidemiology (MOOSE) group; b) systematic searches of online databases; c) Internet searches to find any other evidence of use; d) repeated consultation and feedback from experts around the globe; e) a viral email sent to lists in the HIV and illicit drug fields. Culling and data extraction followed manualised protocols, with in-built systems of cross-checking and internal consistency. Data were extracted and graded according to predefined variables and quality scored. This paper reports the most recent and highest graded prevalence estimate for the general population and school population and reports the proportion of coverage of the world's population for use and dependence estimates, general population and school surveys, age and sex specific estimates, and most recent year of estimates.

Results: Evidence and prevalence of cocaine use and dependence were found for 182 countries, covering 98% of the world population aged 15-64 years. More countries reported evidence of cocaine use, rather than estimates of use but these countries accounted for the minority or the world's population. Cocaine use was reported by eighty-six countries. Cocaine use estimates varied widely with the highest estimates in the Americas and Western Europe and the lowest in Asia, Africa and Eastern Europe. Five countries reported the prevalence of cocaine dependence, accounting for 8% of the world's population aged 15 to 64. Cocaine dependence estimates were equal to or less than 1% (lifetime and point prevalence estimates) and were measured with direct assessment methods.

Conclusions: There is evidence of cocaine use occurring throughout the world. However, large gaps in the global literature on the extent of such use and dependence remain. These country specific estimates of cocaine dependence are necessary for future policy and public health strategies, particularly if the harms associated with cocaine dependence are to be addressed.

1. INTRODUCTION

Cocaine is a substance that is used across the world (1). It is produced from leaves of the *Erthroxylon coca* plant, which is native to the Andes Mountains in South American region; traditionally, the leaves of the coca plant are chewed for their stimulating effects in these native regions (2). Cocaine is a central nervous system (CNS) stimulant that has a short half-life; it increases dopamine, serotonin and norepinephrine by blocking the reuptake of these monoamines (3, 4).When taken, the effects of cocaine can include intense feelings of euphoria, alertness, hyperactivity, grandiosity and physiological changes, such as increased blood pressure, sweating and nausea (3, 5).

Cocaine comes in many forms (paste, cocaine hydrochloride, crack cocaine), with each form differing in typical route of administration, purity and intensity of using experience. The most commonly used forms include hydrochloride cocaine (HCL) and crack cocaine (2). Hydrochloride cocaine is produced through the purification of coca paste and can be snorted or injected (1, 2), while crack cocaine is an alkaloid that is extracted from hydrochloride cocaine and is typically smoked (2, 5).

Many people only use cocaine occasionally, but some develop a pattern of heavy, frequent use and cocaine dependence (2). According to the Diagnostic Statistical Manual (DSM IV), a cocaine dependent person builds up a tolerance to cocaine and reduces their social, recreational and occupational activities as a result of their drug use (5). Considerable time is spend in drug related activities, whether obtaining or using cocaine. Despite associated problems of their drug use, dependent users continue to use cocaine. A withdrawal syndrome has been identified, and includes physiological symptoms, disturbances in functioning and psychological distress; this occur a few hours to a few days after last use (5).

Cocaine dependence has also been associated with negative social, physical and psychological outcomes, including criminal activity (6, 7), unemployment (7, 8), suicide (9, 10), mental health concerns, such as depression (11, 12), and both transient and non transient paranoia (13, 14), mortality (15, 16), HIV/AIDS (16, 17), and poor health outcomes (18-20). Research indicates that these cocaine related problems are particularly evident in people who are using high doses frequently (7, 8, 12, 14).Cocaine dependence is therefore a disorder that can cause considerable harm to the individual, and has importance for policy (21) and public health. In North and South America, cocaine is reportedly the primary drug for which people receive drug dependence treatment (1).

Although cocaine use is documented widely in the world (1), it is important to view the level of each country's use in the larger global context. The *2009 World Drug Report* (WDR) attempts this and estimates cocaine as the second most commonly used drug in Southern Africa, North America, South America, the Caribbean and West and Central Europe (1). When considering global estimates of cocaine use, the WDR estimates cocaine as the least most commonly used drug, with cannabis, amphetamine, ecstasy and opiate use ranking higher than cocaine use (1). This appears to be due to low levels of estimated use in Asia, East and South Europe, Oceania and North Africa.

The World Drug Report is produced annually by the United Nations Office on Drugs and Crime (UNODC). It is the only such paper to report a global review of drug use, seizures, trafficking and cultivation of cocaine. To assess drug use, the World Drug Report relies on each member state to complete an Annual Reports Questionnaire (ARQ), thereby leading to a wide variety in data methodology, quality and quantity. While the WDR uses "other sources" when no data is

submitted by member states, there has been no systematic review of grey literature relating to cocaine use. To date, there has been no global systematic review of cocaine dependence.

This article aims to fill these gaps by reporting the findings of a global systematic review on the prevalence of cocaine use and dependence, using multiple search strategies to locate peer reviewed and "grey" literature, and providing graded evidence on the levels reported from studies across countries. The aims of this paper are to: (1) describe the available international data on cocaine use and dependence and make broad geographical comparisons; (2) identify priorities for improving the comparability, quality and coverage of such estimates; and (3) establish a baseline for future research to compare geographic changes over time.

2. METHOD

According to an approach being used across searches undertaken for the 2005 Global Burden of Disease project (GBD), a systematic review was undertaken for cocaine dependence and use. Standardised approaches to literature searches, search terms, data collection, data extraction, consistency and error checking, and expert consultation and review were taken. These are mentioned below and are all documented in further detail on the methodology page of the GBD expert group's website: http://www.gbd.unsw.edu.au/gbdweb.nsf/page/Methodology.

2.1. Peer reviewed literature

The search was conducted through numerous stages (see **Text Box 1**). First, searches in the peer-reviewed literature were conducted using a strategy consistent with the methodology recommended by the Meta-analysis of Observational Studies in Epidemiology (MOOSE) group (22) using a broad search string to interrogate three electronic databases: Medline, EMBASE and PsycINFO. These databases were chosen after consultation with a qualified archivist. Searches focused on studies of human subjects published between 1990 and 2008 inclusive. No limitations were set on language of publication. Search strings, tailored to each database (including keywords, MeSH terms, EMTREE terms and explode terms) were devised for different subjects areas (see **Appendix A** for search strings and **Appendix B** for search string combinations).

Researchers searched LILACS, an online multilingual database, so that articles were not limited to English. Other means to overcome the language limitation were; consulting with experts who spoke languages other than English and conduct research in non-English speaking countries; and asking experts from non-English speaking countries to translate their data or reports into English when data could not be located for that country.

Text Box 1: STAGES OF WORK

Systematic Search

1. Three electronic databases were searched (Medline, EMBASE,PsycINFO)
2. Hand searching of reference lists of review articles and articles of importance
3. Initial cull of peer reviewed literature
4. Short list of peer reviewed studies reviewed
5. Grey literature web-based searches
6. Short list of grey literature studies reviewed
7. *Expert comment* (including members of the Mental Disorders and Illicit Drug Use Expert Group) on completeness of included studies from electronic database search and grey literature search.

Data Extraction

8. Data extraction into Microsoft Access Database®
9. Cross-checking of extracted data
10. Web-wide searches for any evidence of use for countries without available prevalence estimates
11. De-duplication of studies reported in multiple publications

Expert consultation

12. Data requests sent to UNODC and WHO
13. List of included studies sent to other researchers with expertise in the area
14. Coverage of data reviewed by ATS experts at UNODC
15. Email sent to email lists and posted on drug research information websites requesting additional data for countries where no estimates were located

Second, lists of review articles and recommended articles from experts were individually screened for studies that may not have been identified by the electronic database search. Third, abstracts of the identified articles were read and excluded if they did not: focus on cocaine or prevalence or incidence, include raw data (review articles), include general population samples (school studies were included), included data before 1990 or comprised multiple articles reporting from the same cohort (in which case only the most recent or relevant article was included). Nationally representative studies were preferred over sub-national studies: sub-national studies were conducted in cities which were nationally unrepresentative (typically the largest or capital city).

2.2. Grey Literature

The second stage of the systematic search, conducted during 2008, covered the grey literature. Grey literature is non peer reviewed or non published information. This material typically consists of reports or information from government and non-government agencies. A systematic approach (described in (23)) was used to search databases and websites of government agencies and non-government organisations to identify reports and statistics. Data were collected by one research team member and cross checked by another member of the research team.

2.3. Data Extraction

In the data extraction stage we obtained information about study design and participants as recommend by the Strengthening the Reporting if Observational Studies in Epidemiology (STROBE) guidelines (24, 25), parallel to the CONSORT guidelines for reporting of randomised trials (26).

A Quality Index (see **Appendix C**) was modelled on one developed by John McGrath and Sukanta Saha (27, 28) and modified via the 'Delphi method' following consultation with, and

consensus agreement by, the Expert Group (see Acknowledgements) and central GBD project personnel. Quality variable responses were assigned scores that were summed to create a Quality Index score that ranged from 0 to 15, for each study. Highest scores were achieved by general population based cohort studies that provided age and sex disaggregated prevalence estimates. Additional text was also included in the extraction process to capture the diversity of reported methodology. This was used to determine if any studies with a low numeric quality index score should also be included.

A tri-level Microsoft Access© database was designed to accommodate the illicit drugs data, which allowed computerised cross-checking of data entered; in addition, a random sample of 10% of data sources was cross-checked by another research team member to check consistency and accuracy of data extraction. Quality assurance was also built into the database by using drop down boxes and restricted entry of characters. Data entry was manualised (see **Appendix D** for database manual including data entry rules). Queries were written to export complete datasets from the database into Microsoft Excel©.

2.4. Searching for evidence of use in countries without prevalence estimates

Searches for "any evidence of cocaine use" were conducted using several major approaches. First, reports and surveys that were referenced in the 2008 World Drug Report (29) were sourced. Second, reports and peer-reviewed articles that did not meet inclusion criteria as sources of prevalence estimates, but which include data on the use of amphetamines, were used.

Finally, the Internet was used to search databases and search engines. Searches were also conducted using the following databases: WorldCat, PsychINFO and PubMed; and the following search engines: Google and GoogleScholar, with searches targeted at drug use in specific countries (see **Appendix E** for search strings used). These databases and search engines allowed for the inclusion of a broad range of information sources. Evidence of cocaine use was identified in a number of grey literature sources, including UNODC reports, government reports, surveys, news reports and journal articles (See Supplementary Table); this "evidence" included data on treatment, seizures, registered drug users and reports of cocaine use occurring.

2.5. Expert consultation

Experts in the cocaine field were consulted at every stage during this process. Lists of articles were emailed to check for completeness on several occasions during the review. Summary tables of country coverage of dependence, use and any evidence of use were emailed to cocaine experts and contacts at the UNDOC, asking them to identify additional studies to fill gaps. Updated summary tables were emailed on several occasions to the expert group, core GBD personnel and other personnel to confirm data coverage and accuracy.

In May 2009, a "viral email" was sent out to known email lists, experts and interest groups in the area of illicit drug or HIV research, advocacy, or policy, listing the countries for which we had no data on the prevalence of amphetamine use and/or dependence, with invitations for comment or submission of additional data for a final check of data coverage. This resulted in a number of additional recent reports (largely from low and middle income countries) that had recently been completed.

2.6. Data grading

Data were hierarchically graded according to study source/methodology (adapted from (17); see **Text Box 2**). Data were displayed for each country, grouped according to GBD study-defined

regions (see **Appendix F** for countries/regions). We categorised estimates of use imputed by UNODC and reported in the 2008 World Drug Report with no details as "evidence of use" (graded "E" estimates), because they did not meet the primary inclusion criteria requiring details of methods used (or data sources and methodology used to impute estimates; see Supplementary Table).

Text box 2: HIERARCHICAL GRADING SYSTEM	
A1	Multiple and varied methods of indirect prevalence estimation
A2	Three sample capture-recapture, multivariate indicator or back projection method of prevalence estimation. Multiple but similar methods of indirect prevalence estimation.
A3	Two sample capture-recapture or multiplier method of prevalence estimation
B1	General population survey
B2	School survey
B3	University sample
B4	Convenience sample
C1	Expert consensus (including Delphi)
C2	Rapid assessment or other documented 'expert' judgement
D1	Government registration of drug users
D2	Official government estimate with no methodology reported not including government registration of drug users
E	Estimate with methodology unknown

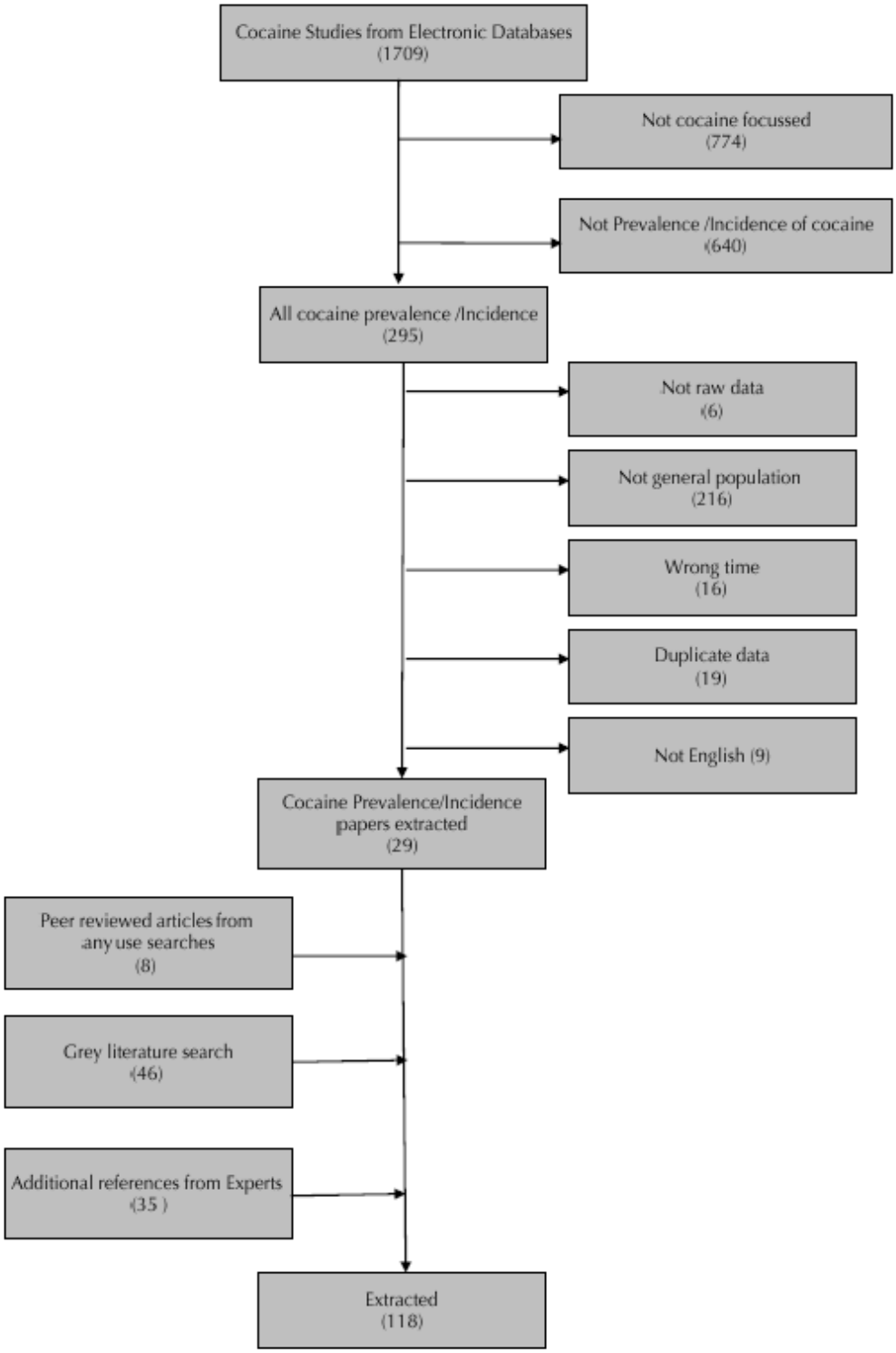
2.7. Data Selection

Figure 1 shows the overall search/cull process. Using these processes, 1709 studies were found for cocaine use and dependence estimates. Of these; 774 were not cocaine focus, 640 were not prevalence/incidence estimates, 6 had no raw data, 216 were not from a general population, 16 were from the wrong time frame, 19 were duplicate data and 9 were not in English. An additional 35 articles were identified by experts, 8 peer review articles were found during the grey literature search and 46 grey literature articles were found, leading to 118 data sources (including grey literature and articles with prevalence estimates). See (30) for a flowchart of the culling process.

In this paper, we report the most recent and highest graded prevalence estimate for the general population and school population: country-level meta-analysis of estimates over time were not conducted because of the possibility that differences reflected real population-level changes. In any case, such trends would only be available in a few (high income) countries.

This paper reports the proportion of coverage of the total world's population and also the world's population aged between 15-64 years were calculated for use and dependence estimates, general population and school surveys, age and sex specific estimates, and most recent year of estimates. Population numbers were provided by the United Nations population division of Urban/Rural data for the Global Burden of Disease project.

Figure 1: Flowchart of search strategy for prevalence of cocaine use and dependence



3. RESULTS

3.1. Evidence of any cocaine use and dependence

Evidence of use and dependence was found for 182 countries. These countries covered 98% of the world's population aged 15 to 64 (**Table 1**). Although more countries (n=96) reported evidence of use, rather than use and dependence prevalence estimates (n=86), these countries accounted for a minority of the world's population aged 15 to 64 (19.3%). Countries reporting evidence of use, without any data on the extent of such use, were mainly from Asia, Africa and the Middle East, and Oceania (**Table 3**). Five countries reported prevalence of cocaine dependence and covered 7.9% of the world's population aged 15 to 64.

Table 1: Summary characteristics of data on the prevalence of cocaine use or dependence

	Number of countries	Total population covered	Population aged 15-64 years covered
Evidence of use and dependence			
Prevalence estimate of use or dependence	86	77.0%	78.7%
Evidence of use but no prevalence estimates	96	20.7%	19.3%
Total*	182	97.7%	98.0%
Coverage of the world's population by differing study samples and estimate types			
Cocaine dependence estimate			
National	3	5.3%	5.5%
Sub-national	2	2.3 %	2.4%
Cocaine use estimate			
National	82	58.1%	60.2%
Sub-national	4	18.9%	18.5%
Cocaine use estimate – general population			
National	56	52.3%	54.1%
Sub-national	5	19.3%	18.8%
Cocaine use estimate - school children			**Percentage 15-19 years covered**
National	70	--	21.3%
Sub-national	4	--	5.8%
Cocaine dependence sex specific estimates			
National	2	4.7%	4.8%
Sub-national	2	2.3%	2.4%
Cocaine use sex specific estimates			
National	49	24.7%	24.8%
Sub-national	4	2.9%	2.5%
Cocaine dependence age specific estimates (excl. school surveys)	1	4.6%	4.7%
National	0	0.0%	0.0%
Sub-national			
Cocaine use age specific estimates (excl. school surveys)	38	38.0%	40.1%
National	2	17.7%	17.2%
Sub-national			
Date of most recent prevalence estimates			
2005-2007	49	25.5%	26.0%
2000-2004	35	49.7%	51.1%
Before 2000	2	1.8%	1.5%

Note. Estimates may be past year, point or lifetime estimates. Sub-national studies are **only** included for countries when there is no available national data from general population or school surveys. The "Evidence of use and dependence" section is additive, but the "Coverage of the world's population" section is not – each country can be counted more than once. *Totals found across 229 countries or territories.

Most countries reported relatively recent prevalence estimates, with 49 countries reporting on cocaine use and dependence between 2005 and 2007. There were 35 countries reporting prevalence estimates between 2000 and 2004 and 2 countries reported prior to the year 2000. School surveys (n=74) were somewhat more commonly undertaken than general population surveys. Of the countries with data from school surveys, 70 reported national-level cocaine use estimates, and covered 21.3% of the world's population aged 15-19 year. Sixty one countries measured cocaine use in the general population either nationally (n=56) or sub-nationally (n=5), and comprised 72.9% of the world's population aged 15-64 years.

Sex specific information was given more frequently than age specific information for countries reporting cocaine use. Fifty three countries reported sex estimates either nationally (n=49) or sub-nationally (n=4). For age specific estimates on cocaine use, 40 countries reported either national (n=38) or sub-national (n=2) information in general population data. For cocaine dependence estimates, country reported age specific information and 4 countries reported sex specific information.

3.2. Cocaine dependence estimates

Only five countries had an estimate of population level cocaine dependence in the past twenty years: Germany, Spain, Switzerland, Iran and the United States. Of these, the countries with sub-national data (n=2) represent 2.4% of the world's population between 15-64 years old, while the countries with national data (n=3) represents 5.5% of the same world population. The United States was the only country to report point and lifetime prevalence dependence estimates (See **Table 2**).

Table 2. Identified studies estimating the prevalence of cocaine dependence

Region/Country	Dependence: Point or past year Prevalence (95% CI)	Year of estimate	Age (yrs)	Grade	Quality score	Source	Dependence: "Lifetime Prevalence"**	Year of estimate	Age (yrs)	Grade	Quality score	Source
Germany	--	--	--	--	--	--	0.35* (NR)	1995	15-24	B1	10	(31)
Iran	0.07* (NR)	2004	15+	B1	13	(32)	--	--	--	--	--	--
Spain	0.52 (0.45,0.60)	2002	15-64	A1	13	(33)	--	--	--	--	--	--
Switzerland	0 (NR)	2003	15-16	B2	13	(34)	--	--	--	--	--	--
USA	0.5 (NR)	2007	12+	B1	13	(35)	1 (NR)	2001 - 2002	18+	B1	10	(36)

Note. All estimates are reported as percentages, NR=Not reported, + median prevalence estimate, * sub-national data available in the absence of national data, **We have used the term "Lifetime prevalence" of dependence or use to indicate cumulative probability for that parameter to aid in communication as this is the most commonly used nomenclature in the reviewed data.

The main method for assessing cocaine dependence was direct assessment, with only one cocaine dependence estimate (Spain) obtained through indirect methods. Age ranges differed widely, with Switzerland and Germany reporting on young people and the remaining countries reporting general population ages. The United States lifetime prevalence estimate excluded school students. Additionally, for all cocaine dependence estimates, the form of cocaine was consistent.

All cocaine dependence prevalence estimates were equal to or below 1%. Regardless of the differences in dependence estimates in age and methodology, Spain and the United States reported the highest point prevalence cocaine dependence estimates (0.52% and 0.5% respectively) and the lowest point prevalence cocaine dependence estimate was found in Switzerland (0%).

3.3. Cocaine use estimates

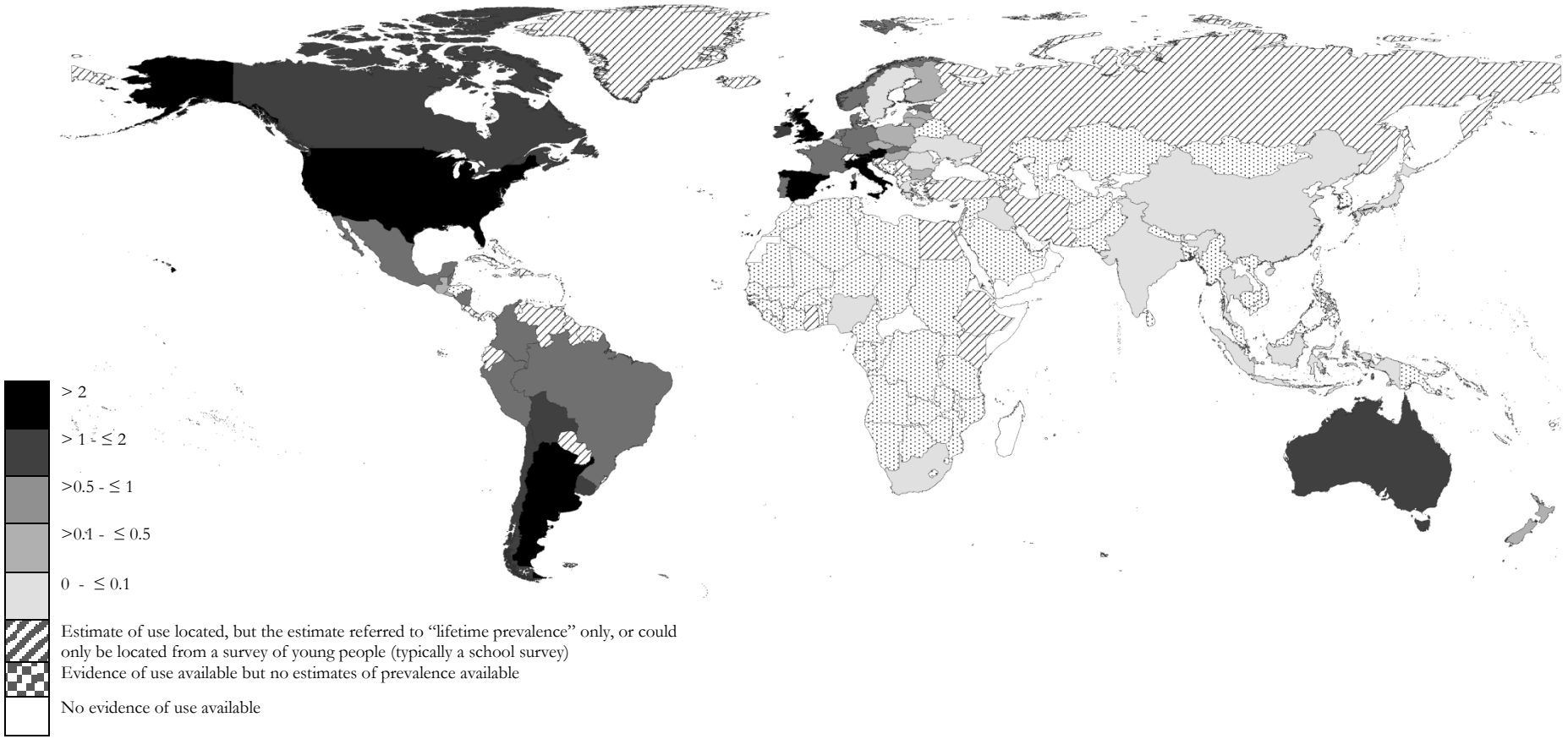
Of the 86 countries reporting estimates of cocaine use, 82 of these estimates were national and accounted for 60.2% of the world's population aged 15 to 64 years. **Figure 2** present the prevalence of past year cocaine use according to each country for the general population; study differences exist across countries, details of which may be found in **Table 3**.

Cocaine use estimates clearly vary widely across the world (**Table 3**). Among surveys of young people, the highest past year prevalence estimates of cocaine use were found in the North American and Latin American region and in Western Europe. Intermediate estimates occur in Central Europe and the Caribbean, with lower estimates of cocaine use found in Eastern Europe.

Most countries in North and Latin America report *lower* past year prevalence rates of cocaine use in the general population compared to the same country's estimates among young people. Nonetheless, the geographic patterns of cocaine use were similar among adults and young people (**Table 3, Figure 2**). Estimates were highest in North and Latin America, as well as in Western Europe. Central Europe, South East Asia, Australasia and the Caribbean display intermediate estimates. Estimates were low in Asia, Africa and Eastern Europe.

The forms of cocaine assessed varied. Estimates of crack cocaine use were located for 53 countries. Cocaine paste estimates were reported for 20 countries. HCL cocaine estimates were located for 22 countries and cocaine powder was reported for 2 countries. It was more common for countries in the Americas to report cocaine in paste and HCL form, while crack was commonly reported for the Americas as well as for many European countries.

Figure 2: Available estimates of the prevalence of cocaine use in the past year among the general population



Note: Prevalence estimates are presented from nationally representative general population studies. If no national general population study was available for a given country a national school survey or sub-national study may be represented in the map. This is for illustrative purposes and details should be examined in Table 2. It is important to note that age ranges differ across studies included in this map, and the types of cocaine included in assessment may have differed. Study details including age ranges may be found in Table 2. Unfortunately, due to limited reporting of such detail across countries, details on the types of cocaine included in questions could not be comprehensively assessed.

Table 3. Identified studies of the prevalence of cocaine use

Region/Country	Past Year Prevalence (95% CI)	Year of estimate	Age	Grade	Quality score	Source	"Lifetime Prevalence"** (95% CI)	Year of estimate	Age	Grade	Quality Score	Source	Type of evidence of any use for countries with no prevalence estimate available	Grade	Any Evidence of Use Source
ASIA PACIFIC, HIGH INCOME															
Brunei	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Japan	0	2002	20+	B1	10	(37)	0.5	2002	20+	B1	10	(37)			
Republic of Korea	--	--	--	--	--	--	--	--	--	--	--	--	Number of drug users	B4	(2)
Singapore	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
ASIA, CENTRAL															
Armenia	--	--	--	--	--	--	--	--	--	--	--	--	Imputed by UNODC^	C2	(39)
Azerbaijan	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
Georgia	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(40)
Kazakhstan	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(38)
Kyrgyzstan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mongolia	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(38)
Tajikistan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Turkmenistan	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(38)
Uzbekistan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ASIA, EAST															
China	0	2002	18-74	B1	10	(37)	0	2002	18-74	B1	10	(37)			
Democratic People's Republic of Korea	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hong Kong	--	--	--	--	--	--	0.1*	2002	NR	B1	9	(41)			

A1: Multiple and varied methods of indirect prevalence estimation; **A2:** Three sample capture-recapture, multivariate indicator or back projection method of prevalence estimation. Multiple but similar methods of indirect prevalence estimation; **A3:** Two sample capture-recapture or multiplier method of prevalence estimation; **B1:** General population survey; **B2:** School survey; **B3:** University sample; **B4:** Convenience sample; **C1:** Expert consensus (including Delphi); **C2:** Rapid assessment or other documented 'expert' judgement; **D1:** Government registration of drug users; **D2:** Official government estimate with no methodology reported not including government registration of drug users; **E:** Estimate with methodology unknown

Region/Country	Past Year Prevalence (95% CI)	Year of estimate	Age	Grade	Quality score	Source	"Lifetime Prevalence"** (95% CI)	Year of estimate	Age	Grade	Quality Score	Source	Type of evidence of any use for countries with no prevalence estimate available	Grade	Any Evidence of Use Source
Taiwan	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(38)
ASIA, SOUTH															
Afghanistan	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(38)
Bangladesh	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(38)
Bhutan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
India	0*	2003	18+	B1	12	(37)	0*	2003	18+	B1	12	(37)			
Nepal	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(38)
Pakistan	--	--	--	--	--	--	--	--	--	--	--	--	Evidence of use	E	(39)
ASIA, SOUTHEAST															
Cambodia	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(38)
Indonesia	0.01	2005	10-60	B1	8	(42)	0.03	2005	10-60	B1	8	(42)			
Lao People's Democratic Republic	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Malaysia	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(38)
Maldives	--	--	--	--	--	--	--	--	--	--	--	--	Evidence of drug use in drug using population	C2	(43)
Mauritius	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(38)
Mayotte	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Myanmar	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(38)
Philippines	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(38)
Seychelles	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sri Lanka	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(38)
Thailand	0.01	2001	12-65	B1	11	(44)	0.06	2007	12-65	B1	9	(45)			
Timor Leste	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Viet Nam	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(38)
AUSTRALASIA															
Australia	1.6	2007	14+	B1	9	(46)	5.9	2007	14+	B1	9	(46)			
	2.2	2005	12-17	B2	12	(47)	2.9	2005	12-17	B2	12	(47)			

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Region/Country	Past Year Prevalence (95% CI)	Year of estimate	Age	Grade	Quality score	Source	"Lifetime Prevalence"** (95% CI)	Year of estimate	Age	Grade	Quality Score	Source	Type of evidence of any use for countries with no prevalence estimate available	Grade	Any Evidence of Use Source
New Zealand	0.5	2003	16+	B1	11	(37)	4.2	2003	16+	B1	11	(37)			
CARIBBEAN															
Anguilla	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(48)
Antigua and	1##	2005	NR	B2	9	(49)	0.6#	2205	NR	B2	9	(49)			
Barbuda	0.8###	2005	NR	B2	9	(49)	1.7##	2005	NR	B2	9	(49)			
							1.7###	2005	NR	B2	9	(49)			
Aruba	--	--	--	--	--	--	--	--	--	--	--	--	Imputed by UNODC^	C2	(39)
Bahamas	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(40)
Barbados	0.4##	2007	12+	B1	7	(50)	0.1#	2007	12+	B1	7	(50)			
	0.9##	2006	NR	B2	9	(51)	0.1###	2007	12+	B1	7	(50)			
	0.7###	2006	NR	B2	9	(51)	1.1##	2007	12+	B1	7	(50)			
							0.9	2007	9-12	B2	7	(50)			
							1.1###	2007	9-12	B2	7	(50)			
Belize	0.15#	2005	12-65	B1	9	(52)	0.15#	2005	12-65	B1	9	(52)			
	0.7##	2005	12-65	B1	9	(52)	1.45##	2005	12-65	B1	9	(52)			
	1.3	2003	12-20	B2	7	(53)	0.45###	2005	12-65	B1	9	(52)			
							2.4	2003	12-20	B2	7	(53)			
Bermuda	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(48)
British Virgin Islands	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(48)
Cayman Islands	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(48)
Cuba	--	--	--	--	--	--	--	--	--	--	--	--	Treatment admissions	D1	(54)
Dominica	0.9#	2006	13-77	B2	9	(55)	0.9#	2006	13-77	B2	9	(55)			
	0.4##	2006	13-77	B2	9	(55)	0.6##	2006	13-77	B2	9	(55)			
	0.6###	2006	13-77	B2	9	(55)	0.8###	2006	13-77	B2	9	(55)			
Dominican Republic	0.3	2003	12-20	B2	8	(56)	--	--	--	--	--	--			
French Guiana	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(48)
Grenada	1##	2005	NR	B2	9	(57)	1.5##	2005	NR	B2	9	(57)			
Guadaloupe	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(48)
Guyana	0.4	2003	12-20	B2	7	(53)	1	2003	12-20	B2	7	(53)			

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Haiti	3.9#	2005	11-25	B2	9	(58)	2.7##	2005	11-25	B2	9	(58)			
	1.5##	2005	11-25	B2	9	(58)									
	1.2###	2005	11-25	B2	9	(58)									
Jamaica	2.05	2006	14-17	B2	9	(59)	3.13	2006	14-17	B2	9	(59)			
Martinique	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(40)
Montserrat	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(48)
Netherlands Antilles	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(40)
Saint Kitts and Nevis	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(40)
St. Lucia	0.8##	2005	13-17	B2	9	(60)	1.5##	2005	13-17	B2	9	(60)			
St. Vincent	0.32##	2006	13-17	B2	9	(61)	0.29#	2006	13-17	B2	9	(61)			
	0.21###	2006	13-17	B2	9	(61)	0.6##	2006	13-17	B2	9	(61)			
							0.32###	2006	13-17	B2	9	(61)			
Suriname	0#	2006	NR	B2	9	(62)	0.7#	2006	B2	NR	9	(62)			
	0.2##	2006	NR	B2	9	(62)	0.6##	2006	B2	NR	9	(62)			
	0.3###	2006	NR	B2	9	(62)	0.6###	2006	B2	NR	9	(62)			
Trinidad and Tobago	--	--	--	--	--	--	--	-	--	--	--	--	Drug seizures	D2	(40)
Turks and Caicos Islands	--	--	--	--	--	--	--	--	--	--	--	--	Derived estimate	C2	(39)
EUROPE, CENTRAL															
Albania	--	--	--	--	--	--	--	--	--	--	--	--	Imputed by UNODC^	C2	(39)
Bosnia and Herzegovina	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(38)
Bulgaria	0.3	2005	18-60	B1	10	(63)	1.1	2005	18-60	B1	10	(63)			
	1	2003	15-16	B2	13	(34)	2	2003	15-16	B2	13	(34)			
	1###	2003	15-16	B2	13	(34)	1###	2003	15-16	B2	13	(34)			
Croatia	0	2003	15-16	B2	13	(34)	1	2003	15-16	B2	13	(34)			
	0###	2003	15-16	B2	13	(34)	1###	2003	15-16	B2	13	(34)			
Czech Republic	0.2	2003	18-64	B1	11	(63, 64)	1.1	2004	18-64	B1	11	(63, 64)			

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	0	2003	15-16	B2	13	(34)	1	2003	15-16	B2	13	(34)			
	0###	2003	15-16	B2	13	(34)	1###	2003	15-16	B2	13	(34)			
Hungary	0.4	2003	18-54	B1	10	(63)	1	2003	18-54	B1	10	(63)			
	0	2003	15-16	B2	13	(34)	1	2003	15-16	B2	13	(34)			
	0###	2003	15-16	B2	13	(34)	1###	2003	15-16	B2	13	(34)			
Poland	0.2	2006	15-64	B1	10	(63)	0.8	2006	15-64	B1	10	(63)			
	1	2003	15-16	B2	13	(34)	2	2005	15-16	B2	NR	(65)			
	1##	2003	15-16	B2	13	(34)									
Romania	0.1	2005	18+	B1	11	(37)	0.3	2005	18+	B1	11	(37)			
	0	2003	15-16	B2	13	(34)	1	2003	15-16	B2	13	(34)			
	0###	2003	15-16	B2	13	(34)	0###	2003	15-16	B2	13	(34)			
Serbia and Montenegro	--	--	--	--	--	--	1.5*	2005	16	B2	12	(66)			
Slovakia	0.6	2007	15-64	B1	10	(63)	1.2	2006	15-64	B1	5	(67)			
	0	2003	15-16	B2	13	(34)					11	(63)			
	0###	2003	15-16	B2	13	(34)	1	2006	15-16	B2	NR	(65)			
Slovenia	1	2003	15-16	B2	13	(34)	1	2003	15-16	B2	13	(34)			
	0###	2003	15-16	B2	13	(34)	1###	2003	15-16	B2	13	(34)			
The Former Yugoslav Republic of Macedonia	--	--	--	--	--	--	--	--	--	--	--	--	Imputed by UNODC^	C2	(39)
EUROPE, EASTERN															
Belarus	--	--	--	--	--	--	--	--	--	--	--	--	Imputed by UNODC^	C2	(39)
Estonia	0.6	2003	15-64	B1	10	(63)	1	1998	18-64	B1	10	(63)			
	0	2003	15-16	B2	13	(34)	1	2003	15-16	B2	13	(34)			
	1###	2003	15-16	B2	13	(34)	2###	2003	15-16	B2	13	(34)			
Latvia	0.2	2003	15-64	B1	10	(63)	1.2	2003	15-64	B1	10	(63)			
	1	2003	15-16	B2	13	(34)	1	2003	15-16	B2	13	(34)			
	0###	2003	15-16	B2	13	(34)	0###	2003	15-16	B2	13	(34)			
Lithuania	0.3	2003	15-64	B1	10	(63)	0.4	2004	15-64	B1	10	(63)			

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	1	2003	15-16	B2	13	(34)	1	2003	15-16	B2	13	(34)			
	1###	2003	15-16	B2	13	(34)	1###	2003	15-16	B2	13	(34)			
Republic of Moldova	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Russian	0	2003	15-16	B2	13	(34)	1	2003	15-16	B2	13	(34)			
Federation	0###	2003	15-16	B2	13	(34)	0###	2003	15-16	B2	13	(34)			
Ukraine	0	2008	18+	B1	11	(37)	0.1	2008	18+	B1	11	(37)			
	0	2003	15-16	B2	13	(34)	1	2003	15-16	B2	13	(34)			
	0###	2003	15-16	B2	13	(34)	1###	2003	15-16	B2	13	(34)			
EUROPE, WESTERN															
Andorra	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(38)
Austria	2.3	2004	15-64	B1	10	(63)	0.6	2004	15-64	B1	10	(63)			
	2	2003	15-16	B2	13	(34)	1	2003	15-16	B2	13	(34)			
	2###	2003	15-16	B2	13	(34)	1###	2003	15-16	B2	13	(34)			
Belgium	0.2*	1994	18-65	B1	8	(63)	1.5	2001	18+	B1	10	(37)			
	1	2003	15-16	B2	13	(34)	3	2003	15-16	B2	13	(34)			
	1###	2003	15-16	B2	13	(34)	2###	2003	15-16	B2	13	(34)			
Channel Islands	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cyprus	0.6	2006	15-64	B1	10	(63)	1.1	2006	15-64	B1	10	(63)			
	0	2003	15-16	B2	13	(34)	0	2003	15-16	B2	13	(34)			
	0###	2003	15-16	B2	13	(34)	0###	2003	15-16	B2	13	(34)			
Denmark	1	2005	16-64	B1	10	(63)	4	2005	16-64	B1	10	(63)			
	2	2003	15-16	B2	13	(34)	2	2003	15-16	B2	13	(34)			
	1###	2003	15-16	B2	13	(34)	2###	2003	15-16	B2	13	(34)			
Faeroe Islands	0	2003	15-16	B2	13	(34)	1	2003	15-16	B2	13	(34)			
	0###	2003	15-16	B2	13	(34)	1###	2003	15-16	B2	13	(34)			
Finland	0.5	2006	15-64	B1	10	(63)	1.1	2006	15-64	B1	10	(63)			
	0	2003	15-16	B2	13	(34)	0	2003	15-16	B2	13	(34)			
	0###	2003	15-16	B2	13	(34)	1###	2003	15-16	B2	13	(34)			
France	0.6	2005	15-64	B1	10	(63)	2.6	2005	15-64	B1	10	(63)			
							3	2003	15-16	B2	13	(34)			
							3###	2003	15-16	B2	13	(34)			

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Germany	0.6	2006	18-64	B1	10	(63)	2.5	2006	18-64	B1	10	(63)			
	2	2003	15-16	B2	13	(34)	2	2003	15-16	B2	13	(34)			
	2###	2003	15-16	B2	13	(34)	3###	2003	15-16	B2	13	(34)			
Gibraltar	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(38)
Greece	0.1	2003	15-64	B1	10	(63)	0.7	2004	12-64	B1	9	(63, 68)			
	1	2003	15-16	B2	13	(34)	1	2003	15-16	B2	13	(34)			
	1###	2003	15-16	B2	13	(34)	1###	2003	15-16	B2	13	(34)			
Greenland	1	2003	15-16	B2	13	(34)	1	2003	15-16	B2	13	(34)			
	0###	2003	15-16	B2	13	(34)	1###	2003	15-16	B2	13	(34)			
Holy See	--	--	--	--	--	--	--	--	--	--	--	--			
Iceland	2	2003	15-16	B2	13	(34)	3	2003	15-16	B2	13	(34)			
	1###	2003	15-16	B2	13	(34)	2###	2003	15-16	B2	13	(34)			
Ireland	1.7	2006-2007	15-64	B1	10	(63)	5.3	2006-2007	15-64	B1	10	(63)			
	1	2003	15-16	B2	13	(34)	3	2003	15-16	B2	13	(34)			
	1###	2003	15-16	B2	13	(34)	2###	2003	15-16	B2	13	(34)			
Isle of Man	1	2003	15-16	B2	13	(34)	4	2003	15-16	B2	13	(34)			
	1###	2003	15-16	B2	13	(34)	2###	2003	15-16	B2	13	(34)			
Israel	0.1	2003	21+	B1	11	(37)	0.9	2003	21+	B1	11	(37)			
	2.5	2001	12-18	B2	--	(69)									
	2.7###	2001	12-18	B2	--	(69)									
Italy	2.2	2005	15-64	B1	10	(63)	6.6	2005	15-64	B1	10	(63)			
	3	2003	15-16	B2	13	(34)	2	2005	15-16	B2	--	(65)			
	2###	2003	15-16	B2	13	(34)									
Liechtenstein	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(38)
Luxembourg	0.2	1998	15-64	B1	9	(63)	0.2	1998	15-64	B1	9	(63)			
							2	2002	15-16	B2	--	(65)			
Malta	0.3	2001	18-64	B1	10	(63)	0.4	2001	18-64	B1	10	(63)			
	1	2003	15-16	B2	13	(34)	1	2003	15-16	B2	13	(34)			
	0###	2003	15-16	B2	13	(34)	1###	2003	15-16	B2	13	(34)			
Monaco	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(38)
Netherlands	0.6	2005	15-64	B1	10	(63, 70)	3.4	2005	15-64	B1	9	(63, 70)			
	1	2003	15-16	B2	13	(34)	3	2003	15-16	B2	13	(34)			
	1###	2003	15-16	B2	13	(34)	2###	2003	15-16	B2	13	(34)			

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Norway	0.8	2003	15-64	B1	10	(63)	2.7	2004	15-64	B1	10	(63)			
	1	2003	15-16	B2	9	(34)	1	2003	15-16	B2	9	(34)			
	1###	2003	15-16	B2	9	(34)	1###	2003	15-16	B2	9	(34)			
Portugal	0.6	2007	15-64	B1	10	(63)	1.9	2007	15-64	B1	10	(63)			
	1	2003	15-16	B2	13	(34)	3	2003	15-16	B2	13	(34)			
	2###	2003	15-16	B2	13	(34)	2###	2003	15-16	B2	13	(34)			
Saint Pierre et Miquelon	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
San Marino	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizure	D2	(38)
Spain	3	2005-2006	15-64	B1	10	(63)	8##	2007-2008	15-64	B1	10	(71)			
							1.8#	2007-2008	15-64	B1	10	(71)			
							4	2006	15-16	B2	--	(65)			
Sweden	0	2000	16-64	B1	9	(63)	0.7	2000	16-64	B1	9	(63)			
	0	2003	15-16	B2	13	(34)	0	2005	15-16	B2	--	(65)			
	0###	2003	15-16	B2	13	(34)									
Switzerland	1###	2003	15-16	B2	13	(34)	1	2003	15-16	B2	13	(34)			
							1###	2003	15-16	B2	13	(34)			
United Kingdom	2.3	2003	16-59	B1	10	(63)	6.5	2004	16-59	B1	10	(63)			
	1.6	2006	11-15	B2	8	(72)	4	2003	15-16	B2	12	(34)			
	0.8###	2006	11-15	B2	8	(72)	2###	2003	15-16	B2	12	(34)			
LATIN AMERICA, ANDEAN															
Bolivia	1.9#	2005	12+	B1	9	(73)	2.5#	2005	12+	B1	9	(73)			
	1.6##	2005	12+	B1	9	(73)	2.4##	2005	12+	B1	9	(73)			
	0.7#	2004	13-18	B2	9	(73)									
	0.9##	2004	13-18	B2	9	(73)									
	0.4###	2004	13-18	B2	9	(73)									
Ecuador	1.2	2005	12-19	B2	11	(74)	1.9#	2005	NR	B2	9	(75)			
	0.8#	2005	12-19	B2	11	(74)	2.5##	2005	NR	B2	9	(75)			
							0.7###	2005	NR	B2	9	(75)			
Peru	0.68	2002	12-64	B1	-	(76)	1.8	2002	12-65	B1	-	(76)			
	1	2005	12-19	B2	11	(74)	1.26#	2005	13-17	B2	9	(77)			

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	0.8#	2005	12-19	B2	11	(74)	1.73##	2005	13-17	B2	9	(77)			
							0.79###	2005	13-17	B2	9	(77)			
LATIN AMERICA, CENTRAL															
Colombia	0.9	2003	18+	B1	12	(37)	3.9	2003	18+	B1	12	(37)			
	1.7	2005	12-19	B2	11	(74)	0.75*	2004	NR	B2	7	(78)			
	1.3#	2005	12-19	B2	11	(74)	1.4#*	2004	NR	B2	7	(78)			
							1.8##*	2004	NR	B2	7	(78)			
Costa Rica	1.1##	2006	13-17	B2	9	(79)	1.7##	2006	13-17	B2	9	(79)			
	1.1###	2006	13-17	B2	9	(79)	1.1###	2006	13-17	B2	9	(79)			
El Salvador	0.08#	2005	12-65	B1	6	(80)	0.3#	2005	12-65	B1	6	(80)			
	0.24##	2005	12-65	B1	6	(80)	1.89##	2005	12-65	B1	6	(80)			
	0.17###	2005	12-65	B1	6	(80)	0.87###	2005	12-65	B1	6	(80)			
	0.7	2003	12-20	B2	8	(56)									
Guatemala	0.08#	2005	12-65	B1	9	(81)	0.26#	2005	12-65	B1	9	(81)			
	0.12##	2005	12-65	B1	9	(81)	0.85##	2005	12-65	B1	9	(81)			
	0###	2005	12-65	B1	9	(81)	0.66###	2005	12-65	B1	9	(81)			
	0.3	2003	12-20	B2	8	(56)									
Honduras	--	--	--	--	--	--	--	--	--	--	--	--	Imputed by UNODC^	C2	(39)
Mexico	0.65	2008	12-65	B1	--	(82)	2.5	2008	12-65	B1	--	(82)			
	0.8*	2005	12-17	B2	11	(83)	1.6*	2005	12-17	B2	11	(83)			
Nicaragua	0.34*	2006	12-65	B1	6	(84)	2.52*	2006	12-65	B1	6	(84)			
	0#*	2006	12-65	B1	6	(84)	0.5#*	2006	12-65	B1	6	(84)			
	0.52###*	2006	12-65	B1	6	(84)	1.29###*	2006	12-65	B1	6	(84)			
	1.1	2003	12-20	B2	8	(56)									
Panama	1.4	2003	12-20	B2	8	(56)	--	--	--	--	--	--			
Venezuela	0.32#	2005	NR	B2	9	(85)	2.9*	1992	18+	B1	6	(86)			
	0.34##	2005	NR	B2	9	(85)	0.41#	2005	NR	B2	9	(85)			
	0.28###	2005	NR	B2	9	(85)	0.51##	2005	NR	B2	9	(85)			
							0.37###	2005	NR	B2	9	(85)			
LATIN															

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AMERICA, SOUTHERN															
Argentina	0.5#	2006	12-65	B1	9	(87)	1#	2006	12-65	B1	9	(87)			
	2.6##	2006	12-65	B1	9	(87)	7.9##	2006	12-65	B1	9	(87)			
	2.5	2005	12-19	B2	11	(74)	0.2###	2006	12-65	B1	9	(87)			
	1.6#	2005	12-19	B2	11	(74)	2.5#	2005	13-17	B2	9	(87)			
							3.4##	2005	13-17	B2	9	(87)			
							0.8###	2005	13-17	B2	9	(87)			
Chile	0.6#	2006	12-64	B1	9	(88)	2.6#	2006	12-64	B1	9	(88)			
	1.2##	2006	12-64	B1	9	(88)	5.9##	2006	12-64	B1	9	(88)			
	0.1###	2006	12-64	B1	9	(88)	0.2###	2006	12-64	B1	9	(88)			
	2.4	2005	12-19	B2	11	(74)	3.7#	2005	NR	B2	9	(88)			
	2.1#	2005	12-19	B2	11	(74)	4.7##	2005	NR	B2	9	(88)			
							3###	2005	NR	B2	9	(88)			
Falkland Islands (Malvinas)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Uruguay	0.3#	2006	12-65	B1	9	(89)	0.8#	2006	12-65	B1	9	(89)			
	1.4##	2006	12-65	B1	9	(89)	4##	2006	12-65	B1	9	(89)			
	1.4	2005	12-19	B2	11	(74)	0.2###	2006	12-65	B1	9	(89)			
	0.6#	2005	12-19	B2	11	(74)	1.2#	2005	NR	B2	9	(89)			
							2.5##	2005	NR	B2	9	(89)			
							0.2###	2005	NR	B2	9	(89)			
LATIN AMERICA, TROPICAL															
Brazil	1	2005	18+	B1	10	(37)	5.2	2005	18+	B1	10	(37)			
	1.7	2005	12-19	B2	11	(74)	3.2*	1998	10-19	B2	6	(90)			
Paraguay	0.6	2005	12-19	B2	11	(74)	1##	2005	NR	B2	9	(91)			
	0.5#	2005	12-19	B2	11	(74)	0.3###	2005	NR	B2	9	(91)			
NORTH AFRICA / MIDDLE EAST															

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Region/Country	Past Year Prevalence (95% CI)	Year of estimate	Age	Grade	Quality score	Source	"Lifetime Prevalence"** (95% CI)	Year of estimate	Age	Grade	Quality Score	Source	Type of evidence of any use for countries with no prevalence estimate available	Grade	Any Evidence of Use Source
Algeria	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
Bahrain	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
Egypt	--	--	--	--	--	--	1.3	2003	17-26	B2	6	(92)			
Iran (Islamic Republic of)	--	--	--	--	--	--	0.5*	2004	15+	B1	13	(32)			
							1*	2000	13-24	B2	13	(93)			
Iraq	0	2006	18+	B1	12	(37)	0	2006	18+	B1	12	(37)			
Jordan	--	--	--	--	--	--	--	--	--	--	--	--	Imputed by UNODC^	C2	(39)
Kuwait	--	--	--	--	--	--	--	--	--	--	--	--	Imputed by UNODC^	C2	(39)
Lebanon	0.2	2002	18+	B1	11	(37)	0.7	2002	18+	B1	11	(37)			
Libyan Arab Jamahiriya	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
Morocco	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
Occupied Palestinian Territory	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(94)
Oman	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Qatar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Saudi Arabia	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
Syrian Arab Republic	--	--	--	--	--	--	--	--	--	--	--	--	Imputed by UNODC^	C2	(39)
Tunisia	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
Turkey	1	2003	15-16	B2	13	(34)	2	2003	15-16	B2	13	(34)			
	1###	2003	15-16	B2	13	(34)	1###	2003	15-16	B2	13	(34)			
United Arab Emirates	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
Western Sahara	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Yemen	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
NORTH AMERICA, HIGH INCOME															

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Canada	1.9	2004	15+	B1	8	(95)	10.6	2004	15+	B1	9	(95)			
	3.4* (2.8,3.9)	2007	12-18	B2	9	(96)	(9.7,11.6) 2	2002	12-14	B2	9	(97)			
	1###* (0.8,1.4)	2007	12-18	B2	9	(96)									
United States of America	2.3	2007	12+	B1	11	(35)	14.5	2007	12+	B1	11	(35)			
	0.6###	2007	12+	B1	11	(35)	3.5###	2007	12+	B1	11	(35)			
	3.2 (2.6,3.8)	2006	15-16	B2	14	(98)	4.8 (4.0, 5.7)	2006	15-16	B2	14	(98)			
OCEANIA															
American Samoa	--	--	--	--	--	--	--	--	--	--	--	--	Number of users	D2	(99)
Cook Islands	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Fiji	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(100)
French Polynesia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Guam	--	--	--	--	--	--	--	--	--	--	--	--	Evidence of use	D2	(101)
Kiribati	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Marshall Islands	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(100)
Micronesia (Federated States of)	--	--	--	--	--	--	--	--	--	--	--	--	Reports or use	E	(102)
Nauru	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Caledonia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Niue	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Northern Mariana Islands	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Palau	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Papua New Guinea	--	--	--	--	--	--	--	--	--	--	--	--	Reports of use	E	(102)
Pitcairn	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Samoa	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Solomon Islands	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tokelau	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tonga	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(102)

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Tuvalu	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vanuatu													--	--	--
Wallis and Futuna Islands	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SUB-SAHARAN AFRICA, CENTRAL															
Angola	--	--	--	--	--	--	--	--	--	--	--	--	Imputed by UNODC^	C2	(39)
Central African Republic	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Congo	--	--	--	--	--	--	--	--	--	--	--	--	Evidence of use	E	(103)
Democratic Republic of the Congo	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
Equatorial Guinea	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
Gabon	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
SUB-SAHARAN AFRICA, EAST															
Burundi	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
Comoros	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Djibouti	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Eritrea	--	--	--	--	--	--	--	--	--	--	--	--	--	--	-
Ethiopia	--	--	--	--	--	--	0.2	1995	12+	B1	8	(104)			
Kenya	--	--	--	--	--	--	4.96	1994	6-90	B1	7	(105)			
Madagascar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Malawi	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
Mozambique	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
Rwanda	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)

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Somalia	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sudan	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
Uganda	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
United Republic of Tanzania	--	--	--	--	--	--	--	--	--	--	--	--	Number of users	C2	(106)
Zambia	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
SUB-SAHARAN AFRICA, SOUTHERN															
Botswana	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
Lesotho	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
Namibia	--	--	--	--	--	--	--	--	--	--	--	--	Treatment admissions	D1	(107)
South Africa	0.1	2002	18+	B1	12	(37)	0.3 6.4 (5.1, 7.6)	2005 2002	15+ 11-20	B1 B2	11 10	(108) (109)			
Swaziland	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
Zimbabwe	--	--	--	--	--	--	--	--	--	--	--	--	Imputed by UNODC^	C2	(39)
SUB-SAHARAN AFRICA, WEST															
Benin	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(110)
Burkina Faso	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cameroon	--	--	--	--	--	--	--	--	--	--	--	--	Number of users	C2	(111)
Cape Verde	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chad	--	--	--	--	--	--	--	--	--	--	--	--	Imputed by UNODC^	C2	(39)
Cote d'Ivoire	--	--	--	--	--	--	--	--	--	--	--	--	Evidence of drug use in a drug using population	D1	(48)

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Gambia	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
Ghana	--	--	--	--	--	--	0	2003	13-24	B1	7	(112)			
Guinea	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(110)
Guinea-Bissau	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(40)
Liberia	--	--	--	--	--	--	--	--	--	--	--	--	Evidence of drug use in a drug using population	D1	(113)
Mali	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
Mauritania	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(110)
Niger	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)
Nigeria	0	2002	18+	B1	11	(37)	0.1	2002	18+	B1	11	(37)			
	5*	1993	12-20	B2	7	(114)	10*	1993	12-20	B2	7	(114)			
Saint Helena	--	--	--	--	--	--	--	--	--	--	--	--			
Sao Tome and Principe	--	--	--	--	--	--	--	--	--	--	--	--	Imputed by UNODC^	C2	(39)
Senegal	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sierra Leone	--	--	--	--	--	--	--	--	--	--	--	--	Evidence of drug use in a drug using population	D1	(115)
Togo	--	--	--	--	--	--	--	--	--	--	--	--	Drug seizures	D2	(38)

Note. All estimates are reported as percentages. NR=Not reported, ^ no further information available, *sub-national data available in the absence of national data. **We have used the term "Lifetime prevalence" of dependence or use to indicate cumulative probability for that parameter to aid in communication as this is the most commonly used nomenclature in the reviewed data. # - Coca paste or base, ## - Cocaine HCL or powder, ### - Crack cocaine, + median prevalence estimate. *** Past year dependence estimates are point or past year prevalence

A1: Multiple and varied methods of indirect prevalence estimation; **A2:** Three sample capture-recapture, multivariate indicator or back projection method of prevalence estimation. Multiple but similar methods of indirect prevalence estimation; **A3:** Two sample capture-recapture or multiplier method of prevalence estimation; **B1:** General population survey; **B2:** School survey; **B3:** University sample; **B4:** Convenience sample; **C1:** Expert consensus (including Delphi); **C2:** Rapid assessment or other documented 'expert' judgement; **D1:** Government registration of drug users; **D2:** Official government estimate with no methodology reported not including government registration of drug users; **E:** Estimate with methodology unknown

4. DISCUSSION

This review presents both survey data and grey literature on the prevalence of cocaine use and dependence. To our knowledge it is the first to review data on country-level cocaine dependence in a systematic way. This is important as it is an issue with many associated harms and is known to affect public health and policy. In this paper, it is clear that cocaine use occurs around the world. However gaps remain in our knowledge of cocaine dependence.

Results indicate that cocaine is widely used with data covering 98% of the world's population aged 15 to 64 years. Eighty-six countries reported prevalence estimates of cocaine use, comprising of 79% of the world's population aged 15 to 64. Ninety-six countries provided evidence of use through derived estimates, treatment admissions and seizure and trafficking data, thereby accounting for 19% of the world's population aged 15 to 64 years. Fewer countries reported prevalence of use estimates compared to counties with evidence of use (and no estimate). However, this review highlights that the highly populated countries conducted general population and school surveys, as despite fewer countries with use estimates, data covered a greater area of the world's population.

This review also demonstrates that there is limited data on cocaine dependence, with only 5 countries reporting dependence in the last twenty years. This data accounted for approximately 8% of the world's population aged 15 to 64. All past year dependence estimates were less than 0.6%, while the highest lifetime dependence estimates was 1%. Notably, approximately half of the countries reporting cocaine dependence are the countries with the highest point and lifetime prevalence estimate of cocaine use. Considering the high treatment demands of cocaine dependence in the Americas (1), further data is needed in these regions to assess the extent of cocaine dependence and to further understand the impact it has on public health.

Surveys of school students were the most common method of assessing cocaine use in a country (73 countries). This is not surprising given the ease of access simplicity, limited cost and time entailed in undertaking such surveys, but this approach fails to capture patterns of use in the young adult population or among young people who have already left school, a group repeatedly documented to have higher levels of illicit drug use than those in school. This is a significant proportion of young people in countries where rates of high school retention are low.

4.1. Limitations due to measurement differences across existing studies

A notable limitation of many general population surveys is a lack of assessment of specific types of drug dependence. In some cases (for example the Australian National Survey of Mental Health and Well-Being, conducted in 1997 (116)) there was only assessment of "stimulant use disorders", which included both cocaine and amphetamines. There are similar limitations with the World Mental Health Surveys (WMHS), which have surveyed representative samples of the general adult population in over twenty countries (37). Unfortunately, the assessment of drug dependence in these surveys only refers to *any* illicit drug dependence; there is no specific assessment of cocaine use or dependence.

Often the different forms of cocaine were not consistently assessed in the general population and school surveys. This is an important issue as some forms are only available in certain regions and a lack of data may underestimate cocaine use. Many studies do not distinguish between the different forms, collecting information on "any form of cocaine". Additionally, countries who provide information on the use of the different forms of cocaine tend to report use separately

for each form and do not provide an overall measure of the prevalence of cocaine use (49, 51, 52, 55, 57, 58, 60-62, 73, 75, 77, 79-81, 85, 87-89, 91).There is clearly a need for some consensus on reporting of this drug group to be used across countries in future surveys if this kind of uncertainty is to be reduced and comparability increased.

The different forms of cocaine are also important to consider when discussing dependence data. This is because different forms are typically ingested in different ways, which affects how quickly cocaine enters the body, the intensity of the "high" and is thought to determine dependence liability (117, 118). Research has demonstrated that route of administration (inhaling, injection or internasal) was related to severity of cocaine dependence (119, 120), even when frequency of use and dose was controlled for (121).While there is debate over which route has highest dependence liability (120, 121) , it is apparent that the current dependence estimates do not report different forms of cocaine and this information may fill some gaps in dependence literature.

Other limitations preclude meaningful comparisons across studies and countries. These include variations in: population survey methodology (varying from census to random digit dialling); response rates; reported age ranges; and use of national vs. sub-national samples where there are probable geographic variations in cocaine use or dependence; and lack on consistent time periods for measurement ("lifetime" vs. past year vs. past month).
Future research needs to increase the coverage of estimates for different populations and ensure that these estimates are valid. Standardised methods have been developed for population surveys of alcohol (122-124), tobacco (125) and illicit drug use (126), but there has been limited use of these protocols, developed in high income, high capacity countries, in countries with fewer resources (124, 127). The two regions that have put the greatest effort into cross-nationally comparable studies have been Europe, under the guidance of the European Monitoring Centre on Drugs and Drug Addiction (128-131), and the Americas (e.g. (132)), but given that the gaps were so marked in Asian and African countries, there is a clear imperative for more work in this regard.

There is a need to look critically at estimates derived from surveys of illicit drug use relying on self-reports. These estimates will only be accurate if a representative sample is obtained, people honestly disclose their drug use, and drug users are spread evenly around the country – and these conditions are often not met. Marginalised groups who have higher levels of illicit drug use, are typically excluded (e.g. those who are homeless, imprisoned or in treatment facilities). This is particularly the case for the US, where approximately 50% of the prison population have been estimated to have substance use disorders (133). People may also feel uncomfortable disclosing illegal behaviours (which may vary across countries and cultures), particularly in societies where participants fear reprisals for admitting to illegal behaviours. This will particularly be the case when anonymity and confidentiality are not assured. It may also be affected by the type of interviewer, particularly if they are a law enforcement or government official. Finally, illicit drug use is often geographically concentrated, and random sample surveys may not be able to take this into account.

There is a need to develop better methods of estimating cocaine dependence in countries that are unable to conduct national community surveys. Statistical modelling approaches are being investigated to provide regional and global level estimates of cocaine dependence as part of the 2005 Global Burden of Disease project. These methods may be useful for country level studies in future studies.

The gaps documented in this review were concentrated among low and middle income countries. These countries may often lack the resources and expertise to undertake population level assessments of illicit drug use. There is an imperative – endorsed by a recent meeting of the Commission on Narcotic Drugs (134) – to assist countries to collect better data on cocaine and other illicit drug use and dependence. Effective treatments will not only reduce health problems among problem drug users, but may also reduce acquisitive crime and crime related to drug trafficking and distribution. Better data on the drug use situation will increase the likelihood that scarce resources for such interventions are appropriately targeted – at the right age groups, and scaled up to the levels required.

4.2. Limitations of this review

Our review was subject to limitations (see longer discussion of these in (135)). One was the lag between when research is conducted and published in peer-reviewed journals. We addressed this by using multiple methods of locating "grey" literature and by surveying experts in the field about unpublished studies. The latter was a very important source for this review, with a majority of the estimates sourced from the grey literature. Grey literature reports are, however, difficult to access and many not available in English. Concerted efforts are needed to make this source of information more available electronically (see (23)). English language documents were primarily reviewed but the abstracts of many non-English language peer-reviewed articles were also reviewed when available in English; translation was undertaken where papers appeared relevant. Furthermore, estimates were also reviewed by UN staff with access to non-English language material.

4.3. Conclusions

This review demonstrates the availability of cross-national data in an attempt to describe broad geographic patterns of cocaine use and dependence. While broad regional patterns are discussed, this paper did not compare countries cross-nationally using statistical methods because of the large methodological differences in the data collected. The need to standardise methods and improve data is highlighted in order to make a more complete cross-national comparison of cocaine use and dependence. Furthermore, this review establishes a baseline for future work in cocaine research, allowing comparisons of cocaine use and dependence over time.

From this review, it is clear that cocaine use occurs throughout the world; however there are gaps in the global literature on the extent of such use particularly in Asia, Africa, Oceania and the Middle East. Cocaine dependence is reported even less frequently, with this review finding dependence data in only 5 countries. This information is essential, especially in cocaine producing and neighbouring regions, considering the high treatment demands and high estimates of cocaine use in these areas. Country specific and global estimates of cocaine dependence are necessary for future policy and public health strategies in order to attend to harm minimisation for cocaine dependent individuals.

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APPENDIX A: SEARCH STRINGS FOR PEER REVIEWED SEARCHES

Database	Search group	Search terms
Medline*	Cocaine	Cocaine exp Cocaine-Related Disorders/ or exp Cocaine/ or exp Crack Cocaine/
	Gold standard Epidemiology	"prevalence" OR "inciden$" OR "epidemiolog$" OR "history" or "patterns" OR "survey$" OR "data collection$" OR "screening" OR "cohort" OR "population study" OR "population sample" OR "surveillance" OR "community sample" OR "statistics" OR "duration" OR "severity" OR "chronic" OR "long-term" OR "prolonged" exp Epidemiology/ or Exp prevalence/ or exp Incidence/ or exp sex distribution/ or exp age distribution/ or exp epidemiologic methods/ or exp ethnology/ or exp Statistics/ or exp data collection/ or exp health surveys/ or exp health care surveys/ or exp interviews/ or exp narration/ or exp questionnaires/ or exp records/ or exp registries/ or exp disease notification/ or exp epidemiologic studies/ or exp cohort studies/ or exp longitudinal studies/ or exp follow-up studies/ or exp prospective studies/ or exp cross-sectional studies/ or exp sampling studies/ or exp focus groups/
	Basic epidemiology	(inciden$ or prevalen$ or epidemiolog$) Exp Epidemiology/ or exp prevalence/ or exp Incidence/
	Cohort	"cohort" OR "longitudinal" OR "incidence" OR "prospective" OR "follow-up" exp cohort studies/ or exp longitudinal studies/ or exp follow-up studies/ or exp prospective studies/
	Drug Use	drug abuse$ OR drug use$ OR drug misuse$ OR drug dependenc$ OR substance abuse$ OR substance use$ OR substance misuse$ OR substance dependenc$ OR addict$ Exp Substance-related disorders/
EMBASE#	Cocaine	Cocaine exp Cocaine Derivative/ or exp Cocaine/ or exp Cocaine Dependence/
	Gold standard Epidemiology	"prevalence" OR "incidence" OR "epidemiolog$" OR "data collection" Or "Survey" OR "surveillance" OR "screening" OR "population study" OR "population sample" OR "population survey" OR "population surveillance" OR "community sample" OR "RAR" OR "rapid assessment" OR "situation$ assessment" OR "statistics" exp PREVALENCE/ or exp INCIDENCE/ or exp EPIDEMIOLOGY/ or exp Age Distribution/ or exp Sex Difference/ or exp biostatistics/ or exp health statistics/ or exp epidemiological data/ or exp geographic distribution/ or exp field study/ or exp observational study/ or exp panel study/ or exp pilot study/ or exp prevention study/

Database	Search group	Search terms
		or exp trend study/ or exp case finding/ or exp exploratory research/ or exp multimethod study/ or exp naturalistic inquiry/ or exp qualitative research/ or exp quantitative study/ or exp sample size/ or exp secondary analysis/ or exp technique/ or exp triangulation/ or exp "medical record review"/ or exp semi structured interview/ or exp structured interview/ or exp unstructured interview/ or exp observational method/ or exp questionnaire/ or exp open ended questionnaire/ or exp structured questionnaire/ or exp model/
	Basic Epidemiology Cohort	(inciden$ or prevalen$ or epidemiolog$) Exp Epidemiology/ or exp prevalence/ or exp Incidence/ "cohort" OR "longitudinal" OR "incidence" OR "prospective" OR "follow-up" exp COHORT ANALYSIS/ or exp LONGITUDINAL STUDY/ or exp PROSPECTIVE STUDY/ or exp Follow Up/
	Drug Use	Drug abuse OR drug use$ OR drug misuse OR drug dependenc$ OR substance abuse OR substance use$ OR substance misuse OR substance dependenc$ OR addict$ exp substance abuse/ or exp drug abuse/ or exp analgesic agent abuse/ or exp drug abuse pattern/ or exp drug misuse/ or exp drug traffic/ or exp multiple drug abuse/ or exp addiction/ or exp drug dependence/ or exp cocaine dependence/ or narcotic dependence/ or exp heroin dependence/ or exp morphine addiction/ or exp opiate addiction/
PsychINFO^	Cocaine	Cocaine exp Cocaine/ or exp Crack Cocaine/
	Gold standard epidemiology	"prevalence" OR "incidence" OR "epidemiolog$" OR "data collection" Or "Survey" OR "surveillance" OR "screening" OR "population study" OR "population sample" OR "population survey" OR "population surveillance" OR "community sample" OR "RAR" OR "rapid assessment" OR "situation$ assessment" OR "statistics" Exp epidemiology/ or exp STATISTICS/ or exp "POPULATION (STATISTICS)"/ or exp disease course/ or exp statistical analysis/
	Basic epidemiology	Prevalen$ or inciden$ or epidemiolog$ Exp epidemiology/
	Cohort	"cohort" OR "longitudinal" OR "incidence" OR "prospective" OR "follow-up" Exp age differences/ or exp cohort analysis/ or exp human sex differences
	Drug Use	Drug abuse OR drug use$ OR drug misuse OR drug dependenc$ OR substance abuse OR substance use$ OR substance misuse OR substance dependenc$ OR addict$ Exp drug abuse/ or exp drug addiction/ or exp addiction/ or exp drug usage

* ‘key-words’ in lowercase, ‘MeSH’ terms in bold
# ‘key-words’ in lowercase, ‘EMTREE’ terms in bold
^ ‘key words’ in lowercase, explode terms in bold

APPENDIX B: SEARCH STRING COMBINATIONS

Number of articles identified from cocaine prevalence/incidence search combinations

	Search terms		Database		
			Medline	EMBASE	PsycINFO
1.	Cocaine	+ gold standard epidemiology	5885	4885	1456
2.	Cocaine	+ gold standard epidemiology + cohort	1820	1053	487
3.	Cocaine	+ basic epidemiology	1699	2964	816
4.	Cocaine	+ basic epideimiology + cohort	792	647	224

APPENDIX C: ILLICIT DRUGS QUALITY INDEX

1. Case ascertainment

2	• Nationwide survey/register/database (not for a specific population) • Multiple institutions/centres
1	• Regional • Case/death registers • One treatment institution/hospital etc.
0	• Not specified

2. Measurement instrument

3	• Interview/self-reported drug use (comment about reporting type, eg. self-report or standardised interview) • In treatment for drug dependence
2	• Systematic case note/database/reports review • Blood and/or urine toxicology screen
1	• Chart diagnosis
0	• Not specified

3. Diagnostic criteria

1	• Any diagnostic system reported for drug dependence or abuse (not use) eg., DSM, ICD, RDC (comment, eg. DSM) • Dependence inferred from type of sample population (comment, eg. treatment centre)
0	• Drug use • Own system • Symptoms described • No system • Not specified

4. Estimate

1	• Yes (comment on what type of estimate, eg. relative risk, SMR, prevalence, incidence)
0	• No

5. Numerator and denominator presented?

1	• Yes
0	• No

6. Numerator and denominator based on identical epochs and identical catchment areas?

1	• Yes
0	• No

7. Completeness of follow-up in cohort studies and response for cross-section studies

2	• High response rate/inclusion of defined sample population (>80%)
1	• Moderate response rate (60% - 79%) • Exclusions made
0	• Poor response rate (<60%)

8. Representative of the catchment area?

2	• Well represented • National registers • Multiple institutions across states
1	• Small area • Not representative of nation • One treatment centre • Registers of specific populations, eg. pilots
0	• Convenient sampling • Other (comment)

9. Age/sex specific values presented?

2	• Yes
1	• Some (eg. sex and 2 broad age ranges only)
0	• No

10. Quality of methods of reporting

Text	• Eg. translation of tools, interviewer's quality, quality control monitoring, limitations of data, high quality methods used etc

11. Duration of follow-up

Text	• Eg. Number of years at follow-up – small sample size over a number of years etc.

APPENDIX D: ACCESS DATABASE MANUAL AND DATA ENTRY RULES

Global Burden of Disease study: Overview

We are collecting data to generate regional estimates of:
Prevalence;
Incidence;
Remission;
Duration; and
mortality,
for 5 different types of drug dependence:
amphetamine-type stimulants (ATS);
benzodiazepine;
cannabis;
cocaine; and
heroin and other opioids.

Estimates need to be made for 1990 and 2005, reflecting the general population.

Ideally raw data should be used, however in cases where the study is a comparison against a survey that we cannot otherwise access, then it is appropriate to enter the reported (not raw) data but make sure that a comment is added in the estimates comment box (eg. "data from 2006 report") to note that this data is not raw and that it was used to avoid missing out on the data completely. Please keep note (on paper) of the years of data extracted from the report and give to XX.

Data extraction

- Endnote libraries contain the data sources that need to be extracted for each parameter (PDFs are attached to each reference).
- Prevalence and Incidence data sources will be in the same library
- Remission and duration sources will be in the same library
- Mortality sources are in their own library

Interns: please enter data into the **1st entry windows only**

Estimates will be entered as 1st Entry by the first person that looks at the data, then a second time in the 2nd Entry by the person who is looking at the data. The Final Entry will function to cross-check the data entered for a source. Make sure that the second entry of an estimate is matched with second entry of the same estimate.
Only enter raw data.
Do not process any calculations; only enter what is presented in the publication.
Once you start entering information from a data source, you must extract ALL the data from the data source (please do not partially enter data from a source).
Data must be entered in ALL fields. If a field is not applicable or data is missing, please enter "999" (see General GBD Database Rules).

If an article reports on data from more than one country – an entirely new entry needs to be created from the Studies Summary window
Once extracted, please make a note in the endnote library under Research Notes "extracted by *insert name here*, *insert date here dd month year*", eg. "extracted by Bianca Calabria, 16 June 2008".

If you start creating the final entries for a data source (automatically cross-checking the 2 previous entries or copying the first entry to the final entry), you must complete all the final entries of each estimate for that data source.

Prevalence and Incidence specifics:

RAW DATA ONLY

Many articles will report older data for comparisons. Please only extract the data which were the product of the **current** study or survey. However, at present (due to time constraints), when a report displays estimates from previous years of the same survey please extract all years of data. For previous survey year data enter a comment in the estimate comments box, "data from the 2006 report", for example. Please keep note (on paper) of the years of data extracted from the report and give to Bianca.

ALL PREVALENCE ESTIMATES

Drug use prevalence can be measured in several ways:
Lifetime Prevalence (LT) (ie: has the person ever tried the drug, even once)
Past year prevalence (PYP): has the person used the drug in the previous 12 months
Past month prevalence (PMP): also Past 30 day Prevalence (has the person used the drug in the last month/30 days)
For the GBD we are most interested in PMP, however, **we need to collect data on all three types of prevalence**, whenever they are reported. So, if an article reports on all three – please extract them ALL.

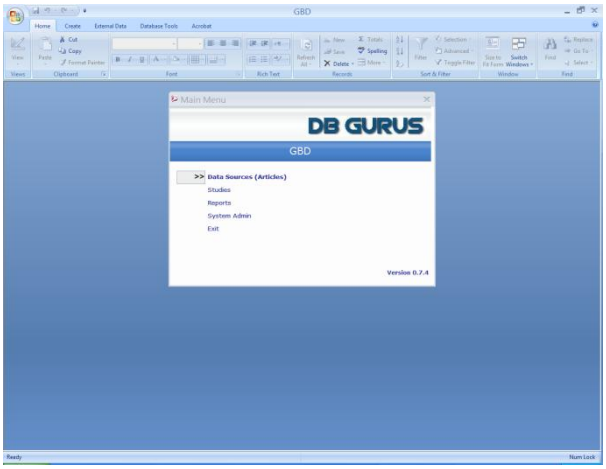
WEIGHTED AND UNWEIGHTED ESTIMATES

Some papers will report both weighted and unweighted estimates. Weighted estimates have been adjusted so that the sample is representative of the general population.
Please extract BOTH WEIGHTED and UNWEIGHTED.
Weighted estimates should have the Standardised box ticked, with a comment about how and why the statistics were weighted (if possible)

GBD Database Instructions

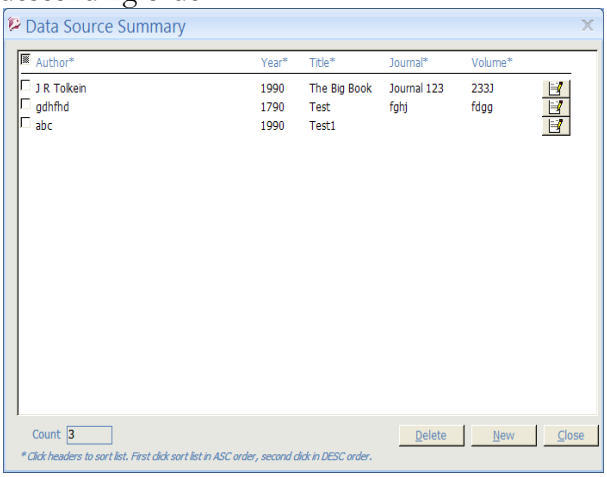
DO NOT USE ROLLER ON MOUSE

Open the GBD database (front end) file, to the main menu.
Clicking once is enough, double clicking is not necessary.



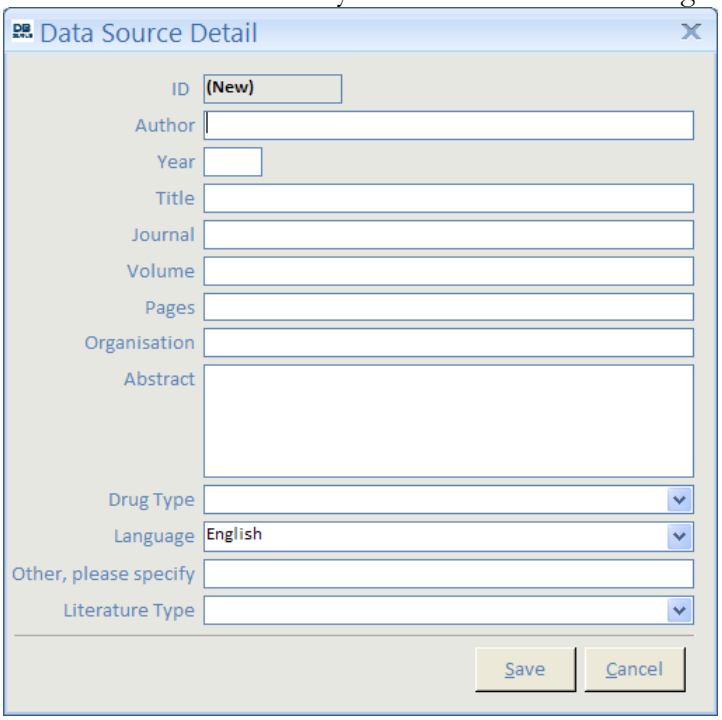
Data Source (Articles)

Click once on ***Data Sources (Articles)*** to view the ***Data Source Summary***.
Headers can be clicked once to sort lists in ascending order, a second click will sort in descending order.



Create a new article entry

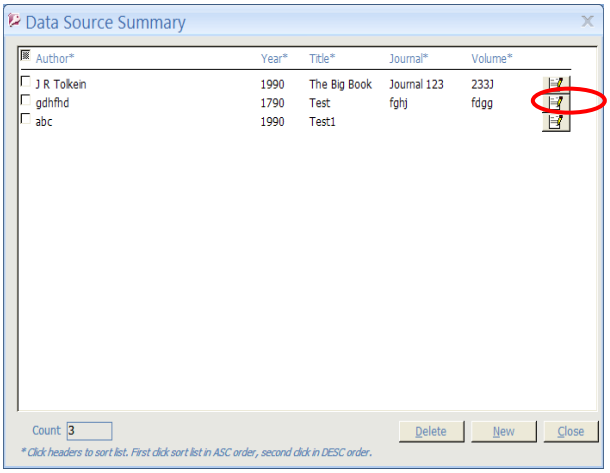
To create a new article entry click **new** at the bottom right of the screen.



Enter data in ALL fields, then click **save** and **close** (abstract field can be left blank).
Click **close** in the ***Data Source Summary*** screen to return to the main menu.

Edit an existing article entry

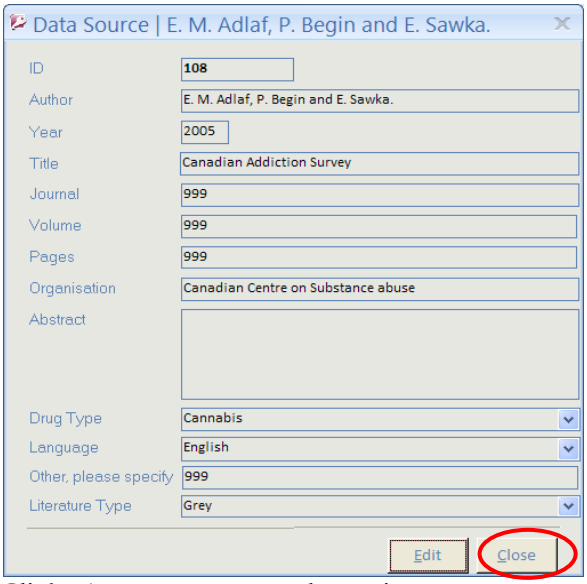
To edit an existing article entry click on the icon on the far right of the screen that is associated with the entry you wish to edit.



Then

Click **edit** on the bottom of the ***Data Source*** screen to edit existing information.

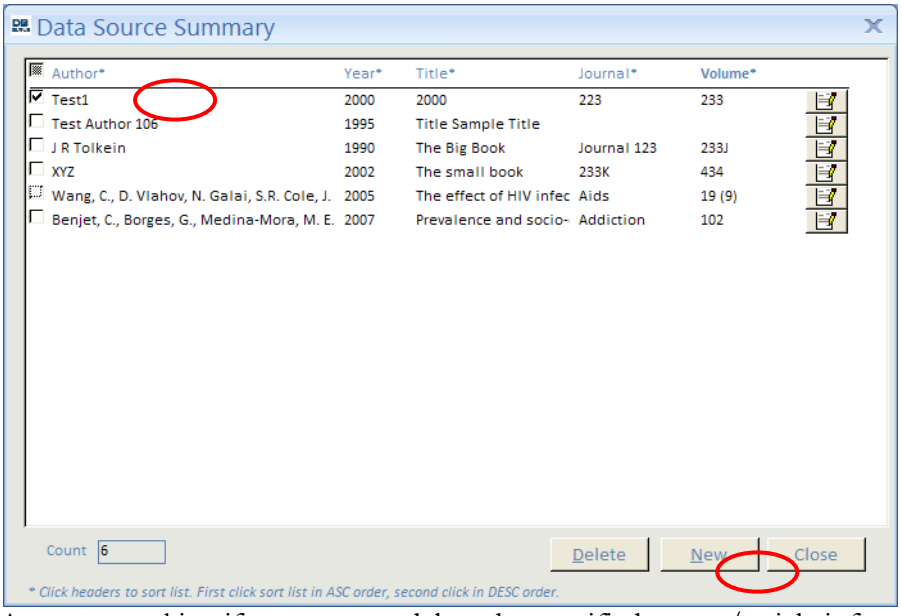
Click **save** and **close**.



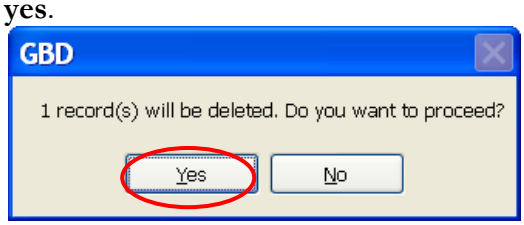
Click **close** to return to the main menu.

<u>Deleting report/article information</u>

In the ***Data Source Summary*** screen select the report/article you wish to delete by ticking the box to the left of the report/article information. Then click **delete** at the bottom right of the screen.



A message asking if you want to delete the specified report/article information will appear, click **yes**.

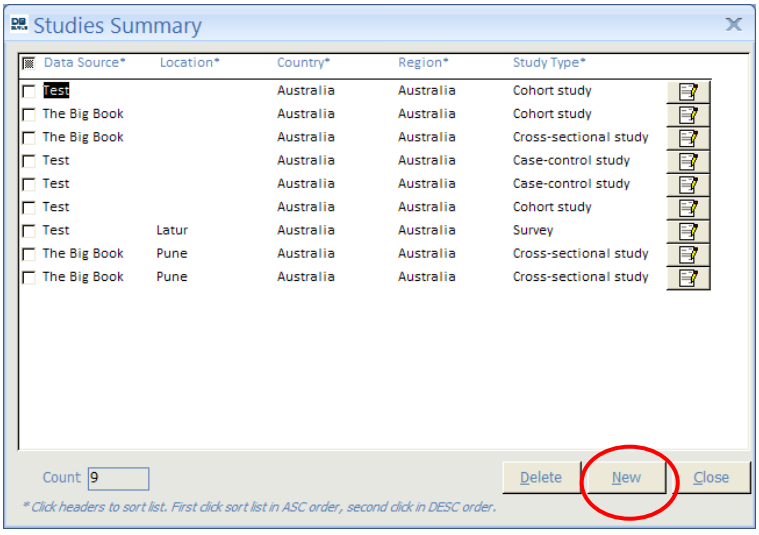


Studies

From the Main Menu click once on ***Studies*** to view the ***Studies Summary***.

Creating new study information (following on from creating new article entry)

To create a new study entry, that is new study information following on from entering the new article information, click **new** at the bottom right of the screen.



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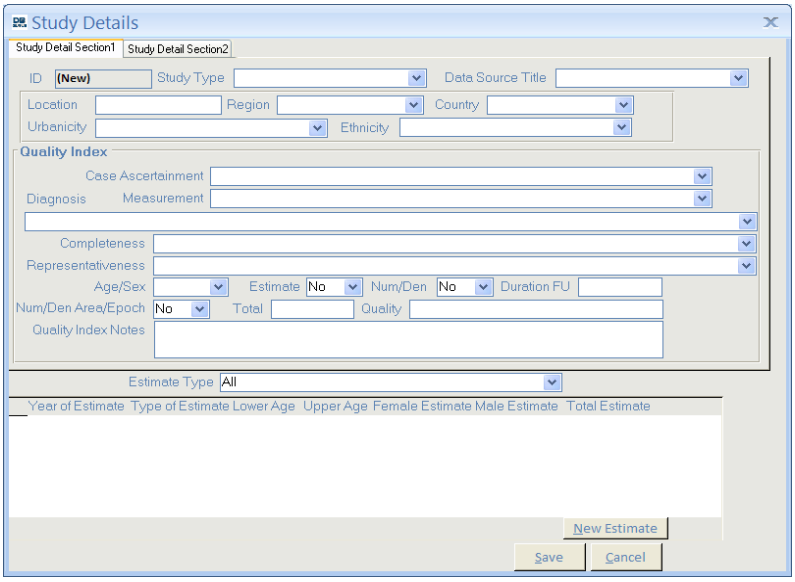
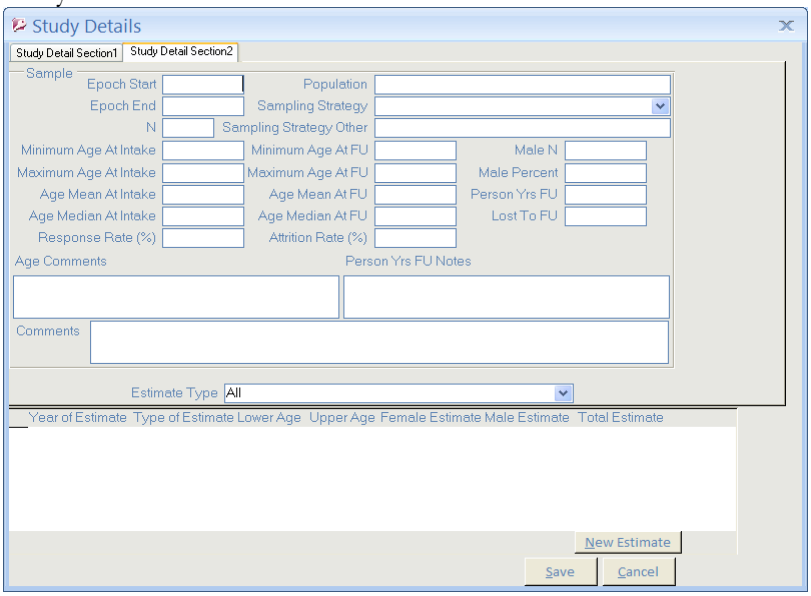
Study Detail Section 1

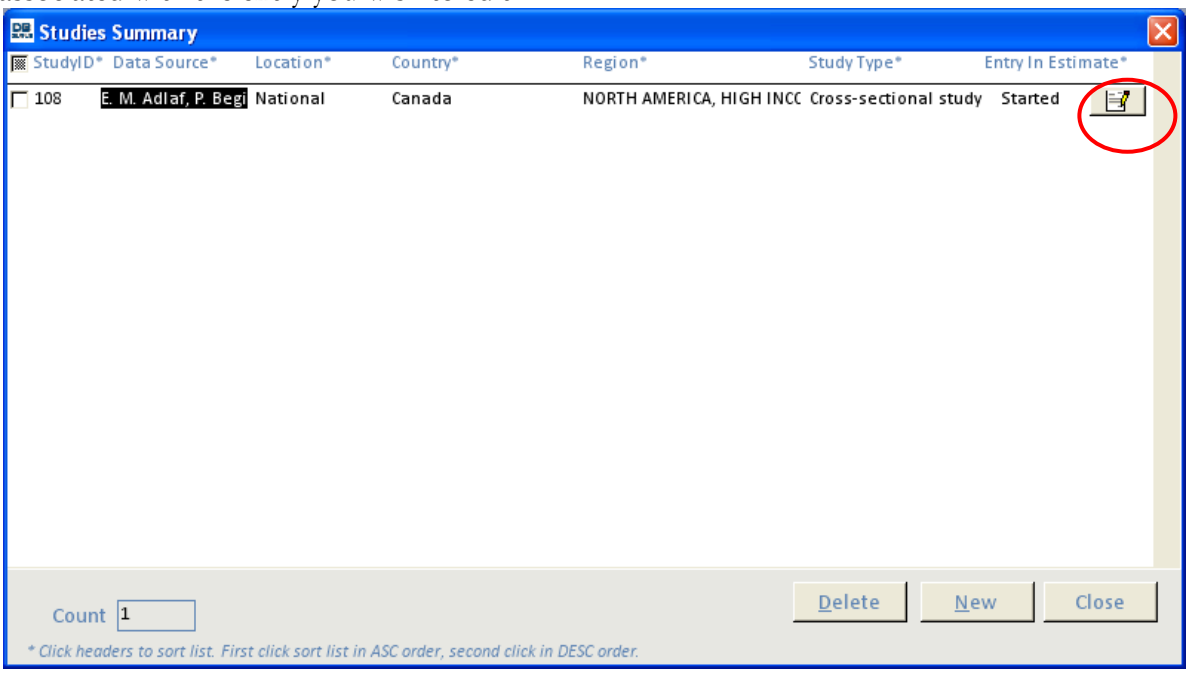


First select the authors of the particular article from the *Data Source Title* drop down box.
Enter data in ALL remaining fields on the ***Study Detail Section 1*** screen.
Select the ***Study Detail Section 2*** screen by clicking on the labelled tab at the top left of the screen.
Study Detail Section 2



Enter data in ALL fields on the ***Study Detail Section 2*** screen (including *Estimate Type*).
Click **save.**
<u>Reports/articles that present data on more than one country.</u>
Click **new** at the bottom right of the ***Studies Summary*** screen. Select the appropriate author/date from the ***Study Detail Section 1*** screen and enter data for one of the countries reported on. Click **save** and **close**.
To enter the data for a different country presented in the same report/article, need to make a new record. Click **new** from the Studies Summary screen, select the appropriate author/date in the ***Study Details Section 1*** screen and input data. Click **save** and **close**.
In the ***Studies Summary*** screen the data source will be displayed twice, with the different country shown for each display.
<u>Editing existing study information</u>

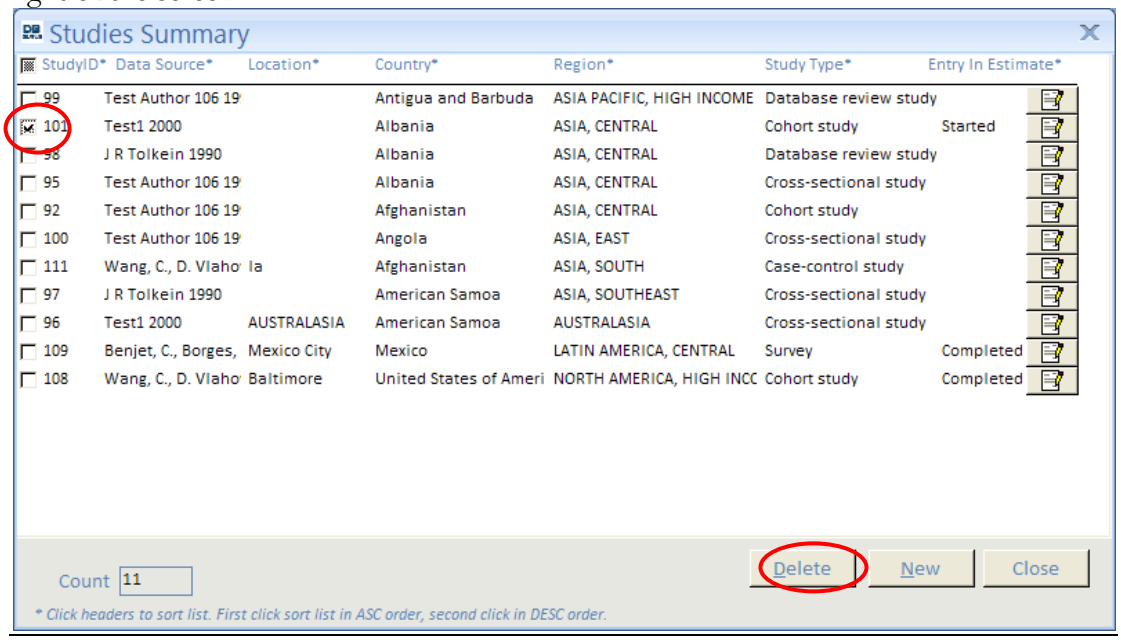
To edit existing study information click on the icon on the far right of the screen that is associated with the entry you wish to edit.



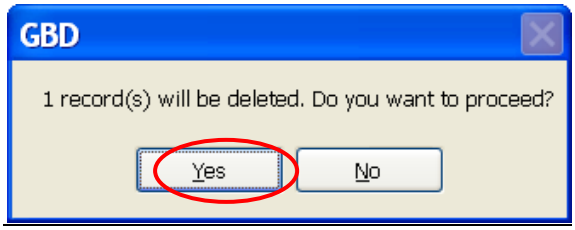
Click **edit** on the bottom of the ***Study Details*** screen to edit existing information (***Study Detail Section 1*** and ***Study Detail Section 2*** may both be edited, change between screens by clicking on the appropriately labelled tab at the top left of the screen).
Click **save** and **close**.

Deleting study information

In the ***Study Summary*** screen select the report/article you wish to delete study information for by ticking the box to the left of the report/article information. Then click **delete** at the bottom right of the screen.



A message asking if you want to delete the specified report/article information will appear, click **yes**.



Estimate Details

Creating a new estimate entry (following on from creating new study information)

In the Studies Summary screen, click on the icon on the far right of the screen that is associated with the entry you wish to add an estimate.

Click **edit**, at the bottom right of the ***Study Details*** screen.

Click **New Estimate**, at the bottom right of the ***Study Details*** screen.

The ***1st Entry*** radio button should be selected if this is the first time data has been extracted from an article/report, ***2nd Entry*** radio button should be selected if this is the second time data has been extracted from the same article/report (not by the same person that entered the 1st entry), the final entry functions to compare the 1st and 2nd entries.

Only estimate information is entered into the database in the second entry, however, article/report and study information should be visually checked for errors by the second person entering estimate information.

Once data has been entered in ALL the fields click save and close.

In the ***Study Details*** screen click **save** and **close** to return to the ***Studies Summary*** screen.

Deleting estimate information

To delete an estimate, open up the estimate and click the delete button situated at the bottom right of the box.

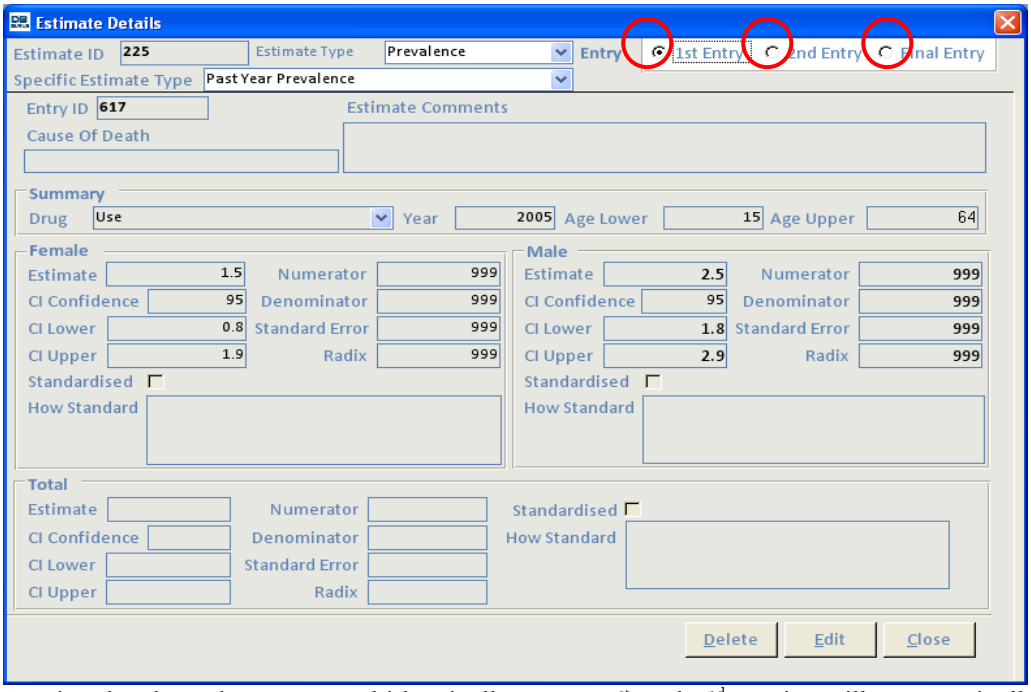
Comparing the 1st Entry and the 2nd Entry

In the ***Studies Summary*** screen, click on the icon on the far right of the screen that is associated with the entry for which estimates you would like to compare.

In the ***Study Details*** screen click **edit** at the bottom right of the screen.

In the estimate summary section at the bottom of the screen, click on the icon on the far right of the screen that is associated with the estimate that comparison of entries is required.

Check that both the 1st and 2nd entries have been completed by clicking the radio buttons at the top right of the screen. If both are complete click on the radio button for the ***Final Entry***, then click **edit**.



Entries that have been entered identically across 1st and 2nd entries will automatically appear in the final entry. Fields highlighted in pink do not match across 1st and 2nd entries and must be checked and correct responses entered manually.

Click **save** and **close**.

Queries

Linking tables from the Access database that holds the data to the new Access database that holds the queries:

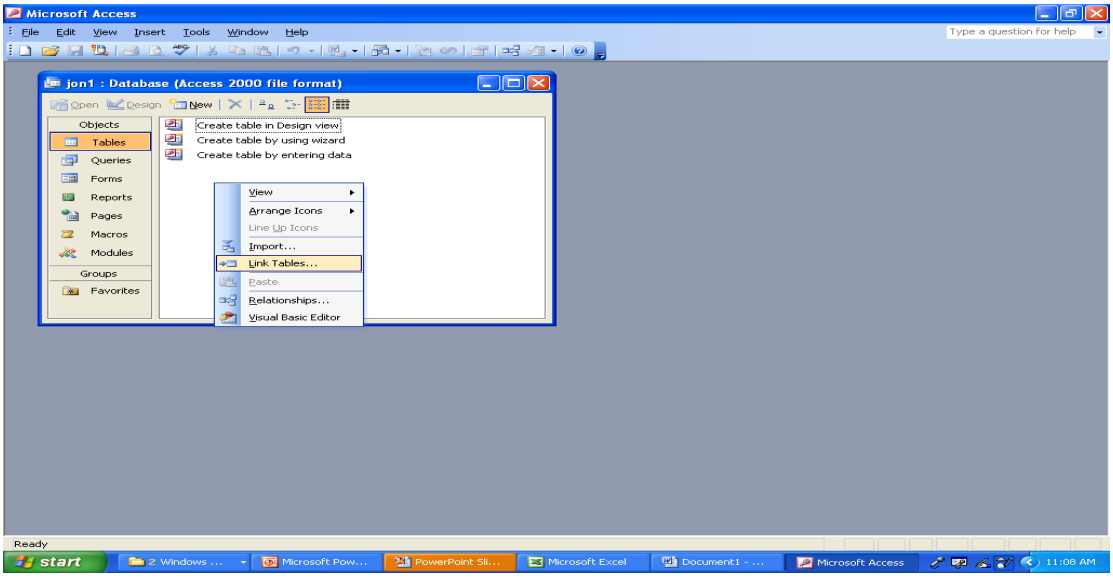
Open a new Access file

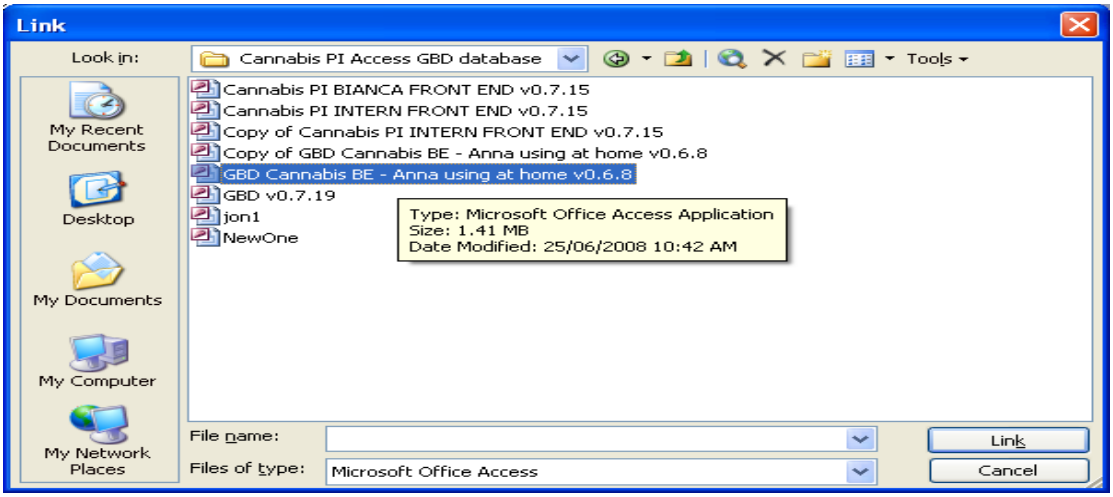
Highlight Tables in the left hand list

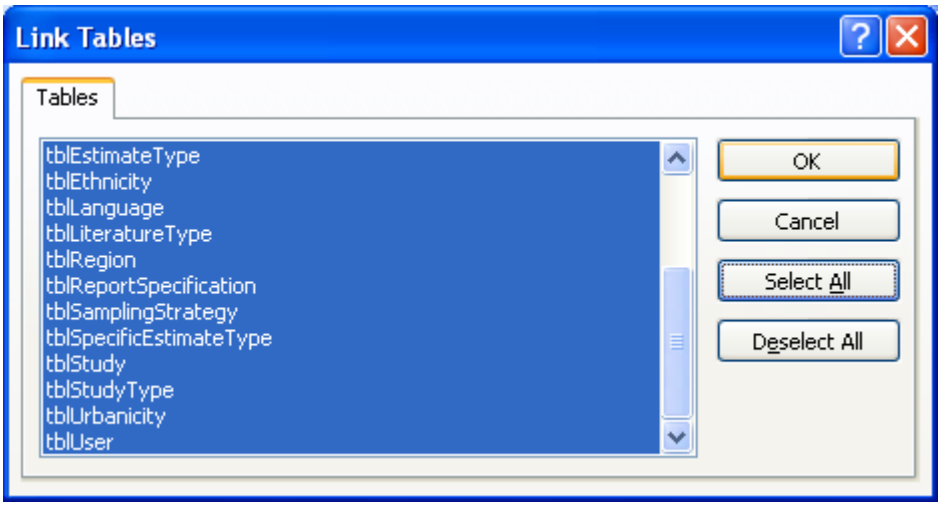
Right click and select: "Link tables"

Choose folder containing the Back End

Double click on the back end file

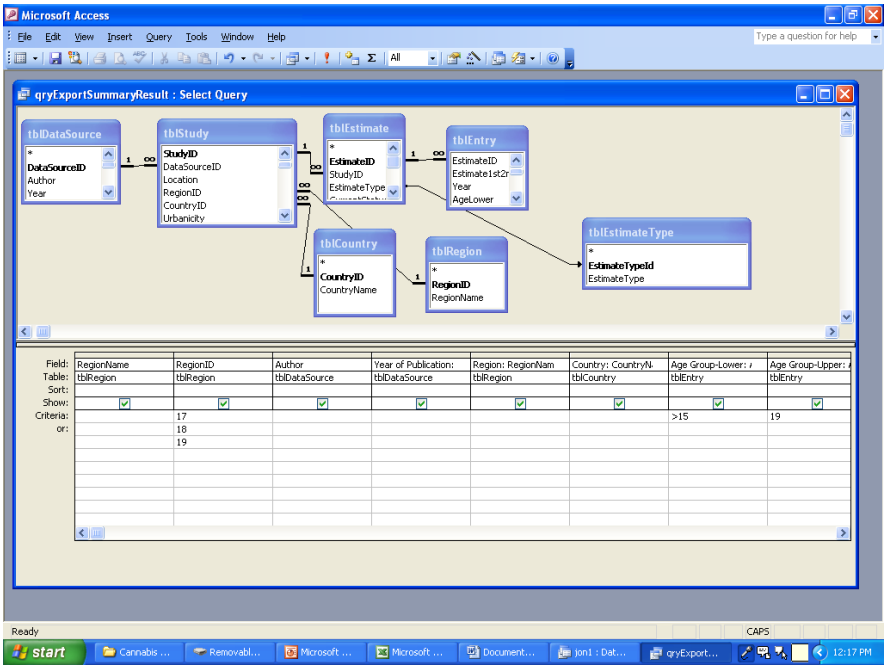






Choose "Select all"
Click "OK"

To make a query:
choose Queries from the left hand list
Select "New"
Select "Design view"
Right click over the blank area and choose "Show Table"
Choose the table that contains the data you want to run reports from
Continue doing this until you have selected all the tables containing the data you want to pull



Use the drop down box in the Table row to select the relevant Table
Use the drop down box in the Field Row to choose the specific information
Press the red exclamation mark on the toolbar to run the report

GBD Database - Data Entry Rules

Data Source (Articles)

Variable	Database Rules
*****All relevant text can (and should!) be copied and pasted directly from Endnote*****	
Author/s	First author surname, 1st initial., second author surname, 1st initial., & final author surname, 1st initial. 2nd initial. Eg. Singleton, J., Calabria, B., & Roberts, A. S. Insert editors if no authors are stated with "eds." after their names For EMCDDA reports without authors or editors, type EMCDDA – *country of report.* If there is no Author, enter the Data Source ID (which is the top field in the Data Source Detail window) and the Country. Eg. "131 Australia" When multiple entries have the same authors (eg. Monitoring the Future) enter 1st author name, volume of report (if applicable) and year of publication, followed by list a all authors (as would usually be entered).
Year	Year of Publication Year of Publication can be copied and pasted from Endnote
Title	Title of article/report
Journal	Name of Journal (if applicable) For non-journal sources enter 999
Volume	Journal Volume(Issue) [if applicable] Eg. 118(4) Journal Volume: Issue can be copied and pasted from Endnote For non-journal sources enter 999

Variable	Database Rules
Pages	Start page – end page (if applicable) Eg. 115-118 Start and end page can be copied and pasted from Endnote For non-journal sources enter 999
Organisation	For grey literature publications indicate the organisation that is
Abstract	Article abstract (if applicable)
Drug Type	Chose from drop down box NB: If cocaine powder and crack are reported separately, you will need to type this into the "Estimate Comments" box on the Estimate Details window
Language	Determines which language the article/report is written in. Select from drop down box English Other (specify other language in *Other, please specify* field)
Other, please specify	For languages other than English specify which language the article/report is written in (Other should have been selected from the *Language* drop down box)
Literature type	Indicate whether the literature type is white (peer reviewed) or grey (material that is not formally published by commercial publishers). Select from drop down box Grey White

Studies

Study Detail Section 1

Variable	Database Rules
Data Source Title	Select correct authors from drop down box
Study Type	Select study type from drop down box: Cohort study Cross-sectional study Case-control study Database review study Survey Indirect prev est (e.g., capture-recapture, multiplier)
Location	Type specific location of the study. If countrywide, type "National"
Region	Select appropriate GBD region from drop down box
Country	Select country were study took place from drop down box
Urbanicity	Select from drop down box Urban/metropolitan Rural Mixed/Other – suburban, etc. Only select an option if specifically reported in data source. Otherwise leave blank.
Ethnicity	Leave blank
QUALITY INDEX **NOTE: For mortality extraction, there is a different quality index**	

Variable	Database Rules
Case ascertainment	Ascertainment of cases nationwide or regionally? Select from drop down box Community/nationwide survey/register/database Case registers/Regional death registers/One treatment institution/hospital Not specified **NOTE:** For studies using indirect prevalence estimation (e.g., capture-recapture), choose 'Community/nationwide survey/register/database'
Measurement	Measurement instrument to determine cannabis use or dependence. Select from drop down box Interview/self-reported drug use/In treatment for drug dependence Systematic case note/database/reports review/blood and/or urine toxicology screen Chart diagnosis Not specified **NOTE:** For studies using indirect prevalence estimation (e.g., capture-recapture), choose 'Interview/self-reported drug use/In treatment for drug dependence'
Diagnosis	Indicates whether cannabis dependence was diagnosed. Select from drop down box Any diagnostic system reported for drug dependence or abuse/Dependence inferred from type of sample population Drug use/Own system/Symptoms described If not reported, leave blank and make note in quality index comments that "Diagnosis" not reported. **NOTE:** For studies using indirect prevalence estimation (e.g., capture-recapture), choose 'Any diagnostic system reported for drug dependence or abuse/Dependence inferred from type of sample population'
Estimate	Estimate presented (e.g. prevalence, incidence, mortality, relative risk, etc.) Select from drop down box Yes No
Num/Den	Was the numerator and denominator presented for **ALL** the estimates of interest? Select from drop down box Yes No

Variable	Database Rules
Num/Den Area/Epoch	Were the numerator and denominator based on identical epochs and identical catchment areas for estimate of interest? That is, was the estimate (prevalence for example) calculated based on the sample (YES) or by use of population numbers for the denominator from the same year and area (YES)? Choose NO if the denominator is from a different year or area from the sample. Select from drop down box Yes No
Completeness	Captures response rates and attrition rates. Select from drop down box High response rate/inclusion of defined sample population (>80%) Moderate response rate (60% - 79%) Exclusions Poor response rate (<60%)made If response rate is not reported, please select "Exclusions Poor response rate (<60%) made" as this option is scored as 0 and make a comment in the quality index comments box that completeness was not reported. **NOTE:** For studies using indirect prevalence estimation (e.g., capture-recapture), choose 'High response rate/inclusion of defined sample population (>80%)'
Representativeness	Determines generalisability of the sample to the population Select from drop down box Well represented/National registers/Multiple institutions across states Small area/Not representative of nation/One treatment centre/Registers of specific populations Convenient sampling/Other If not reported, leave blank and make note in quality index comments that "Representativeness" not reported. **NOTE:** For studies using indirect prevalence estimation (e.g., capture-recapture), choose 'Well represented/National registers/Multiple institutions across states'
Age/sex	Identifies whether age and/or sex specific values were reported. Select from drop down box Yes (estimates dived by age and sex) Some (eg. sex and 2 broad age ranges only) No
Quality	To capture methods that were not reported on by other variables (free text)

Variable	Database Rules
Duration FU	To obtain more information about follow-up periods and sample sizes when doing so (free text)
Total	Automatically calculates the total Quality Index Score
Quality Index Notes	Insert any other quality information that has not been captured by other variables. For example, note whether the study is one that uses indirect prevalence methods, and state which data sources were used for this.
Estimate type	No need to choose an option here.

Study Detail Section 2

Variable	Database Rules
Epoch start	Year that the study started. If the study only extends over one year enter the same year in Epoch start and Epoch end.
Epoch end	Year that the study ended. If the study only extends over one year enter the same year in Epoch start and Epoch end.
N	Total number of people in the sample. If the number of people who responded to the drug use questions is reported, and this is different to the overall N, put in the drug response N here and make a note in the comments. Enter the total N in the Comments. Otherwise enter total sample N here.
Population	Specific information about the type of population. For a representative sample enter "general population".
Sampling strategy	Select from drop down box Simple random sampling Stratified random sampling Cluster sampling Systematic sampling Other Other (Matching Other (Snowballing) Other (Convenience) Other (please specify) Census If sampling strategy is not reported, select "Other" and enter "Not reported" in the Sampling strategy Other box.
Sampling strategy Other	If *Other* is selected from *Sampling Strategy*, indicate sampling strategy used here If Sampling Strategy was not reported enter "Not reported" here
Minimum Age at Intake	The minimum age of the total sample at intake. Enter section/survey data into intake fields. If the study does not report the youngest age, enter "0" and make a comment in the *age comments* box indicating no minimum age reported. See end of manual for ages of U.S high school and college students.

Variable	Database Rules
Maximum Age at Intake	The maximum age of the total sample at intake. Enter section/survey data into intake fields. If no maximum age is reported, enter "99" and make a comment in the *age comments box* indicating no maximum age reported. See end of manual for ages of U.S high school and college students.
Age Mean at Intake	The mean age of the total sample at intake. Enter section/survey data into intake fields.
Age Median At Intake	The median age of the total sample at intake. Enter section/survey data into intake fields.
Response Rate (%)	Response rate, reported as a percent. If reported for different age groups enter highest reported, then make comment in *studies comment* box indicating all response rates reported.
Minimum Age at FU	The minimum age of the total sample at follow-up. See end of manual for ages of U.S high school and college students.
Maximum Age at FU	The maximum age of the total sample at follow-up. If no maximum age is reported, enter "99" and make a comment in the *age comments box* indicating no maximum age reported. See end of manual for ages of U.S high school and college students.
Age Mean at FU	The mean age of the total sample at follow-up.
Age Median FU	The median age of the total sample at follow-up.
Attrition Rate (%)	The attrition rate, reported as a percent.
Male N	Number of males in the sample.
Male Percent	Percent of males in the sample.
Person Yrs FU	Total person years follow up (this is mainly relevant for cohort studies) If person years of follow up are reported by age and/or sex, please record this in the Person Yrs FU Notes box
Lost To FU	What % of the sample is lost to follow up?
Age Comments	Additional comments about age.
Person Yrs FU Notes	If person years of follow up are reported by age and/or sex, please record this here.
Comments	If a peer reviewed article reports on an aspect of a larger survey, note which survey the data comes from in the comments box. Must enter text or alternatively "999" if no comments are required.
Estimate Type	Select type of estimate from drop down box Duration Incidence Mortality Prevalence Remission

Estimate Details

Variable	Database Rules

Variable	Database Rules
Entry	Click the radio button for 1st Entry for the first time the data is entered for and article, 2nd entry for the second time the data is entered for the same article and final entry when you want to compare the 1st and 2nd entries.
Estimate Type	Select estimate type from drop down box Duration Incidence Mortality Prevalence Remission
Specific Estimate Type	Select specific estimate type from drop down box Duration Incidence Cumulative incidence Past Year Incidence Mortality CMR (Crude Mortality Rate) SMR (Standardised Mortality Ratio) RR (Relative Risk) OR (Odds Ratio) HR (Hazard Ratio) CFR (Case Fatality Ratio) Other, please specify (specify in *Estimate Comments*) Prevalence Lifetime Prevalence Past Year Prevalence Past Month Prevalence Remission Abstinent Still using, not dependent Still met criteria for dependence Relapsed
Cause of Death	For mortality estimates only. If mortality, "other, please specify" put details in *Estimates Comments*
Estimate Comments	Add extra information that is not captured by other variables. If cocaine powder and crack cocaine are reported separately, type "Crack cocaine" or "Cocaine powder" here
SUMMARY	
Drug	Indicates use or dependence, select from drop down box Use Dependence Other (eg. abuse – specify in *Estimate Comments*)
Year	Year of estimate If data were collected across 2 years (eg: July 2004 until May 2005) enter "0405" (this includes mortality cohorts). If no year of estimate is stated then insert the publication year minus 2 years

Variable	Database Rules
Age Lower	Minimum age of age group for which estimate is reported. If only reporting for one age, put the same age in *Age Lower* and *Age Upper*. If estimate applies to entire sample, enter the youngest age from the age range If the study does not report the youngest age, enter "0" and make a comment in the *age comments* box indicating no minimum age reported. See end of manual for ages of U.S high school and college students.
Age Upper	Maximum age of age group for which estimate is reported. If only reporting for one age, put the same age in *Age Lower* and *Age Upper*. If estimate applies to entire sample, enter the oldest age from the age range If no maximum age is reported, enter "99" and make a comment in the *age comments box* indicating no maximum age reported. See end of manual for ages of U.S high school and college students.
FEMALE	
Estimate	Estimate reported for females (eg. past year prevalence)
CI Confidence	Type of confidence interval used, as a percent. Eg. For a 95% CI, 95 would be entered
CI Lower	Lower limit of the confidence interval
CI Upper	Upper limit of the confidence interval
Numerator	Numerator of the estimate, if reported.
Denominator	Denominator **of the estimate**, if reported.
Standard error	Standard error of the estimate.
Radix	Indicate how estimates are given, uniformly per 10* of population. e.g. per 100000 or 100
Standardised	Tick box if the estimate standardised. Leave the box blank if the estimate is not standardised.
How Standard	If the estimate is standardised, indicate how/ by what.
MALE	
Estimate	Estimate reported for males (eg. past year prevalence)
CI Confidence	Type of confidence interval used, as a percent. Eg. For a 95% CI, 95 would be entered
CI Lower	Lower limit of the confidence interval
CI Upper	Upper limit of the confidence interval
Numerator	Numerator of the estimate, if reported.
Denominator	Denominator of the estimate, if reported.
Standard error	Standard error of the estimate.
Radix	Indicate how estimates are given, uniformly per 10* of population. e.g. per 100000 or 100
Standardised	Tick box if the estimate standardised. Leave the box blank if the estimate is not standardised.
How Standard	If the estimate is standardised, indicate how/ by what.
TOTAL	

Variable	Database Rules
Estimate	Estimate reported for both males and females combined (eg. past year prevalence)
CI Confidence	Type of confidence interval used, as a percent. Eg. For a 95% CI, 95 would be entered
CI Lower	Lower limit of the confidence interval
CI Upper	Upper limit of the confidence interval
Numerator	Numerator of the estimate, if reported.
Denominator	Denominator of the estimate, if reported.
Standard error	Standard error of the estimate.
Radix	Indicate how estimates are given, uniformly per 10* of population. e.g. per 100000 or 100
Standardised	Tick box if the estimate standardised. Leave the box blank if the estimate is not standardised.
How Standard	If the estimate is standardised, indicate how/ by what.

General GBD Database Rules

Situation	Entry	Comments
Missing data/not applicable	999	All fields in the database must be completed. Enter the missing data code if field is not applicable or study does not report on a particular variable
For EMCDDA Data; These are the standardised rules for entering EMCDDA		
Location	"National" unless otherwise specified	
Urbanicity	"Mixed/other" unless otherwise specified	
Ethnicity	Left blank as no general rule is applicable	
Case Ascertainment	"Community/Nationwide survey/Register/Database"	
Measurement	"Interview/Self-reported Drug Use/In treatment for Drug Dependence	
Diagnosis	"Drug use/own system/ symptoms described"	
Completeness	Left blank unless specified	
Representativeness	"Well represented/ national registers/ multiple institutions across states"	

Ages for U.S High School and College Students

	High school students		College students
	8th grade	13-14 years	
Freshman	**9th grade**	14-15 years	18-19 years
Sophomores	**10th grade**	15-16 years	19-20 years
Juniors	**11th grade**	16-17 years	20-21 years
Seniors	**12th grade**	17-18 years	21-22 years

For further information data extraction and the Access database see also:
http://www.gbd.unsw.edu.au/gbdweb.nsf/resources/Methodology_pt3c_Drugs/$file/GBD_Methodology_pt3b_IllicitDrugs_08Oct08.pdf

APPENDIX E: SEARCH STRINGS FOR ANY EVIDENCE OF USE IN SPECIFIC COUNTRIES

Databases/Search Engine	Search Group	Search terms
GoogleScholar	Cocaine	Cocaine
	Drug use	"drug use" OR "drug abuse" OR "substance use" OR "substance abuse"
	Country	*"country name"*
WorldCat/ PubMed/ PsychINFO	Cocaine	Cocaine
	Drug use	"drug use" OR "drug abuse" OR "substance use" OR "substance abuse"
	Country	"*country name*"

APPENDIX F: GLOBAL BURDEN OF DISEASE COUNTRY AND REGION LIST

ASIA PACIFIC, HIGH INCOME
~
Brunei
Japan
Republic of Korea
Singapore

ASIA, CENTRAL
~
Armenia
Azerbaijan
Georgia
Kazakhstan
Kyrgyzstan
Mongolia
Tajikistan
Turkmenistan
Uzbekistan

ASIA, EAST
~
China
Democratic People's Republic of Korea
Hong Kong
Taiwan

ASIA, SOUTH
~
Afghanistan
Bangladesh
Bhutan
India
Nepal
Pakistan

ASIA, SOUTHEAST
~
Cambodia
Indonesia
Lao People's Democratic Republic
Malaysia
Maldives
Mauritius
Mayotte
Myanmar
Philippines
Seychelles
Sri Lanka
Thailand
Timore Leste
Viet Nam

AUSTRALASIA
~
Australia
New Zealand

CARIBBEAN
~
Anguilla
Antigua and Barbuda
Aruba
Bahamas
Barbados
Belize
Bermuda
British Virgin Islands
Cayman Islands
Cuba
Dominica
Dominican Republic
French Guiana
Grenada
Guadaloupe
Guyana
Haiti
Jamaica
Martinique
Montserrat
Netherlands Antilles
Saint Kitts and Nevis
St. Lucia
St. Vincent
Suriname
Trinidad and Tobago
Turks and Caicos Islands

EUROPE, CENTRAL
~
Albania
Bosnia and Herzegovina
Bulgaria
Croatia
Czech Republic
Hungary

Poland
Romania
Serbia and Montenegro
Slovakia
Slovenia
The Former Yugoslav Republic of Macedonia

EUROPE, EASTERN
~
Belarus
Estonia
Latvia
Lithuania
Republic of Moldova
Russian Federation
Ukraine

EUROPE, WESTERN
~
Andorra
Austria
Belgium
Channel Islands
Cyprus
Denmark
Faeroe Islands
Finland
France
Germany
Gibraltar
Greece
Greenland
Holy See
Iceland
Ireland
Isle of Man
Israel
Italy
Liechtenstein
Luxembourg
Malta
Monaco
Netherlands
Norway
Portugal
Saint Pierre et Miquelon
San Marino
Spain
Sweden
Switzerland
United Kingdom

LATIN AMERICA, ANDEAN
~
Bolivia
Ecuador
Peru

LATIN AMERICA, CENTRAL
~
Colombia
Costa Rica
El Salvador
Guatemala
Honduras
Mexico
Nicaragua
Panama
Venezuela

LATIN AMERICA, SOUTHERN
~
Argentina
Chile
Falkland Islands (Malvinas)
Uruguay

LATIN AMERICA, TROPICAL
~
Brazil
Paraguay

NORTH AFRICA / MIDDLE EAST
~
Algeria
Bahrain
Egypt
Iran (Islamic Republic of)
Iraq
Jordan
Kuwait
Lebanon
Libyan Arab Jamahiriya
Morocco
Occupied Palestinian Territory
Oman
Qatar
Saudi Arabia
Syrian Arab Republic
Tunisia

Turkey
United Arab Emirates
Western Sahara
Yemen

NORTH AMERICA, HIGH INCOME
~
Canada
United States of America

OCEANIA
~
American Samoa
Cook Islands
Fiji
French Polynesia
Guam
Kiribati
Marshall Islands
Micronesia (Federated States of)
Nauru
New Caledonia
Niue
Northern Mariana Islands
Palau
Papua New Guinea
Pitcairn
Samoa
Solomon Islands
Tokelau
Tonga
Tuvalu
Vanuatu
Wallis and Futuna Islands

SUB-SAHARAN AFRICA, CENTRAL
~
Angola
Central African Republic
Congo
Democratic Republic of the Congo
Equatorial Guinea
Gabon

SUB-SAHARAN AFRICA, EAST
~
Burundi
Comoros
Djibouti
Eritrea
Ethiopia
Kenya
Madagascar
Malawi
Mozambique
Rwanda
Somalia
Sudan
Uganda
United Republic of Tanzania
Zambia

SUB-SAHARAN AFRICA, SOUTHERN
~
Botswana
Lesotho
Namibia
South Africa
Swaziland
Zimbabwe

NATIONAL DRUG AND ALCOHOL RESEARCH CENTRE

The National Drug and Alcohol Research Centre (NDARC) is a premier research institution in Australia and is recognised internationally as a Research Centre of Excellence. The Centre is multidisciplinary and collaborates with medicine, psychology, social science and other schools of the University of NSW, as well as with a range of other institutions and individuals in Australia and overseas.

The overall mission of NDARC is to conduct high quality research and related activities that increases the effectiveness of Australian and International treatment and other intervention responses to alcohol and other drug related harm.

In addition to the research conducted at the Centre, other NDARC activities include an Annual Symposium and a range of special conferences and educational workshops. As well as contributing to scientific journals and other publications, NDARC produces its own Research Monographs and Technical Report Series. In conjunction with the National Drug Research Institute in Perth, NDARC also produces a free quarterly newsletter, CentreLines, to increase communication between the national research centres, other researchers and workers in the alcohol and other drug field.

UNSW
THE UNIVERSITY OF NEW SOUTH WALES

University of New South Wales
Sydney NSW 2052 Australia

PO Box 21
Randwick NSW 2031

T +61 (2) 9385 0333
F +61 (2) 9385 0222
E ndarc21@unsw.edu.au

http://ndarc.med.unsw.edu.au/