UNODC
United Nations Office on Drugs and Crime

UNODC Research

4 CROSS-CUTTING ISSUES: EVOLVING TRENDS AND NEW CHALLENGES

WORLD DRUG REPORT 2020

ISBN: 978-92-1-148345-1
eISBN: 978-92-1-005047-0
United Nations publication, Sales No. E.20.XI.6

Suggested citation:
World Drug Report 2020 (United Nations publication, Sales No. E.20.XI.6).

Comments on the report are welcome and can be sent to:

Division for Policy Analysis and Public Affairs
United Nations Office on Drugs and Crime
PO Box 500
1400 Vienna
Austria
Tel: (+43) 1 26060 0
Fax: (+43) 1 26060 5827

E-mail: wdr@un.org
Website: www.unodc.org/wdr2020

PREFACE

This is a time for science and solidarity, as United Nations Secretary-General António Guterres has said, highlighting the importance of trust in science and of working together to respond to the global COVID-19 pandemic.

The same holds true for our responses to the world drug problem. To be effective, balanced solutions to drug demand and supply must be rooted in evidence and shared responsibility. This is more important than ever, as illicit drug challenges become increasingly complex, and the COVID-19 crisis and economic downturn threaten to worsen their impacts, on the poor, marginalized and vulnerable most of all.

Some 35.6 million people suffer from drug use disorders globally. While more people use drugs in developed countries than in developing countries, and wealthier segments of society have a higher prevalence of drug use, people who are socially and economically disadvantaged are more likely to develop drug use disorders.

Only one out of eight people who need drug-related treatment receive it. While one out of three drug users is a woman, only one out of five people in treatment is a woman. People in prison settings, minorities, immigrants and displaced people also face barriers to treatment due to discrimination and stigma. Of the 11 million people who inject drugs, half of them are living with hepatitis C, and 1.4 million with HIV.

Around 269 million people used drugs in 2018, up 30 per cent from 2009, with adolescents and young adults accounting for the largest share of users. More people are using drugs, and there are more drugs, and more types of drugs, than ever.

Seizures of amphetamines quadrupled between 2009 and 2018. Even as precursor control improves globally, traffickers and manufacturers are using designer chemicals, devised to circumvent international controls, to synthesize amphetamine, methamphetamine and ecstasy. Production of heroin and cocaine remain among the highest levels recorded in modern times.

The growth in global drug supply and demand poses challenges to law enforcement, compounds health risks and complicates efforts to prevent and treat drug use disorders.

At the same time, more than 80% of the world's population, mostly living in low- and middle-income countries, are deprived of access to controlled drugs for pain relief and other essential medical uses.

Governments have repeatedly pledged to work together to address the many challenges posed by the world drug problem, as part of commitments to achieve the Sustainable Development Goals, and most recently in the 2019 Ministerial Declaration adopted by the Commission on Narcotic Drugs (CND). But data indicates that development assistance to address drug control has actually fallen over time.

Balanced, comprehensive and effective responses to drugs depend on governments to live up to their promises, and provide support to leave no one behind.

Health-centred, rights-based and gender-responsive approaches to drug use and related diseases deliver better public health outcomes. We need to do more to share this learning and support implementation, most of all in developing countries, including by strengthening cooperation with civil society and youth organizations.

The international community has an agreed legal framework and the commitments outlined in the 2019 CND Ministerial Declaration. The United Nations Office on Drugs and Crime (UNODC) provides integrated support to build national capacities and strengthen international cooperation to turn pledges into effective action on the ground.

The theme for this year's International Day against Drug Abuse and Illicit Trafficking, "Better Knowledge for Better Care", highlights the importance of scientific evidence to strengthen responses to the world drug problem and support the people who need us. It also speaks to the ultimate goal of drug control, namely the health and welfare of humankind. Through learning and understanding we find compassion and seek solutions in solidarity.

It is in this spirit that I present the UNODC *World Drug Report 2020*, and I urge governments and all stakeholders to make the best use of this resource.

Ghada Waly
Executive Director
United Nations Office on Drugs and Crime

Acknowledgements

The *World Drug Report 2020* was prepared by the Research and Trend Analysis Branch, Division for Policy Analysis and Public Affairs, United Nations Office on Drugs and Crime (UNODC), under the supervision of Jean-Luc Lemahieu, Director of the Division, and Angela Me, Chief of the Research and Trend Analysis Branch, and the coordination of Chloé Carpentier, Chief of the Drug Research Section.

Content overview
Chloé Carpentier
Angela Me

Analysis and drafting
Kamran Niaz
Thomas Pietschmann

Data management and estimate production
Enrico Bisogno
Hernan Epstein
Andrea Oterová
Umidjon Rakhmonberdiev
Francesca Rosa
Ali Saadeddin
Antoine Vella

Mapping
Francesca Massanello
Irina Tsoy
Lorenzo Vita

Editing
Jonathan Gibbons

Graphic design and production
Anja Korenblik
Suzanne Kunnen
Kristina Kuttnig
Federica Martinelli

Data support
Natalia Ivanova

Administrative support
Andrada-Maria Filip
Iulia Lazar

Review and comments
The *World Drug Report 2020* benefited from the expertise of and invaluable contributions from UNODC colleagues in all divisions.

The Research and Trend Analysis Branch acknowledges the invaluable contributions and advice provided by the *World Drug Report* Scientific Advisory Committee:

Jonathan Caulkins
Paul Griffiths
Marya Hynes
Vicknasingam B. Kasinather
Charles Parry
Afarin Rahimi-Movaghar
Peter Reuter
Alison Ritter
Francisco Thoumi

The analysis on purchases of drugs on the darknet in Booklet 4 is based on original data graciously shared by the *Global Drug Survey* team.

CONTENTS

EXPLANATORY NOTES

The designations employed and the presentation of the material in the World Drug Report do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Countries and areas are referred to by the names that were in official use at the time the relevant data were collected.

Since there is some scientific and legal ambiguity about the distinctions between "drug use", "drug misuse" and "drug abuse", the neutral term "drug use" is used in the World Drug Report. The term "misuse" is used only to denote the non-medical use of prescription drugs.

All uses of the word "drug" and the term "drug use" in the World Drug Report refer to substances controlled under the international drug control conventions, and their non-medical use.

All analysis contained in the World Drug Report is based on the official data submitted by Member States to the UNODC through the annual report questionnaire unless indicated otherwise.

The data on population used in the World Drug Report are taken from: World Population Prospects: The 2019 Revision (United Nations, Department of Economic and Social Affairs, Population Division).

References to dollars ($) are to United States dollars, unless otherwise stated.

References to tons are to metric tons, unless otherwise stated.

The following abbreviations have been used in the present booklet:

alpha-PVP *alpha*-pyrrolidinovalerophenone

APAAN *alpha*-phenylacetoacetonitrile

ATS amphetamine-type stimulants

CBD cannabidiol

DEA Drug Enforcement Administration

EMCDDA European Monitoring Centre for Drugs and Drug Addiction

Europol European Union Agency for Law Enforcement Cooperation

GDP gross domestic product

INCB International Narcotics Control Board

INTERPOL International Criminal Police Organization

LSD lysergic acid diethylamide

MAPA methyl alpha-phenylacetoacetate

MDA methylenedioxyamphetamine

MDMA 3,4-methylenedioxymethamphetamine

MDPV methylenedioxypyrovalerone

4-MEC 4-methylethcathinone

3-MMC 3-methylmethcathinone

4-MMC 4-methylmethcathinone

NPS new psychoactive substances

PCP phencyclidine

P-2-P 1-phenyl-2-propanone

PMK piperonyl methyl ketone

S-DDD defined daily doses for statistical purposes

THC Δ-9 – tetrahydrocannabinol

UNODC United Nations Office on Drugs and Crime

SCOPE OF THE BOOKLET

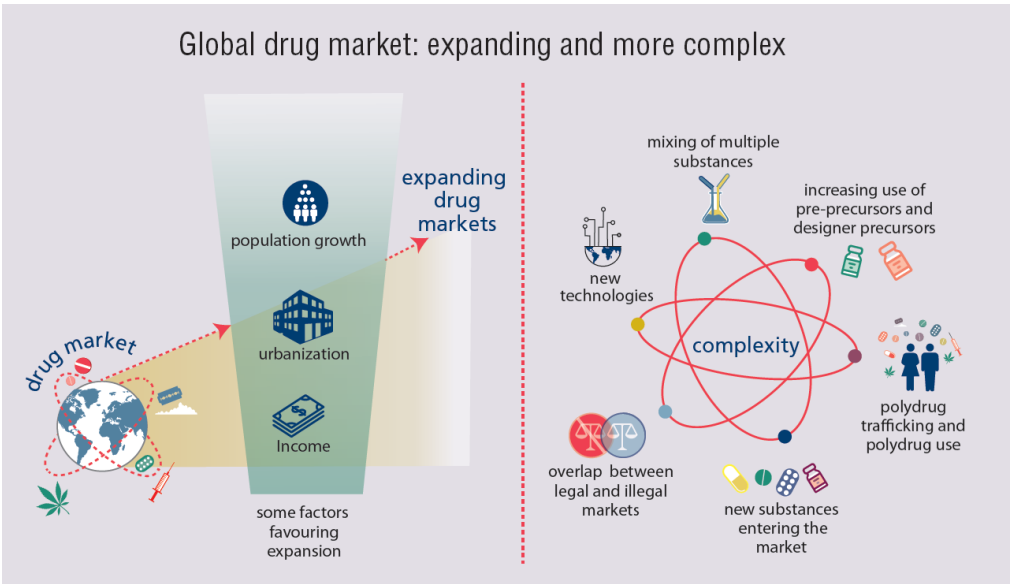
This, the fourth booklet of the *World Drug Report 2020*, contributes evidence to support the international community in implementing operational recommendations on cross-cutting issues for addressing and countering the world drug problem, in particular its evolving reality, trends and existing circumstances, as well as emerging and persistent challenges and threats, including the recommendations contained in the outcome document of the special session of the General Assembly, held in 2016.

The booklet first analyses the macro-dynamics that are driving the expansion and increasing complexity of the drug markets. Factors such as population growth, urbanization and income levels and distribution are examined, the interplay between a number of substances at the manufacture, trafficking and use levels is considered, and the question on whether changes in drug markets are mostly demand-, supply- or control-driven is addressed.

With the market for opioids being the most rapidly evolving drug market, the booklet then provides an up-to-date review of the latest information regarding the multifaceted global opioid crisis, which was examined in the *World Drug Report 2019*. With a particular focus on fentanyl and its analogues in North America and on tramadol in Africa and the Middle East, an analysis of the spread of the opioid crisis beyond those subregions is also included.

The booklet subsequently reviews recent trends in the market for new psychoactive substances, including their trafficking, use and geographical spread, and provides the latest updates on the use of the darknet for supplying drugs, in the context of emerging dynamics and threats, with an analysis of the evolution over time of the main marketplaces selling drugs on the darknet and of the trends in drug purchases by users.

The booklet concludes by reviewing new developments in jurisdictions that have measures allowing the non-medical use of cannabis. It describes the outcome of one year of implementation of different aspects, and the status to date, of legislation and the regulation of the non-medical use of cannabis in Canada, as well as developments in selected jurisdictions in the United States of America and in Uruguay.



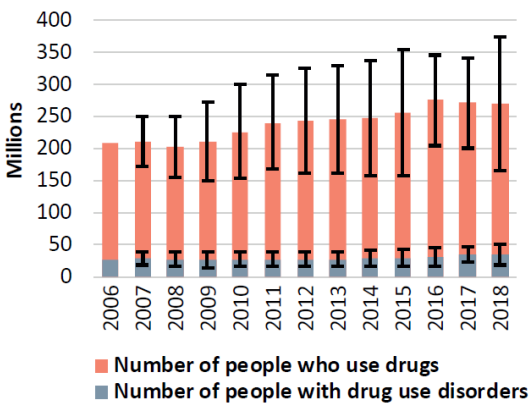
CHANGES IN DRUG MARKETS

General upward trend in the global drug market over the past two decades

As seen from a combination of indicators related to drug production, trafficking and use, it appears that the global drug market has expanded over the past two decades. Expansions can be seen in terms of the overall number of people who use drugs, the illicit production of opium and manufacture of cocaine and the quantities of drugs seized. If analysed in isolation, however, each of those indicators by itself would not justify the conclusion that there has been an overall market expansion. An increase in seizures by itself, for example, could be the result of improved law enforcement capacity and not necessarily the result of a market expansion; as well, trends in the number of people who use drugs are affected by reporting capacity, while hikes in cultivation and production may be linked to local incentives rather than to external demand. Nevertheless, the triangulation of data and concomitant increases in all indicators, combined with the reports of an overall decrease in purity-adjusted drug prices in some key drug markets, indicate a likely expansion of the global drug market.

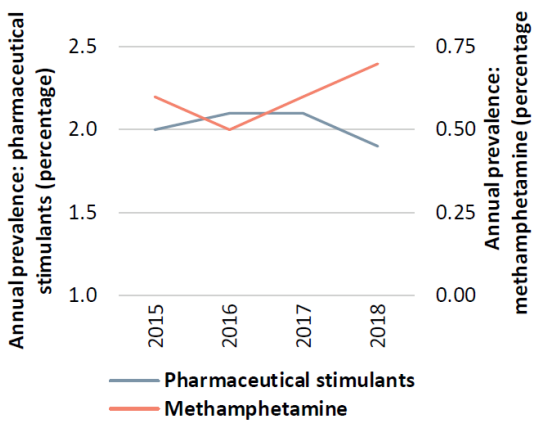
An expansion of the global drug market could be partly explained by the increase in the global population over the past two decades, but market growth seems to be due to more than just population dynamics. Identifying the drivers of this expansion, beyond the population effect, is challenging, because a number of measurable and unmeasurable factors related to individuals, communities and countries may have influenced the size and dynamics of the global drug market. National, regional and global drug policies and the capacity of national institutions to address drug-related matters can influence trends in drug markets and, as was analysed in the *World Drug Report 2016*,[1] social, economic, environmental and governance conditions can influence, and be influenced by, drug market dynamics; analysing that complexity in full is beyond the scope of the present report. Hence, this chapter describes three of the main macro-dynamics that have had a

Fig. 1 Global illicit opium production and global population, 1998–2018



Sources: *World Drug Report 2019*, and editions of previous years; and United Nations, *World Population Prospects: The 2019 Revision.*

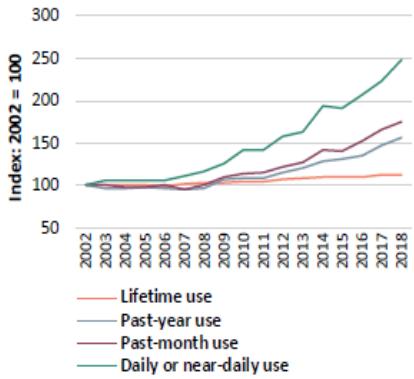
Fig. 2 Global illicit manufacture of cocaine and global population, 1998–2018



Sources: UNODC, coca cultivation/cocaine manufacture estimates; and United Nations, *World Population Prospects: The 2019 Revision.*

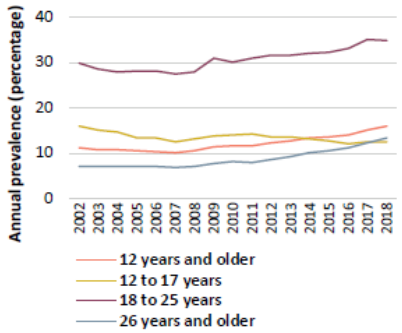
1 United Nations publication, Sales No. E.16.XI.7, chap. 2, pp. 63–107.

Fig. 3 Quantities of drugs seized (based on kilogram equivalents) and population growth, 1998–2018



Sources: *World Drug Report 2019*; and World Bank, DataBank, World Development Indicators.

Fig. 4 Drug use and population growth at the global level, 1998–2018



Sources: UNODC estimates based on data from responses to the annual report questionnaire, *World Drug Report 2019* and editions of previous years; and United Nations, World Population Prospects: The 2019 Revision.

global effect over the past two decades – population growth, urbanization and income – and discusses how drug markets are affected by those dynamics.

Population growth

One factor that is likely to have contributed to the expansion of the global drug market over the past two decades is population growth. Even if there were no increase in the global prevalence of drug use, population growth by itself would lead to an increase in global demand for drugs.

Population growth has been uneven around the globe, with the greatest growth being in developing countries: between 2000 and 2018, the population grew by 7 per cent in developed countries and by 28 per cent in developing countries. The chronic lack of reliable data on drug use in developing countries – in particular those in Africa – makes it difficult to measure trends in drug use in developing countries and determine to what extent those trends reflect population growth. However, the qualitative information reported by national experts on perceived trends suggests that drug use increased far more over the period 2000–2018 in the combined group of developing countries and countries with economies in transition than in developed countries, reflecting, among other things, the difference in population growth between developing and developed countries.

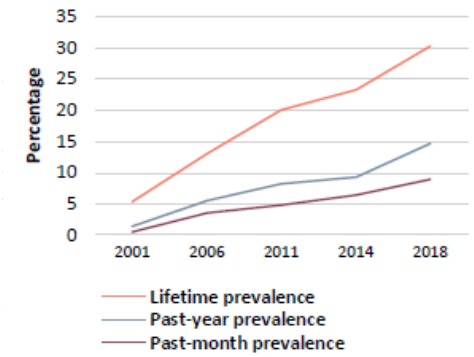
As a further factor, in most countries the highest prevalence of drug use is found among adolescents and young adults, in particular those aged 18–25. Over the period 2000–2018, the population in that age group grew significantly in developing countries – by 18 per cent, thus raising the overall vulnerability to drug use in those countries. In developed countries, by contrast, the population in that young age group decreased by 10 per cent over the same period.[2]

Urbanization

Population growth within countries has been uneven, growing much faster in urban areas than in rural areas. Over the period 1995–2020, the global population living in urban areas grew by 40 per cent, far more than population growth in rural areas, which grew by 7.5 per cent. Over the decades, the proportion of people worldwide living in urban areas has gradually grown, from 34 per cent in 1960 to 45 per cent in 1995, and reaching 56 per cent in

2 United Nations, *World Population Prospects: The 2019 Revision.*

Fig. 5 Population growth and reported drug use trends in developed countries as compared with developing countries and countries with economies in transition, 2000–2018



responses to the annual report question- naire; and United Nations, *World Population Prospects: The 2019 Revision.*

Note: The drug use trends index is based on qualitative information on trends in drug use reported by Member States. The trend line is computed on the basis of the number of countries reporting increases minus the number of countries reporting decreases (2 points for "strong increase", 1 point for "some increase", 0 points for stable, -1 point for "some decline", -2 points for "strong decline).

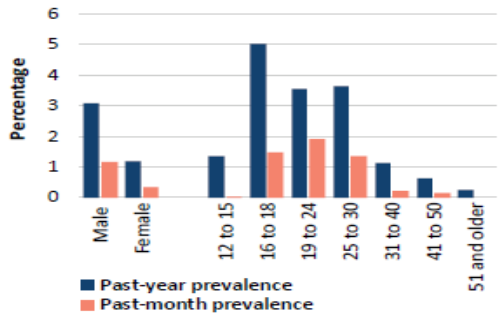
2020, with the fastest growth occurring in developing countries.[3]

The lack of disaggregated data makes it impossible to obtain a global overview of drug use as distributed between urban and rural areas and to analyse interacting global trends in urbanization and drug markets. From the information available, it seems that drug use is more prevalent in urban areas than in rural areas, in both developed and developing countries, with the exception of some major rural drug-producing areas. Urbanization has also been found to be a general risk factor for drug use;[4] for

3 United Nations, Department of Economic and Social Affairs, World Urbanization Prospects: The 2018 Revision.

4 World Health Organization, *Substance Use Among Young People in Urban Environments* (Geneva, Switzerland, and Kobe, Japan, 2005).

Fig. 6 People living in urban areas, by region and subregion, 1975–2020[a]



Source: United Nations, Department of Economic and Social Affairs, *World Urbanization Prospects: The 2018 Revision.*

[a] *Data for 2020 are still preliminary estimates.*

example, data from school surveys in Colombia and Mexico show the prevalence of use of some drugs being up to 60 per cent higher in urban areas than in rural areas.[5, 6]

Data on drug law offences including possession and trafficking of drugs in Germany[7] and Austria[8] confirm the same patterns with main cities showing higher per capita offences than the national average (typically around 50 per cent higher in 2018).

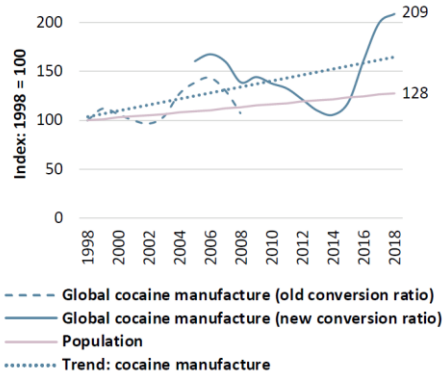
5 Instituto Nacional de Psiquiatría Ramón de la Fuente Muñiz, Comisión Nacional contra las Adicciones, "El consume de drogas en estudiantes de México: tendencias y magnitud del problema", *Salud Mental*, vol. 39, No. 4 (México, July-August 2016)

6 Observatorio de Drogas de Colombia, *Estudio Nacional de Consumo de Sustancias Psicoactivas en Población Escolar Colombia – 2016.*

7 Bundeskriminalamt, *Bundeslagebild Rauschgift 2018* (Wiesbaden 2019).

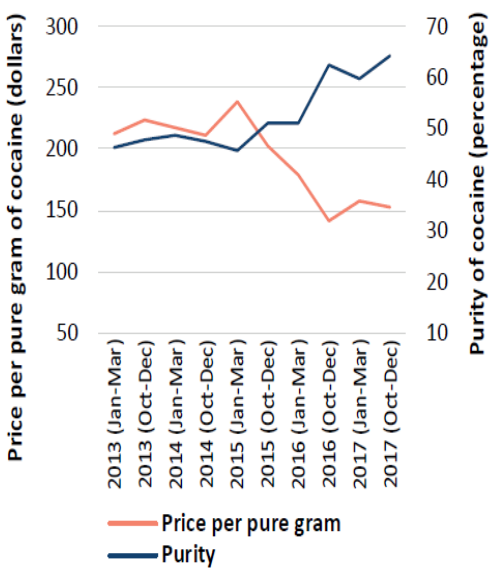
8 Bundeskriminalamt, *Drug-related Crime Annual Report 2018* (Vienna 2018).

Fig. 7 Drug use among students aged 10–18, Mexico, 2016



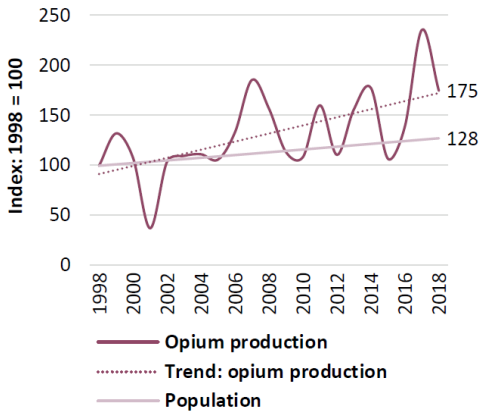
Source: Jorge A. Villatoro Velázquez and others, "El consumo de drogas en estudiantes de México: tendencias y magnitud del problema", *Salud Mental*, vol. 39, No. 4, (July-August 2016).

Fig. 8 Drug use among pupils aged 12–18, Colombia, 2016



Source: Colombian Drug Observatory, National Study of the Consumption of Sources: UNODC calculations based on Bundeskriminalamt, *Polizeiliche Kriminalstatistik 2018*, Jahrbuch, Band 4, and Statistisches Bundesamt, Bevölkerung, Wiesbaden, 2019 Psychoactive Substances among the School Population: Colombia 2016 – Final Report.

Fig. 9 Reported drug law offences in Germany, by size of communities, 2018

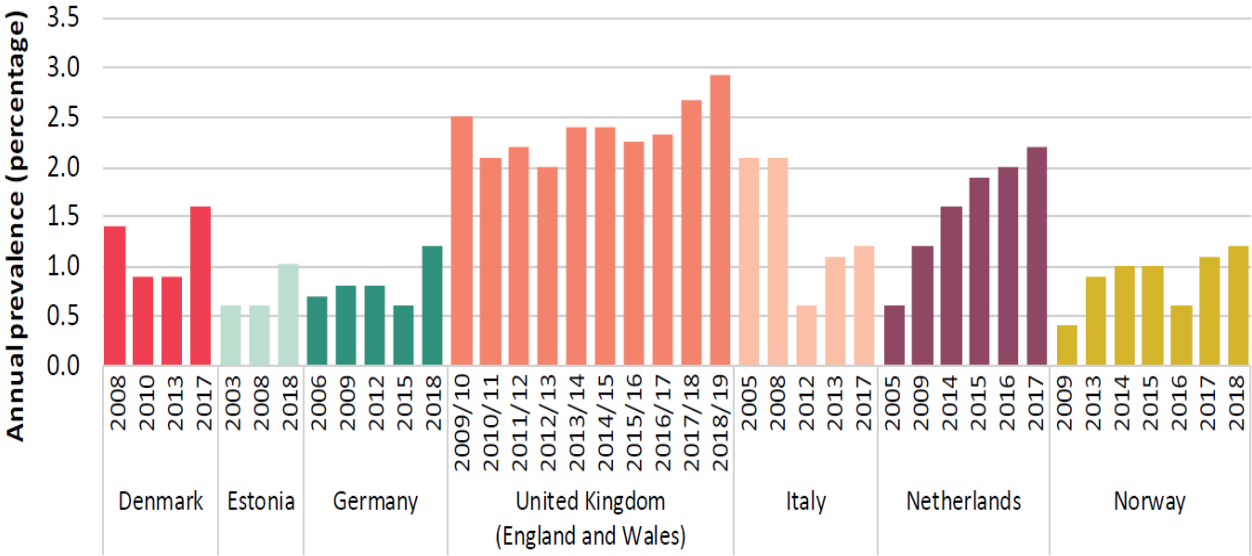


A study conducted in India in the Chandigarh area, that city being the capital of the two neighbouring States of Punjab and Haryana, also suggested there are higher levels of drug use in urban slum areas than in rural areas.[9] If this information were to be validated across all countries, the rapid urbanization of the past decade could be an element that explains, at least partially, the growth in the global drug market. In this context, urbanization becomes a crucial element when considering future dynamics in drug markets, in particular in developing countries, where growth in urbanization is more pronounced than in other countries.

Data on the annual prevalence of drug use among adults in Australia, the United States of America

9 The study suggested that 3.1 per cent of the population in rural areas fulfilled dependence criteria on ICD-10 for problems related to alcohol and drug use, while in the urban slum areas investigated this proportion turned out to be more than three times as high (10.7 per cent of the population aged 15 and older). Sudarshan B. Chavan and others, "Prevalence of alcohol and drug dependence in rural and slum population of Chandigarh: a community survey", *Indian Journal of Psychiatry*, vol. 49, No. 1 (March 2007), pp. 44–48.

Fig. 10 Trend in cocaine use, countries in Western and Central Europe that reported recent data



t
es, Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality, *Results from the 2018 National Survey on Drug Use and Health: Detailed Tables* (Rockville, Maryland, 2019).

and the United Kingdom of Great Britain and Northern Ireland, for example, show there is much higher drug use in urban areas than in rural areas, with the divide being even more pronounced among frequent users in the United States, where, in 2018, past-month prevalence of drug use was almost 80 per cent higher in large metropolitan areas than in rural areas.[10, 11, 12]

The exception seems to be the non-medical use of opioids in the United States and methamphetamine use in both the United States and Australia, for which prevalence rates are higher in rural areas.

Elsewhere, a study based on the analysis of wastewater in China in 2018 suggested that the country as a whole had a slightly lower methamphetamine consumption than in the 22 urban centres investigated, reflecting, the authors argued, the migration of adults from rural to urban areas for work reasons, to the extent that "most people who stay in rural areas are children under 15 years old and elderly people over 65 years old".[13]

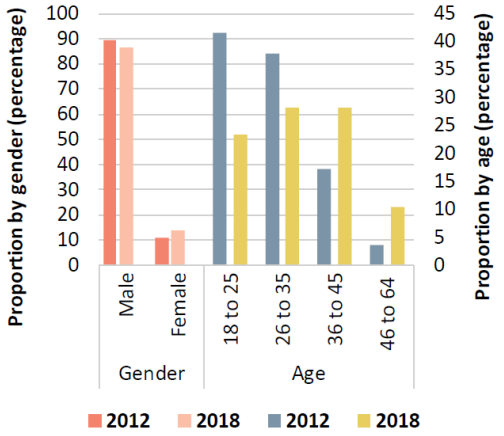
10 United States, Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality, *Results from the 2018 National Survey on Drug Use and Health: Detailed Tables* (Rockville, Maryland, August 2019).

11 Alcohol and Drug Foundation, "Alcohol and other drugs in regional and remote areas", 12 April 2019, based on Gary C. K. Chan and others, "Rural and urban differences in adolescent alcohol use, alcohol supply, and parental drinking", Journal of Rural Health, vol. 32, No. 3 (June 2016), pp. 280–286.

12 United Kingdom, Home Office, Drug Misuse: Findings from the 2018/19 Crime Survey for England and Wales, Statistical Bulletin, No. 21/19 (London, 2019), appendix tables.

13 Xue-Ting Shao and others, "Methamphetamine use in typical Chinese cities evaluated by wastewater-based epidemiology", *Environmental Science and Pollution Research*, vol. 27, No. 8 (January 2020).

Fig. 11 Use of selected drugs, by population density, in England and Wales, 2018/19



Source: United Kingdom, Home Office, *Drug Misuse: Findings from the 2018/19 Crime Survey for England and Wales*, Statistical Bulletin, No. 21/19 (London, 2019), appendix tables.

[a] *According to the output area-classification, as reflected in the 2011 Area Classification for Local Authorities, the cosmopolitan areas include (i) the City of London/Westminster, (ii) Hackney, (iii) Hammersmith and Fullham, (iv) Haringey, (v) Islington, (vi) Kensington and Chelsea, (vii) Lambeth, (viii) Southwark, (xix) Tower Hamlets and (x) Wandsworth, i.e. all London boroughs, mostly located in the high population density areas of Inner London; overall drug use in Greater London is substantially lower, at 10.3 per cent in 2018/19, i.e. close to the average of urban areas in England and Wales (9.8 per cent).*

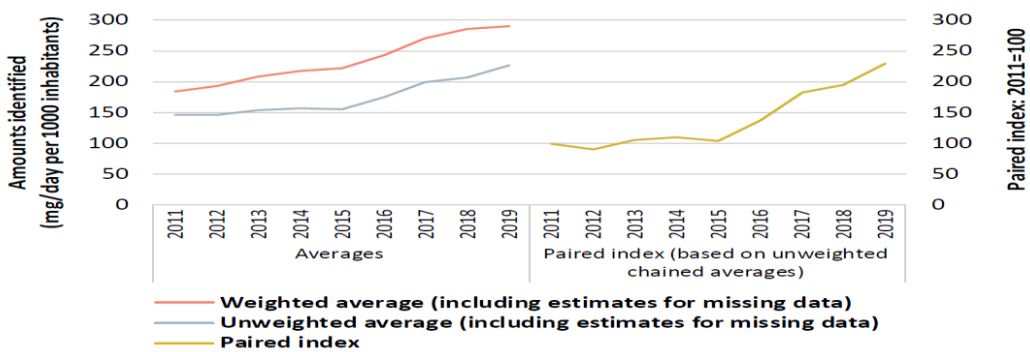
Income

Adjusted net national income per capita, as expressed in constant 2010 dollars, has risen significantly over the past two decades: the global average net national income per capita grew from less than $6,400 per inhabitant in 1998 to $8,700 in 2017, equivalent to an increase of 37 per cent over the past two decades.[14] How this trend has affected the global drug market is unclear since income levels can influence drug markets in different ways.

At the macro level, drug use seems to be associated with the capacity to purchase drugs. Cross-country comparisons[15] suggest that annual drug use is more widespread in developed countries than in develop- ing countries, with use of some drugs, such as cocaine, being associated with higher levels of per capita GDP.

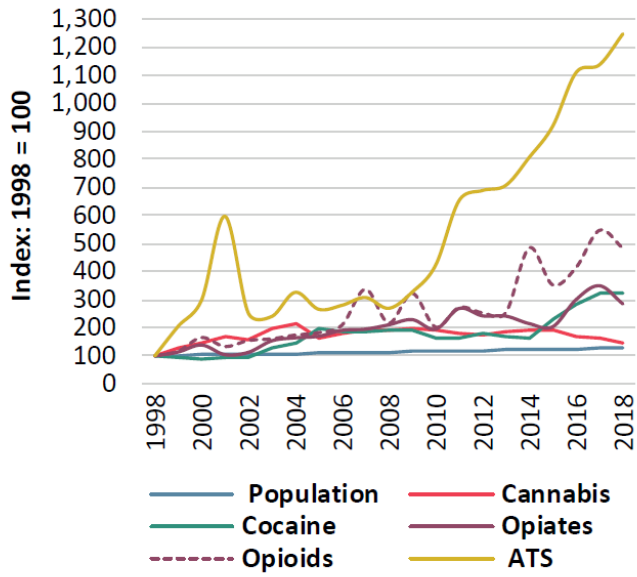
Within individual countries, however, data on drug use and income level, although limited, may show a different pattern. Annual drug use and data on drug dependence can have a different association with income levels, with people with a low income being particularly vulnerable to drug dependence. Micro level studies have also documented the greater vulnerability of the more disadvantaged socioeconomic sectors of the population to moving from drug use to drug dependence.[16]

Fig. 12 Benzoylecgonine (cocaine metabolite) found in wastewater, 136 cities in Europe, 2011–2019



Source: United States, Substance Abuse and Mental Health Data Administration, National Survey on Drug Use and Health, 2017.

Fig. 13 Past-year drug use and drug abuse or dependence[a] in Colombia, by socioeconomic class,[b] 2013



Source: Observatorio de Drogas de Colombia, Estudio Nacional de Consumo de Sustancias Psicoactivas en Colombia – 2013, June 2014.

[a] *"Dependence" is defined according to the ICD-10 criteria of the World Health Organization, and "abuse" is defined according to the DSM-IV criteria of the American Psychiatric Association.*

[b] *The socioeconomic classes were ranked so that class 1 was the least wealthy and class 6 the wealthiest.*

While the available evidence points to an association between income and the drug markets, it is not clear how and if changes in income and distribution have been affecting the expansion of the global drug market.

Poorer members of society tend to be more vulnerable to drug dependence

Past studies have suggested a kind of inverse J-type distribution of drug-use prevalence rates across the world, with the poorer members of society facing a higher level of drug use, followed by a lower prevalence among the middle classes and then, again, a higher level among the wealthy.[17, 18] More recent data, although only related to a handful of countries, point to a shift towards a clearer association between drug use and low income, in particular for frequent and more problematic drug use. There is a clear shift over time from an inverted J-shape to a linear association between drug use and income in the historical data for England and Wales and the United States.

A study conducted in Colombia in 2013 identified an unexpected association between drug use and

14 United Nations Drug Control Programme, Economic and Social Consequences of Drug Abuse and Illicit Trafficking, UNDCP Technical Series, No. 6 (Vienna, 1998).

15 Report of the International Narcotics Control Board for 2002 (E/INCB/2002/1).

income. It found that the higher socioeconomic classes had a higher annual prevalence of drug use, while the lower socioeconomic classes had higher rates of drug dependence. This suggests that while people with higher socioeconomic status may have a greater propensity to experiment, it is among the lower socioeconomic classes that the most negative impact of the onset of recreational drug use is found, with a higher proportion of people becoming depen- dent. This suggests that poverty is associated with drug use disorders. Indeed, poor people living on the margins of society tend to be more vulnerable to slipping from recreational drug use into full-scale drug abuse and drug dependence because treatment facilities for intervening at an early stage in a drug career are often unavailable or unaffordable for such population groups. In this context, drug use itself may exacerbate poverty and marginalization, thus creating the potential for a vicious cycle.[19, 20]

Growing complexity of drug markets

Over the past two decades, drug markets have become increasingly complex in terms of variety and combinations of substances used and trafficked,

16 *World Drug Report 2016*.

17 For a more comprehensive discussion, see booklet 5 of the present report.

manufacturing processes and the organizational structure of drug trafficking organizations. There has been a rapid emergence of new substances, as well as new mixes of controlled and non-controlled substances, with an increasing misuse of pharmaceuticals, which poses new challenges for both drug demand and supply control efforts at the national, regional and global levels.

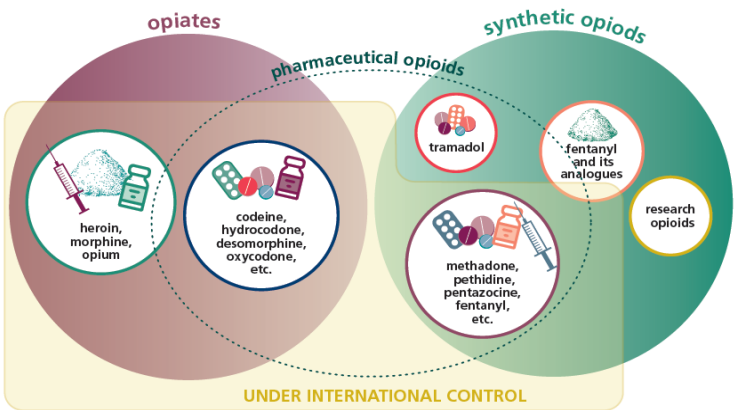
The difference between legal and illegal drug markets is increasingly unclear

In the late 1990s, some 230 psychoactive substances were under international control, of which a handful dominated the global drug markets, most notably cannabis, cocaine, opium, heroin, amphetamines and "ecstasy". Two decades later, the situation has changed, as there are now far more substances on the market. A number of synthetic NPS (i.e. psychoactive substances that mimic the properties of substances already under international control) emerged on the drug markets in the past decade, including synthetic cannabinoids, cathinones, phenethylamines, piperazines and various fentanyl analogues, resulting in a new wave of scheduling of such substances at the international level, with the total number of substances under international control rising from 234 in 2014 to 282 in 2018.[21] At the same time, the number of NPS rose from 166 substances over the period 2005–2009 to 950 substances by the end of 2019.[22] Worldwide, in recent years authorities have identified more than three times as many NPS as there are psychoactive substances under international control.

Given the speed of emergence of new substances, national control systems have placed an increasing number of substances under control. Thus, a number of these substances have had their legal status changed in a short period of time.

Beyond internationally controlled substances, the legal status of many substances in the market differ from country to country, and sometimes within countries. This creates quite complex production and trafficking patterns in which some substances are under national control in some countries but not in others, leaving ample opportunities for producers and traffickers of the substances to select countries depending on the legal status of those substances in the respective jurisdictions, while also quickly adjusting to new controls wherever and whenever they may occur. The multiplicity of substances currently in the market challenges the effectiveness of national and international interventions because the elimination of one substance from the market easily leads to replacement by another.

Fig. 14 Opioids for medical and non-medical purposes



Source: UNODC, *World Drug Report 2019*.

18 International Narcotics Control Board, "List of narcotic drugs under international control ("Yellow List")", 58th ed. (August 2019), and editions of previous years; and "List of psychotropic substances under international control ("Green List"), 29th ed. (May 2018), and editions of previous years.

19 UNODC, Early warning advisory on new psychoactive substances.

The situation is particularly complex for the opioids group, as both legally and illegally produced substances satisfy the non-medical demand for opioids. While illegally produced opiates, such as heroin, used to dominate the non-medical demand for opioids, the illicit opioid markets in many countries have become far more diversified over the past two decades, with a number of pharmaceutical opioids that have started to cover a substantial part of the market for opioids for non-medical purposes.

This is creating an additional challenge for drug use prevention because, unlike the traditional hard drugs such as heroin, pharmaceuticals are often not perceived as harmful. In terms of drug control, this requires a careful equilibrium between maximizing accessibility for medical use while minimizing availability for non-medical use. It should be noted that the use of pharmaceuticals for non-medical purposes is not limited to opioids. There is also a substantial market for stimulant pharmaceuticals for non-medical use, particularly in Latin America and the Caribbean.[23]

Although in the past most of the pharmaceuticals used for recreational purposes were legally produced and diverted into illicit channels only at a later stage, nowadays some pharmaceutical opioids are also illegally produced.

Increasing use of pre-precursors and "designer precursors" in the manufacture of synthetic drugs

The growing complexity of drug markets can be also seen in the manufacturing processes of synthetic drugs. In the past, a limited number of precursor chemicals was used to manufacture synthetic drugs, such as amphetamine (manufactured mostly from P-2-P), methamphetamine (manufactured mostly from ephedrine and pseudoephedrine, or from P-2-P in North America) and "ecstasy" (mainly manufactured from 3,4-MDP-2-P).

This has changed over the past two decades. As the key precursors mentioned above are all under international control, traffickers have been looking for alternatives. Over the years, different strategies have been adopted by traffickers to overcome controls, using as alternative precursors substances that were not equally well controlled in all countries, non-controlled pre-precursors and so-called "designer precursors", that is, chemicals specifically designed to circumvent existing precursor control systems. Pharmaceutical preparations containing controlled precursor chemicals have also been used to supply precursors because, although controlled, they are exempt from a number of control mechanisms such as the system of pre-export notifications.[24]

The description of how the manufacture of methamphetamine has evolved over the past two decades is an example of the versatility of traffickers to change strategy in order to overcome controls. Similar shifts have also taken place in the use of various pre-precursors for the manufacture of MDMA ("ecstasy").[25]

Organization and specialization of criminal groups in specific areas

The growing complexity of drug markets can be also observed in the organizational structure of the actors involved. There has been a general trend over the past two decades towards an increasing fragmentation of the serious and organized crime landscape and the emergence of more groups and looser networks. [26] Organizations based on loose cooperation across criminal networks have proved more resilient to law enforcement interventions than other types, as a network that gets dismantled can, in general, be easily replaced by another. The landscape of the global illicit drug trade has thus become more complex, is rapidly evolving and is facilitated by new technology such as encrypted communications software and the darknet.[27]

20 *World Drug Report 2019* (United Nations publication, Sales No. E.19.XI.8).

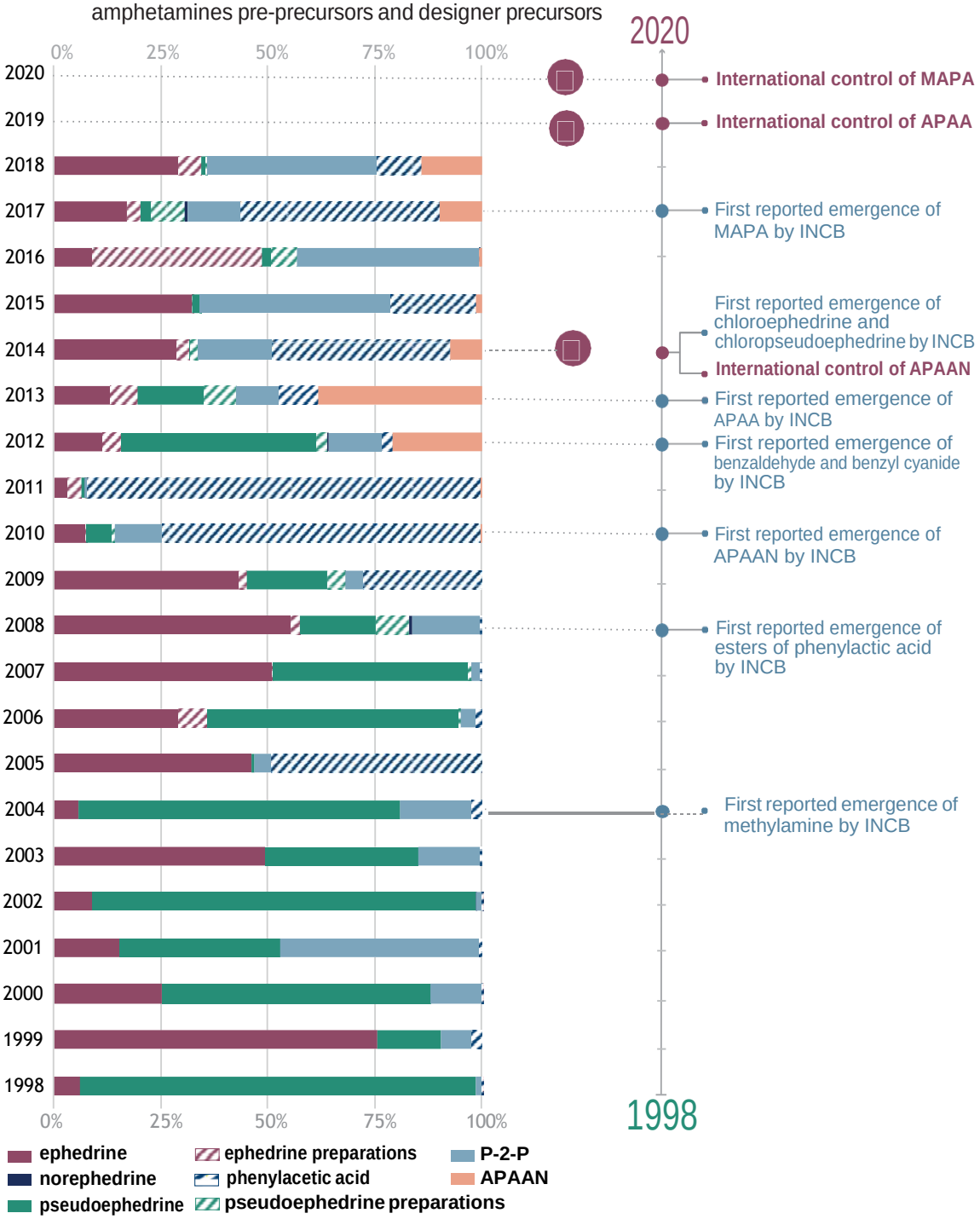
21 *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances: Report of the International Narcotics Control Board for 2018 on the Implementation of Article 12 of the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances of 1988* (E/INCB/2018/4).

22 UNODC, "Global Smart Update: the ATS market–10 years after the 2009 Plan of Action", vol. 22 (October 2019).

23 Europol, SOCTA 2017: *European Union Serious and Organised Crime Threat Assessment–Crime in the Age of Technology* (The Hague, 2017).

24 INTERPOL, "Drug crime: global experts push for increased cooperation–Second INTERPOL Global Conference on Illicit Drugs highlights sophistication of organized crime groups", 20 September 2019.

Fig. 15 Seizures of amphetamines chemical precursors under international control and emergence of amphetamines pre-precursors and designer precursors



Source: UNODC calculations based on INCB, *2019 Annual Report on Precursors* (E/INCB/2019/4) (and previous years) and United Nations Commission on Narcotic Drugs, *Report on the sixty-third session* (2-6 March 2020), C.CN.7/2020/15 (and previous years)

Note: The x-axis shows the proportion of seized internationally controlled amphetamines precursors converted into amphetamines equivalents. The substances seized were not necessarily the starting material, but may well have been substances found in the process of manufacturing.

Although hierarchically structured organized crime groups continue to dominate traditional criminal markets, some 30 to 40 per cent of the organized crime groups operating on an international level in the European Union in recent years were estimated by Europol to have been loose network structures.[28] The previously identified trend towards network-type structures[29] thus appears to be continuing.

The shift away from purely hierarchically organized crime groups, characterized by an extensive division of labour within such organizations, also entails the emergence of new groups engaged in specific activities, covering only limited aspects of drug manufacture and logistics or specific areas such as money-laundering and the investment of drug proceeds. Moreover, a number of new groups have emerged in recent years, bypassing many of the traditional actors, purchasing and selling drugs online through the darknet to end users. They make use of private or public postal services to transport drugs to anonymous post office boxes from which they are collected by the end users. The payment is made in parallel by means of cryptocurrency transactions on the darknet.[30]

The way drug trafficking organizations operate has been influenced by the growth of licit international trade and by the emergence of new ways of transporting goods. Notably, the use of containers has increased, and GPS devices have helped to retrieve the drug cargo within the multitude of containers. In a few cases, organized crime groups have even succeeded in hacking the computers of shipping companies to have containers redirected to locations where the drugs could be more easily removed from the container.[31]

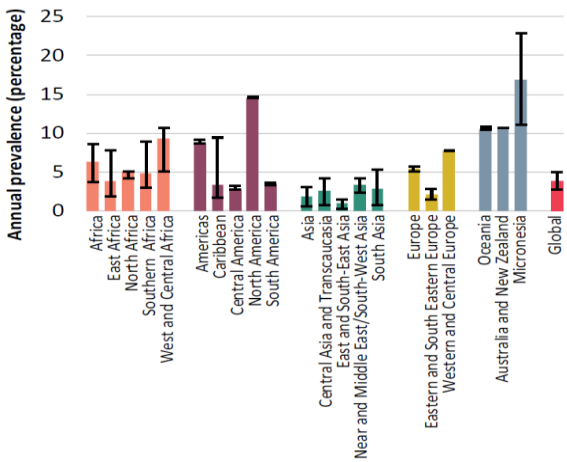
In parallel, technological innovation has also enabled drug trafficking groups to acquire semi-submersibles to transport drugs, such as cocaine, from South America to Central and North America and, more recently, even to Europe, without being easily detectable. Moreover, drones are being used by drug trafficking groups to assist them in the shipment of drugs across borders.[32]

Another technological advance that has facilitated the connection of criminal groups is the emergence of encrypted messaging applications for mobile telephones, which have helped drug dealers to stay connected while maintaining a high degree of anonymity.

Polydrug use

Polydrug use is not a recent trend. It remains a public health concern because the use of multiple drugs potentially increases risks and exacerbates dependence. The management of polydrug use remains a complex and challenging task because treatment is often less successful for individuals who use multiple substances.[33] Moreover, it is difficult to find evidence to address the question about whether the complexity of the drug markets has increased over the past two decades in terms of the number of substances and combinations involved in polydrug use.

Fig. 16 Polydrug use in England and Wales, 1998–2018/19



Source: United Kingdom, Home Office, *Drug Misuse: Findings from the 2018/19 Crime Survey for England and Wales: Data Tables* (September, 2019).

Note: The ratio represented is the aggregated number of users of individual drugs divided by the total number of all (non-medical) drug users drug users, based on annual prevalence.

25 Europol, SOCTA 2017: *European Union Serious and Organised Crime Threat Assessment.*

26 Europol, SOCTA 2013: *Serious and Organised Crime Threat Assessment* (The Hague, 2013).

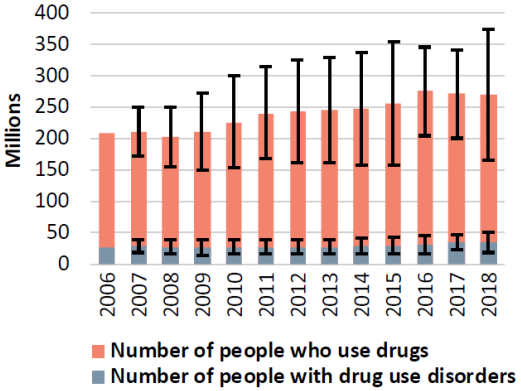
27 *World Drug Report 2019.*

28 *World Drug Report 2018.*

29 United States, Department of Justice, DEA, *2018 Drug Threat Assessment* (October 2018).

30 EMCDDA, "Policy and practice briefings: responding to polydrug use". Available at http://www.emcdda.europa.eu/best-practice/briefings/responding-polydrug-use_en.

Fig. 17 Polydrug use as reflected in the United States household survey, based on annual prevalence, 2008–2018



States, Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality, *Results from the 2018 National Survey on Drug Use and Health: Detailed Tables*; and the results of that survey in previous years.

There is evidence that the number of polydrug users has increased in the United States[34] and in the United Kingdom because in both countries the ratio of the aggregated number of users of individual drugs compared with the total number of drug users has followed an upward trend. It is still difficult, however, to assess the actual impact of this trend in terms of health consequences.

Polydrug trafficking

Polydrug trafficking, i.e. trafficking in more than one drug, and its potential growth, definitely contributes to the growing complexity of drug markets as successes in reducing drug flows in one market can be easily compensated by supplying increasing quantities of other drugs. Polydrug trafficking may also require connections with different criminal groups as the supply chains for the various drugs may differ.

Evidence in Europe points to an increasing trend in polydrug trafficking organizations operating in the region as the majority of organized criminal groups involved in the distribution of illicit drugs are already dealing in multiple types of drugs.[35]

However, polydrug trafficking is not limited to Europe and can also be found in other regions and subregions, including North America, South America, Asia, Oceania and Africa.[36] For a number of years, for example, polydrug trafficking organizations have been dismantled in the United States. A recent example was the dismantlement in July 2019 of an organization involving more than 50 people selling counterfeit oxycodone pills (containing fentanyl), methamphetamine, cocaine, heroin and benzodiazepine pills, as well as various types of weapons.[37]

Almost all major drug trafficking organizations operating in the United States appear to deal with more than one drug. For example, all the Mexican cartels operating in the United States (Sinaloa, Jalisco New Generation, Juárez, Gulf, Los Zetas and the Beltrán-Leyva Organization) engage in the trafficking of multiple substances, including methamphetamine, marijuana, cocaine, heroin and fentanyl.[38] While Colombian transnational crime organizations are mostly involved in cocaine trafficking and, to a far lesser extent, also of heroin, other groups such as Dominican transnational criminal organizations dominate the mid-level distribution of cocaine, white powder heroin and fentanyl in major drug markets in the United States. Asian transnational criminal organizations are more specialized in the trafficking of marijuana, MDMA and, to a lesser extent, cocaine and methamphetamine.[39]

In Australia, a study found that polydrug trafficking was characterized by the larger quantities of drugs seized and polydrug traffickers by their larger networks, longer criminal histories and greater involvement in other types of serious crime compared with mono-drug traffickers. In the period 2009–2012, the substances found to be most

31 United States, Substance Abuse and Mental Health Services Administration, Center for Behavioral Health Statistics and Quality, *Results from the 2018 National Survey on Drug Use and Health: Detailed Tables* (Rockville, Maryland, August 2019).

32 Europol, SOCTA 2011: *European Union Serious and Organised Crime Threat Assessment* (The Hague, 2011).

33 *World Drug Report 2017* (United Nations publication, Sales No. E.17.XI.6).

34 United States Department of Justice, DEA, "Large-scale poly drug trafficking organization dismantled in Colorado", 2 July 2019.

35 United States Department of Justice, DEA, *2018 National Drug Threat Assessment*.

36 Ibid.

involved in polydrug trafficking were amphetamines, followed by cocaine, precursor chemicals and heroin, while in the earlier period 1999–2008, the substances most frequently trafficked by polydrug trafficking groups included MDMA as well as precursor chemicals. On the basis of a number of assumptions and extrapolations, the authors of the study estimated that between 5 and 35 per cent of all drug imports crossing the Australian border may have involved polydrug trafficking groups. The number of drugs trafficked by polydrug traffickers was found to have increased over the period 1999–2012.[40]

A 2007 study of imprisoned drug traffickers[41] in the United Kingdom suggested that about a third of them dealt in more than one drug, mostly heroin and cocaine.[42] Another study, based on middle-market drug traffickers, mostly involved in the sale of amphetamine, "ecstasy" and cocaine, found that 38 per cent of them were involved in dealing in more than one drug.[43]

Even a higher proportion of traffickers were found to be polydrug traffickers in a Canadian study of 2011. Of almost 2,000 drug traffickers, it was found that 43 per cent were involved in polydrug trafficking – mainly of cannabis and cocaine.[44]

Data obtained from the analysis of court proceedings against organized crime groups in Germany suggested an overall increase in polydrug trafficking:[45] about 35 per cent of all court proceedings against organized crime groups involved in drug trafficking were of groups involved in polydrug trafficking in 2017, up from 25 per cent in 2013.[46]

Apart from the involvement of traditional criminal groups and networks in polydrug trafficking, the emergence of platforms on the darknet may have also favoured polydrug sales. Most vendors on these platforms offer not only one drug but a range of drugs for sale. Thus, drug sales on the darknet are characterized by polydrug sales.[47]

Drug market dynamics

The dynamics that have driven the expansion and increased the complexity of the current global drug market are multifaceted. Expressed simply, they can be defined as primarily (a) demand driven, (b) supply driven or (c) control driven. Some market evolutions clearly belong to one of those categories of triggers, but it is probably all three types that have characterized the major changes of the past two decades.

Demand-driven dynamics of drug markets are the result of changing patterns of drug use and the desire of users to experiment with new substances, which may lead to an increasing number of users starting a new habit. The establishment of the tramadol market for recreational use in certain regions may have initially been generated by an increased demand based on the supply available for medical use. But once a demand was generated, a new supply-driven phenomenon further expanded the market with illicitly manufactured products that were not part of the medical market.

Increases in drug use have at times also been supply driven, as users react to growing supply and the attendant falling prices by increasing their consumption of those drugs. This was the case with cocaine in recent years, among other drugs. Some of the recent changes in drug markets, such as the opioid crisis in North America and the rapid emergence of a synthetic drug market in the Russian Federation and Central Asia, can also be defined as supply-driven phenomena. The expansion of the synthetic

37 Caitling Elisabeth Huges and others, "Poly-drug trafficking: estimating the scale, trends and harms at the Australian border", *International Journal of Drug Policy*, vol. 31, (May 2016), pp. 80–89.

38 This study was based on interviews of 222 imprisoned high-level drug traffickers (primarily imports and wholesale distributors).

39 Matrix Knowledge Group, *The Illicit Drug Trade in the United Kingdom*, 2nd ed., London (London, Home Office, 2007).

40 Geoffrey Pearson and Dick Hobbs, *Middle Market Drug Distribution*, Home Office Research Study, No. 227 (London, Home Office, 2001).

41 Aili Malm and Gisela Bichler, "Networks of collaborating criminals: assessing the structural vulnerability of drug markets" *Journal of Research in Crime and Delinquency*, vol. 48, No. 2 (February 2011), pp. 271–297.

42 Germany, Bundeskriminalamt, *Organisierte Kriminalität: Bundeslagebild 2017* (Wiesbaden, 2018).

43 Germany, Bundeskriminalamt, *Organisierte Kriminalität: Bundeslagebild 2018* (Wiesbaden, 2019), and editions of previous years.

44 Europol and EMCDDA, *Drugs and the Darknet: Perspectives for Enforcement, Research and Policy*, (Luxembourg: Publications Office of the European Union, 2017).

drugs market in the Russian Federation seems to be mainly linked to the Hydra darknet platform. While there may now be an established user-based demand for synthetic drugs, the initial trigger was new suppliers. The rise of fentanyl in North America was not defined by a new demand either but was the result of opportunities seized by drug suppliers to reduce costs and thus increase profit margins.

Finally, there have also been some expansions of the drug markets that were basically control driven, as successful action by drug control authorities to restrict any specific substance prompted users to look for alternatives. Thus, some of the expansion of the NPS market over the last decade can be linked to the successes of law enforcement agencies in limiting the manufacture of "ecstasy" (mainly through improved precursor control).

Evolution of the primary drugs affecting people with drug use disorders

The evolution of drug markets over the past decade is not only related to an expansion. The types of most harmful drugs affecting regions and subregions has also changed over that period.

While the main drug treatment interventions in Asia and Europe continue to be linked primarily to opiates, in Africa to cannabis, and in South America to cocaine, in North America there has been a shift over the past decade from the predominance of cocaine to an increasing importance of opioids.

Marked shifts in the main drug for which patients receive drug treatment can also been observed at the subregional level. In a number of countries in East and South-East Asia, for example, methamphetamine has emerged as the predominant drug; in the Near and Middle East, "captagon" tablets (amphetamine), and along the eastern coast of Africa, heroin, have emerged as the predominant drugs.

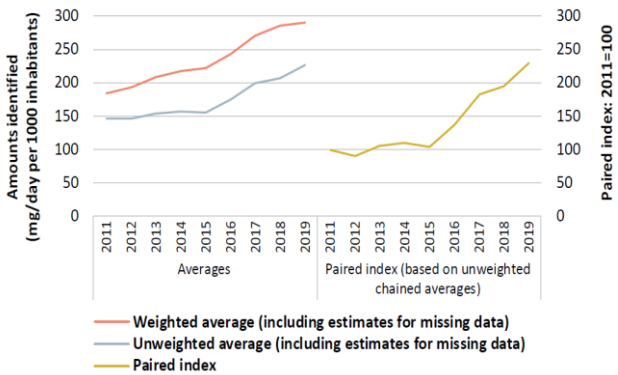
Although in Europe opioids continue to be the predominant main drug for which people seek drug treatment, cocaine has become more common in Spain and methamphetamine remains the main drug of concern in Czechia.

Within the amphetamines group, different patterns have developed in different subregions. For example, amphetamine continues to be the primary ATS of concern in Europe and in the Middle East, while methamphetamine has emerged as the primary ATS of concern in East and South-East Asia and in North America.[48]

Changes in stimulant markets

Within the shifts that have occurred over the past two decades in single drug markets, the most dynamic changes can be observed in the stimulant markets. The examples of individual countries show two possible evolutions in stimulant markets with different stimulants, showing either competing or parallel trends.

Fig. 18 Use of stimulants in England and Wales, 1996–2018/19



Source: United Kingdom, Home Office, *Drug Misuse: Findings from the 2018/19 Crime Survey for England and Wales: Data Tables* (September, 2019).

England and Wales and Australia are examples of places where cocaine and amphetamines have competed for their share of the stimulant market over the past 20 years.[49] Germany and the United States are examples of places where cocaine and amphetamines have together led the changes in the stimulant market.

There are no obvious reasons that explain the different dynamics related to stimulant substances in the same market, but one area to be explored is the stage of the market. If the market is saturated,

45 UNODC, responses to the annual report questionnaire.

46 United Kingdom, Home Office, *Drug Misuse: Findings from the 2018 to 2019 Crime Survey for England and Wales*, Statistical Bulletin 21/19 (London, September 2019).

different substances may compete for the same share and, depending on supply conditions (price, availability), one prevails over the other. If the market is still expanding, both substances can push growth. Another area to be explored in order to understand the two different patterns is user preference and the flexibility of users to move from one substance to another.

Within the stimulant markets, there are also examples of substitution effects in the "ecstasy" market. In England and Wales, for example, trend data on the use of "ecstasy", mephedrone and NPS in the period 2005–2019 suggest that first mephedrone and later NPS filled the market space left by the decreasing supply of "ecstasy", mainly due to a supply shortage, until 2012. Once "ecstasy" started to regain its previous share, the other substances declined sharply.

Rapid evolution in some subregional drug markets

In the context of the long-term dynamics of the global drug market, there are many different changes that have affected selected geographical areas. Within the past two decades some regions have seen a gradual transformation of their drug markets: methamphetamine has become the predominant drug in South-East Asia, amphetamine ("captagon'') in the Middle East, North America has been confronted with the opioid crisis, Africa has seen an expansion of its domestic heroin market, and countries in North and West Africa are now facing a tramadol crisis. More recently, two subregions, the Near and Middle East/South-West Asia and the Russian Federation/Central Asia, appear to have been affected by rapid changes in their drug markets, with new drugs taking a substantial share of the drug market.

Emergence and spread of methamphetamine in Near and Middle East/South-West Asia

In the past few years, the manufacture and use of methamphetamine have emerged in the Near and Middle East/South-West Asia, subregions that until recently were dominated by use of "captagon". Methamphetamine manufacture and consumptionused to be largely unknown in those

Initially reported by only one country in the subregion (Israel), the number of countries reporting seizures of methamphetamine has increased in subsequent years. Overall, eight countries in the Near and Middle East/South-West Asia reported seizures of methamphetamine in the period 2000–2009, rising to 14 countries in the period 2010–2018. The bulk of the methamphetamine seized, however, continued to be seized by the Islamic Republic of Iran.

Much of the methamphetamine production in these subregions was originally intended for exports to the rapidly growing markets of East and South-East Asia, but domestic markets also appear to have started to emerge in the Near and Middle East/South-West Asia in recent years. Of 15 reporting countries in these subregions, 12 countries reported the use of methamphetamine by 2018 (or the latest year for which data are available).

In the absence of scientific data for the Near and Middle East/South-West Asia, qualitative information on trends in methamphetamine use reported by national authorities to UNODC give an indication of the threat experienced by the region. National authorities have reported a clear upward trend in methamphetamine use in those subregions

over large-scale exports of pseudoephedrine preparations from Jordan to the Kurdish region of northern Iraq. While the officially reported estimate of pseudoephedrine used in Iraq in 2018 was approximately 10 tons, notified shipments of pseudoephedrine preparations sent through the Pre-Export Notification Online system were three times that amount. Those shipments took place even though the national authorities objected.[58]

Most of the clandestine methamphetamine manufacture in the Near and Middle East/South-West Asia has traditionally been in the Islamic Republic of Iran, being manufactured both for the local market and for export to countries in East and South-East Asia (including Indonesia, Malaysia and Thailand) as well as for export to Central Asia and the Caucasus (Azerbaijan, Georgia and Tajikistan) and to Europe (including Bulgaria, France, the Russian Federation, Turkey and the United Kingdom).[59]

However, the Islamic Republic of Iran is not the main source of the methamphetamine found in other countries in the Near and Middle East/South-West Asia (with the exception of Iraq and the Syrian Arab Republic). The main source countries for other countries in this subregion seem to continue to be countries in East and South-East Asia.[60] The extent of clandestine methamphetamine manufacture in the Islamic Republic of Iran actually appears to be declining,[61] while manufacturing is rapidly increasing in neighbouring Afghanistan.

Recent large seizures of methamphetamine originated in Afghanistan, and studies have suggested that methamphetamine manufacture has increased in that country since 2016.[62] Seizures of methamphetamine in Afghanistan have continued to increase, from 9 kg in 2014 and 29 kg in 2015, to 47 kg in 2016, 127 kg in 2017, 182 kg in 2018 and 657 kg in the first six months of 2019.[63] In parallel, the use of methamphetamine in Afghanistan also appears to be increasing. Similar to the situation observed earlier in the Islamic Republic of Iran, studies in Afghanistan have shown that methamphetamine is frequently used concomitantly with opiates in an attempt to manage and/or offset the negative side effects of the use opiates.[64]

Clandestine manufacture of methamphetamine appears to have begun in Afghanistan in 2014. One of the centres of that clandestine manufacture is the province of Herat, most notably the district of Ghoryian, located halfway between the provincial capital and the border with the Islamic Republic of Iran. This area is characterized by high levels of unemployment and a high proportion of residents who have been either refugees or guest workers in the neighbouring Islamic Republic of Iran, which has enabled some of them to acquire the necessary know-how for the clandestine manufacture of methamphetamine.[65]

The main destination country of the methamphetamine manufactured in Afghanistan is the Islamic Republic of Iran. In 2018, Iranian authorities reported Afghanistan as the main source country for methamphetamine found on its territory.[66] INCB also raised concerns about the pseudoephedrine estimates submitted by the authorities of Afghanistan, which had to be seen "against the backdrop of a limited pharmaceutical industry, as well as of several reports of illicit methamphetamine laboratories in that country".[67]

The sudden spread of methamphetamine manufacture in Afghanistan seems to have prompted sharp price increases for cold and flu remedies containing pseudoephedrine in locations where methamphetamine manufacture is taking place.[68] Reports also indicate that the ephedra plant has been used as a

58 E/INCB/2018/4.

59 UNODC, responses to the annual report questionnaire.

60 Ibid.

61 Ibid.

62 David Mansfield, Organization for Sustainable Development and Research, and Alex Sonderholm, "Long read: the unknown unknowns of Afghanistan's new wave of methamphetamine production", website of London School of Economics, United States Centre, 30 September 2019.

63 *Report of the International Narcotics Control Board for 2019* (E/INCB/2019/1).

64 UNODC, "Global Smart Update: Methamphetamine continues to dominate synthetic drug markets", vol. 20 (September 2018).

65 Alim Latifi and Morteza Pajhwok-Karimi, "How narcos brought meth labs to Afghanistan", *TRTWorld*, 17 December 2018.

66 UNODC, responses to the annual report questionnaire.

67 E/INCB/2018/4.

68 Latifi and Pajhwok-Karimi, "How narcos brought meth labs to Afghanistan".

raw material for the production of ephedrine, one of the main precursors, instead of pseudoephedrine preparations as used in the Islamic Republic of Iran.[69] The ephedra plant appears to grow wild in the central province of Ghoriyan in Afghanistan, and traders from several parts of the country, including from the Provinces of Farah and Helmand, have started to purchase ephedra plants in various districts of Ghoriyan province. In addition, ephedra is now also reported to be grown in mountainous areas of other provinces, including Bamyan, Daykundi, Herat, Ghazni, Helmand, Kabul, Oruzgan and Wardak.[70] INCB also noted seizures by the Afghan authorities of locally grown ephedra in 2018.[71]

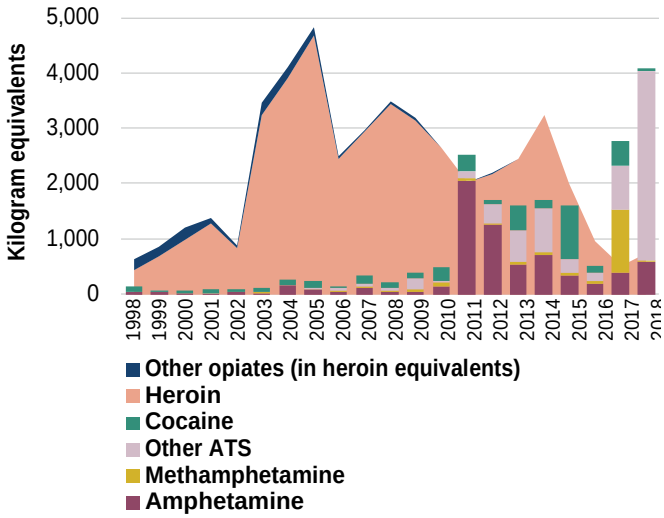
Shifts from opioids to stimulants in the Russian Federation and Central Asia

Significant changes have also taken place in the drug markets of the Russian Federation and Central Asia over the last few years, where synthetic drugs have emerged rapidly and apparently obtained a substantial market share, while the use of plant-based opiates has declined.

Data for the Russian Federation and Central Asian countries indicate a significant decline in both the use of and trafficking in opiates over the period 2008–2018. Seizures of opiates (expressed in heroin equivalents) fell in the Russian Federation by close to 80 per cent from 2008 to 2018, to less than 800 kg.

By contrast, quantities of stimulants seized rose twentyfold over the period 2008–2018, in particular seizures of ATS, which rose to almost 33 times the initial level. Moreover, according to seizure data, a variety of substances (internationally controlled or not) are now present in the synthetic drugs market: methamphetamine and various cathinones, including mephedrone and *alpha*-PVP.[72] Also, together with the rise in seizures, the Russian authorities

Fig. 19 Quantities of opiates and stimulants seized in the Russian Federation, 1998–2018



Source: UNODC, responses to the annual report questionnaire.

reported an increase in the number of dismantled clandestine laboratories manufacturing various drugs, rising from 36 in 2013 and 40 in 2015 to 68 in 2018.[73]

Similar patterns were also reported on the demand side. The proportion of treatment for opiates in overall first-time treatment demand fell from 87 per cent of the total in 2008 to 28 per cent in 2018, while treatment demand for the use of stimulants (mostly related to ATS) rose from 1 per cent to 19 per cent over the period 2008–2018. Despite the latter increase, overall drug treatment demand related to drug use appears to have declined by 46 per cent over the period 2008–2018.[74]

The emergence of "new drugs" in the Russian Federation seems to be supply-driven as it may be, at least partly, linked to the rapid spread of the darknet in the Russian Federation. Data collected among a convenience sample of Internet users suggest that the Russian Federation may have the highest proportion worldwide of Internet users who use the

69 Ben Farmer, "Afghanistan sees boom in meth production as seizures of illegal drugs more than double", *Telegraph*, 19 August 2019.

70 Mansfield, Organization for Sustainable Development and Research and Sonderholm, "Long read: the unknown unknowns of Afghanistan's new wave of methamphetamine production".

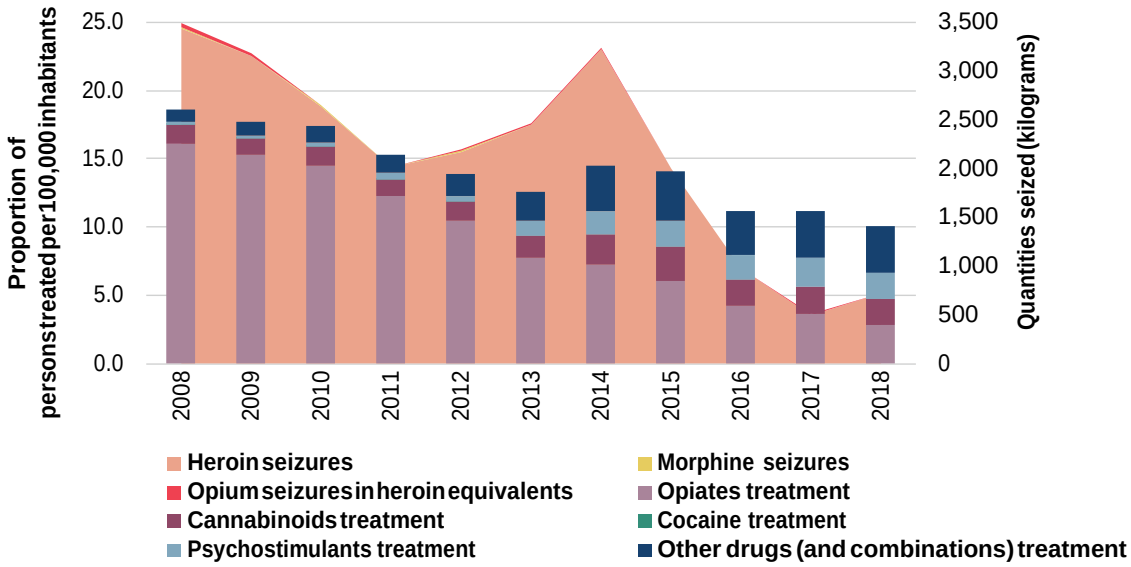
71 E/INCB/2018/4.

72 Russian Federation, official information provided to UNODC.

73 UNODC, responses to the annual report questionnaire.

74 Russian Federation, "Basic functioning indicators of the Narcological Service of the Russian Federation", a set of statistical handbooks for 2008–2017, released by the National Research Centre on Addictions, branch of V. Serbsky NMRCPN.

Fig. 20 First-time drug treatment per 100,000 inhabitants and quantities of opiates seized in the Russian Federation, 2007–2018



Sources: UNODC, responses to the annual report questionnaire; and Russian Federation, "Basic functioning indicators of the Narcological Service of the Russian Federation", a set of statistical handbooks for 2008–2017, released by the National Research Centre on Addictions, branch of V. Serbsky NMRCPN.

darknet for purchasing drugs; those who purchased drugs on the darknet represented 46 per cent of the drug users among the survey respondents in January 2018, rising to 86 per cent in January 2020.[75]

These data are based on a non-representative sample and should be interpreted with caution, but they confirm evidence concerning the high penetration of the darknet in the Russian Federation linked to the emergence of the Russian-language Hydra market platform on the darknet.

An analysis of the Hydra market, based on web-scraping techniques, conducted in February 2019, revealed a total of 13,935 drug listings on the platform in one day, dominated by synthetic cathinones (39 per cent of all listings, notably *alpha*-PVP and mephedrone), cannabis, mostly marijuana (16 per cent) and hashish (14 per cent), traditional ATS, mostly amphetamine (10 per cent) and methamphetamine (1 per cent), cocaine (4 per cent), psychedelics (3 per cent), dissociatives (2 per cent) and opioids (2 per cent). The analysis also indicated that, partly due to the increasing availability of drugs through the darknet, two thirds of the Russian population were now able to buy drugs instantly.[76] The importance of trafficking ATS through the darknet and/or through web shops is also indirectly reflected in the high proportion of ATS being shipped to end users and local retail traffickers by mail: 80 per cent in 2018 – a higher proportion than for most other drug categories in the Russian Federation.[77]

75 *Global Drug Survey 2020* and previous years.

76 Alexey Knorre, Institute for the Rule of Law, European University at St. Petersburg, "Drug supply on the Russian Internet: an analysis of "Hydra" darknet cryptomarket", presentation given at the Stockholm Criminology Symposium, International Society for the Study of Drug Policy conference, Stockholm, 10 June 2019.

77 UNODC, responses to the annual report questionnaire.

THE OPIOID CRISES

Among people who use drugs, the non-medical use of opioids has always been associated with the most negative health consequences attributed to any drug type. The non-medical use of opioids has been responsible for the majority of drug-related deaths since these have been globally recorded. In the last few years, however, new threats have emerged in relation to opioids that have escalated the number of drug overdoses in some regions and rapidly increased the number of people with drug use disorders in others. This new opioid crisis is related to the non-medical use of pharmaceutical opioids. Whereas heroin remains the opioid of major concern for the great majority of countries and the population of opioids users, in some countries and regions the non-medical use of pharmaceutical opioids has triggered new health threats.

The non-medical use of pharmaceutical opioids is not a new phenomenon. It has been observed for decades as part of the polydrug use pattern among high-risk or regular opioid users. What characterizes the most recent opioid crisis is the emergence of non-medical use of pharmaceutical opioids as the main phenomenon, leading to alarming rates of dependence and overdose deaths at the national level. The subregions most affected by this crisis are North America and West, Central and North Africa, where different opioids and different dynamics are driving the threat. In North America, the introduction of fentanyl and its analogues (fentanyls) in the drug market has resulted in a syndemic of use of opioids characterized by an unprecedented increase in opioid overdose deaths. In West, Central and North Africa and the Middle East, tramadol – a pharmaceutical opioid not under international control – has emerged as a major opioid of concern. The drug, in addition to being diverted from the legal market, is mainly trafficked into those subregions in dosages higher than what is prescribed for pain management, with an increasing number of people with tramadol use disorder entering treatment.

The dynamics and the recorded consequences of tramadol in Africa and of fentanyls in North America are different. There are serious information gaps with respect to the tramadol market and its health consequences in Africa. The rapid spread of non-medical use of tramadol is evident, but there is no measurable information on its impact on health (or on drug-related deaths and overdoses), whereas in North America the deadly consequences of the fentanyls have been well recorded and measured. Moreover, unlike tramadol, which is often chosen for use as the main compound, fentanyls are mixed in for use as adulterants in other drugs, with the result that users are often unaware that they are consuming them.

From what is known, it is possible to identify common threats and different dynamics in the two opioid crises, in Africa and in North America:

- The ease of manufacturing, easy accessibility and low-cost production make the illicit markets for tramadol and fentanyls substantially more profitable for traffickers than are other opioids such as heroin.
- The large-scale manufacture of tramadol and fentanyls for the illicit market started in a context of an absence of international regulations on tramadol and many fentanyl analogues or their precursors.
- The interchangeability (or substitution) of fentanyl and tramadol within the pharmaceutical and illicit drug markets makes it more difficult to address their misuse. Their non-medical use is also seen in the context of self-medication, and thus carries less stigma or is countered by lesser legal sanctions than is the case with other controlled drugs.

A key difference in the spread of the two opioids is that use of fentanyl is mainly supply-driven. In the case of tramadol, it is less clear. The market for non-medical use of tramadol in some areas may have started as a result of easy access in the unregulated pharmaceutical markets. Drug preference is to a large extent related to the availability of the drug more than to the individual liking of the substance used or misused, indicating that the tramadol crisis may have been mainly demand driven.[78] The health impacts of the surge in the two markets also appear

78 Mai Taha and others, "Cannabis and tramadol are prevalent among the first episode drug-induced psychosis in the Egyptian population: single center experience", *Reports: Medic Cases, Images and Videos*, vol. 2 (June 2019), p. 16.

to be different: the emergence of fentanyl has not increased the number of persons who use opioids, but it has driven up the number of overdoses among existing users. Tramadol, on the other hand, seems to have driven use among a wider segment of the population and in an increasing number of people in treatment, more than driving up the number of deaths, although reliable information on overdoses is not available for Africa.

The following sections of this chapter look at the market development of the two opioids, fentanyls and tramadol, with the aim of improving understanding of the factors that may have contributed to their spread, some of the potential threats posed by their misuse.

Opioid crisis in North America

The opioid crisis in North America has been characterized by the triple and interlinked epidemic of non-medical use of pharmaceutical opioids, use of heroin and use of fenatanyls (i.e., fentanyl and its analogues) that are mostly illicitly manufactured and are primarily sold as falsified pharmaceutical opioids or are laced with heroin or other drugs.

The opioid epidemic in the subregion has led to an increasing number of overdose in some geographical areas (western Canada and the eastern United States), although the epidemic now appears to be steadily expanding to other areas. Although geographically disconnected, the areas that were initially affected by the opioid crisis in Canada and the United States have experienced remarkably similar market dynamics, which can be broadly described in the following sequential steps:

(a) High rates of prescriptions for pharmaceutical opioids leading to diversion and an increase in the non-medical use of pharmaceutical opioids, opioid use disorders and an increase in opioid overdose deaths

(b) Regulations introduced to reduce diversion and non-medical use of pharmaceutical opioids (e.g., tamper-proof formulations to prevent injecting)

(c) Partial resurgence of heroin use, resulting in an increase in heroin overdose deaths from 2010 onwards, fentanyls introduced as an adulterant in heroin, and a further increase in heroin overdose deaths (from 2014 onwards), while the number of pharmaceutical opioid overdose deaths began to stabilize

(d) Fentanyl (illicitly manufactured in clandestine laboratories) and its analogues emerge as adulterants in heroin and stimulants (cocaine and methamphetamine) and are sold as falsified pharmaceutical opioids, resulting in massive increases in deaths attributed to fentanyls

(e) Fentanyls emerge as the dominant opioid in opioid overdose deaths, as well as contributing to overdose deaths attributed to other drugs

(f) Overdose deaths attributed to pharmaceutical opioids and heroin (alone) stabilize or show small declines

(g) Fentanyl-related deaths are the main contributor to total opioid overdose deaths; they continued to increase in 2018 although at a lower rate than previously

These dynamics are now gradually spreading outside the originally affected regions in both Canada and the United States. If the latest observed tail of the epidemic in some states of the United States is bringing a relative stabilization in the national total of overdose deaths, it is not yet clear whether this is a sign of the epidemic having plateaued. If similar dynamics and intensity of the epidemic, as were experienced initially in the states in the East of the United States and the Western provinces of Canada, extend to other states or provinces, the associated harm, including overdose deaths, may continue rising.

The scientific literature has attempted to understand the reasons for the sudden rise of fentanyls in pre-existing opioid markets. It seems that an interplay between a number of external factors and local market dynamics played a role in the spread of the opioid crisis in North America. Some of the factors that have led to the rise and continued presence of fentanyls include: (a) the diffusion of simpler and more effective methods of manufacture of synthetic opioids and their analogues (primarily fentanyls); (b) a lack of effective control of precursors and oversight of the manufacture industry; (c) expanding distribution networks; (d) reduced smuggling risks because of new methods of trafficking within the expanded licit trade; and (e) pre-existing market

conditions (demand for opioids and potential supply shocks).[79]

What seems clear is that the fentanyls market is supply-driven. While some authors have documented a niche market of users among whom there is a conscious demand for fentanyls, most opioid or stimulant users are not looking for fentanyls specifically and are often unaware of their use as an adulterant.

Developments in the United States

Opioid overdose deaths

In the United States, there are early signs of stabilization of the opioid crisis, although misuse levels remain high. One of the major adverse health outcomes of the opioid crisis has been the unprecedented number of fatal overdose cases linked to opioids. Between 2007 and 2018, the total number of all overdose deaths in the United States nearly doubled while the number of overdose deaths attributed to opioids increased 2.5-fold, from 18,515 deaths in 2007 to nearly 47,000 deaths in 2018. It is important to keep in mind that there is more than one drug type involved in most overdose cases. Furthermore, even for opioids there is a considerable mixing of different opioids along with other drugs. For instance, in 2018 more than one third of overdose deaths involving pharmaceutical opioids and more than half of those involving heroin also involved fentanyls.

By December 2018, the number of overdose deaths had declined by 4 per cent, and overdose deaths attributed to opioids and heroin had declined by less than 2 and 3 per cent, respectively, compared with a year earlier.[80] The major decline in overdose deaths from 2017 to 2018 is clearly seen in overdose deaths attributed to pharmaceutical opioids, which declined by 12 per cent.

The decline in overdose deaths attributed to opioids could in part be attributed to the community-wide availability of naloxone for the reversal of opioid overdose, in addition to a continued decline from 2012 to 2018 in overall opioid prescription rates. The rate of prescription of opioids in the United States fell to 51.4 prescriptions per 100 persons (a total of more than 168 million opioid prescriptions) in 2018 from a peak of 81.3 opioid prescriptions per 100 persons (or 255 million opioid prescriptions) in 2012. The opioid prescription rate in the southern United States remains high, however, with most states in the region reporting opioid prescription rates of 64 or more per 100 persons in 2018.[81] A number of factors at work, including advertising by the pharmaceutical industry, physicians' prescription practices, dispensing and medical culture and patient expectations have, since the new millennium, resulted in high prescription rates and dosages of opioids given for an extended duration of care, primarily for the management of acute to chronic non-cancer pain.[82] These practices have also enabled the diversion and misuse of pharmaceutical opioids, together with a greater risk of opioid use disorders among those with a legitimate prescription.[83]

Nevertheless, these gains in the reduction of overdose deaths attributed to pharmaceutical opioids have been partly offset by the continuing increase in deaths attributed to synthetic opioids and, in particular, those attributed to fentanyls, which have increased by 10 per cent over the past year. In United States overdose data, for instance, fentanyl is generally designated as "illicitly manufactured fentanyl" because it is not diverted from licit channels but is either trafficked into the country or, to a lesser extent, manufactured locally in clandestine laboratories.[84] Overall, in 2018 overdose deaths attributed to synthetic opioids, comprising mainly

79 Bryce Pardo and others, *The Future of Fentanyl and other Synthetic Opioids* (Santa Monica, California, RAND Corporation, 2019).

80 Holly Hedegaard and others, "Drug Overdose Deaths in the United States, 1998-2019", National Center for Health Statistics Data Brief, no 356, Centers for Disease Control and Prevention, National Center for Health Statistics, January 2020.

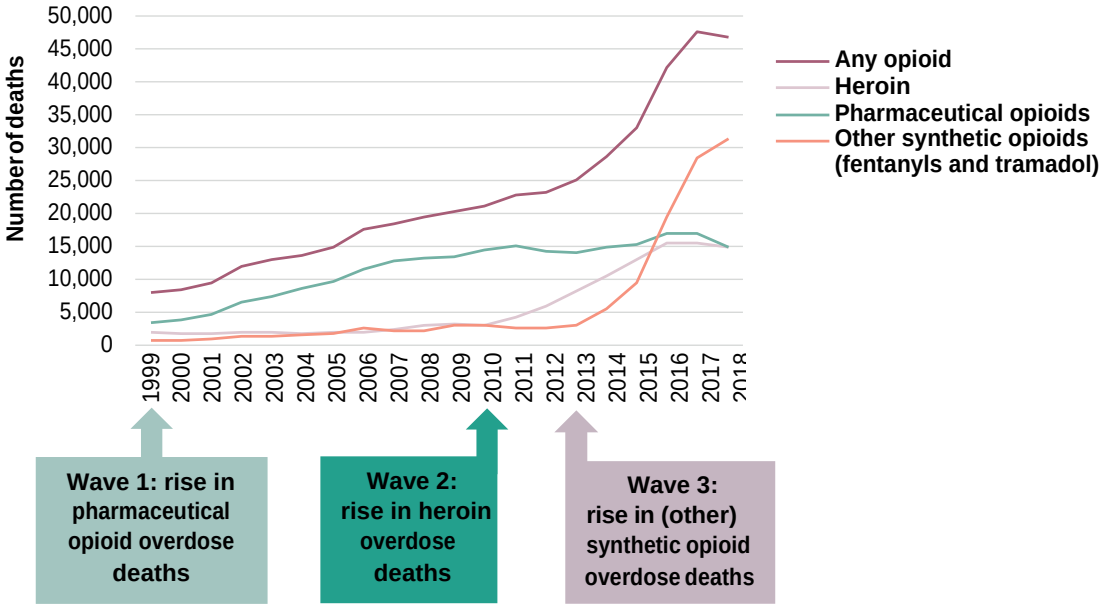
81 Centers for Disease Control and Prevention, US Opioid Prescribing Rate Maps. Available at https://www.cdc.gov/drugoverdose/maps/rxrate-maps.html.

82 Benedikt Fischer and others, "Non-medical use of prescription opioids and prescription opioid-related harms: why so markedly higher in North America compared to the rest of the world?", *Addiction*, vol. 109, No. 2 (February 2014), pp. 177–181.

83 See also *World Drug Report 2019: Depressants* (United Nations publication, Sales No. E.19.XI.8 (Booklet 3)).

84 Fentanyl diverted from the legitimate market, prescribed in the form of transdermal patches, or lozenges, but is of only limited importance for the United States. United States, Department of Justice, DEA, *2018 National Drug Threat Assessment* (October 2018).

Fig. 21 Opioid overdose deaths in the United States, 1999–2018



Source: United States, Centers for Disease Control and Prevention, National Center for Health Statistics, Wide-ranging Online Data for Epidemiologic Research (CDC WONDER), "Multiple cause of death 1999–2018".

fentanyls, accounted for nearly half of the total overdose deaths in the United States. Among the reasons for the high number of overdose deaths attributed to fentanyls are their often small lethal doses relative to other opioids: fentanyl, for example, is approximately 100 times more potent than morphine, and carfentanil may be as much as 10,000 times more potent than morphine for an average user. A lethal dose of carfentanil for a human can be as low as 20 micrograms.

The rapid expansion of fentanyl use in the United States is also visible in the data on seizures and the drug samples analysed, with a considerable increase since 2014 in the number of samples identified as fentanyl. In 2018, fentanyl accounted for 45 per cent of the pharmaceutical opioids that were identified in different samples, while oxycodone accounted for 14 per cent. Furthermore, while over the years fentanyl has been the predominant substance seized of the overall group of fentanyls (the structurally related opioids), those fentanyl analogues have also proliferated in the United States. As a percentage of all pharmaceutical opioid samples seized and identified in 2018, some fentanyl analogues were notable: acetylfentanyl accounted for nearly 4 per cent of identified samples, and fluoroisobutyrylfentanyl, methoxyacetylfentanyl and cyclopropylfentanyl each accounted for less than 1 per cent.

Regional variations in opioid overdose deaths

The opioid crisis is concentrated differently across geographical regions of the United States. Opioid overdose deaths are consistently higher than the national average, which was 14.6 per 100,000 population in 2018, in the states east of the Mississippi river, including West Virginia (42.4 per 100,000 population in 2018), Maryland (33.7 per 100,000 population), New Hampshire (33.1 per 100,000 population) and Ohio (29.6 per 100,000 population), and lower than the national average in the western states of the United States.[85] This concentration of opioid overdose deaths becomes more evident in the case of overdose deaths attributed to fentanyls. Many states east of the Mississippi river, such as West Virginia (34 per 100,000), New Hampshire (31.3 per 100,000), Ohio (25.7 per 100,000),

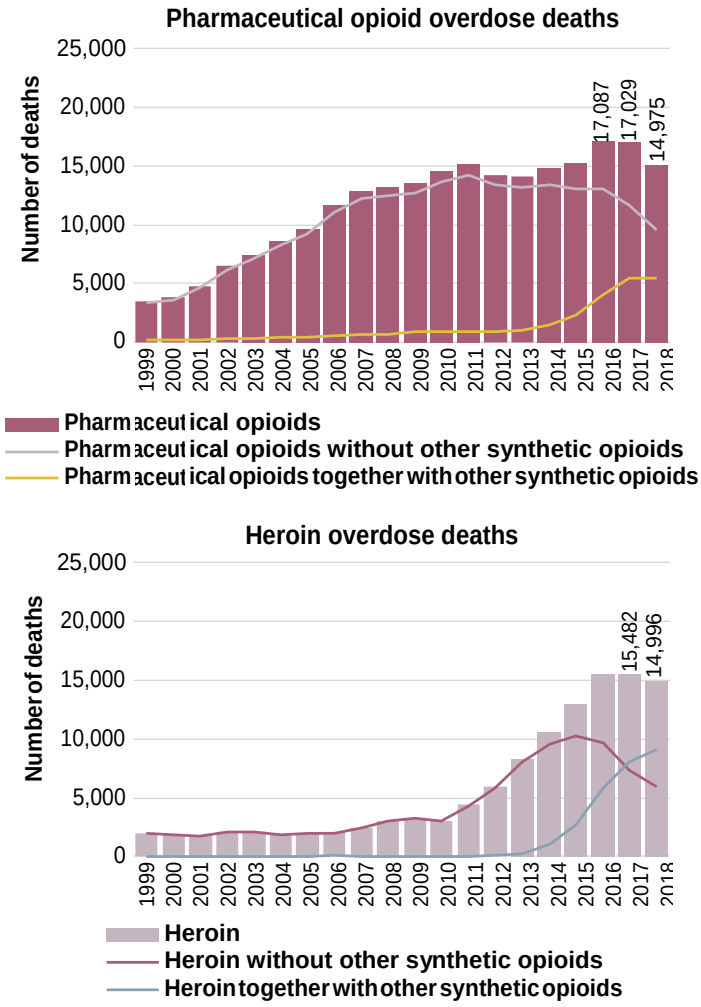
85 United States, Centers for Disease Control and Prevention, National Center for Health Statistics, Wide-ranging Online Data for Epidemiologic Research (CDC WONDER), "Multiple cause of death 1999–2018".

and the District of Columbia (22.6 per 100,000) had rates of overdose deaths attributed to synthetic opioids that were multiple times higher than the national average of 9.9 deaths per 100,000 population in 2018. In the western United States, the rates are much lower: in 2018, overdose deaths attributed to fentanyls amounted to 2.2 per 100,000 population in California and 2.9 per 100,000 population in Washington.

The synthetic opioid crisis, driven primarily by fentanyl and fentanyl analogues, appears to be migrating from the eastern states of the United States to the western states. The western states have reported the lowest overdose deaths attributed to synthetic opioids since 2011. Nevertheless, the rates of synthetic opioid overdose deaths in the western states have increased by 3.5-fold over the past five years. While the rates of overdose deaths attributed to synthetic opioids are persistently higher in the eastern states than in other parts of the country, in 2018 many of the states east of the Mississippi river that had a high prevalence of synthetic opioid use (mainly fentanyls) reported a decline in overdose deaths attributed to fentanyls. The largest decline was reported in Ohio (a decline of 21 per cent), followed by Georgia (a decline of 17 per cent), while other states such as Missouri, Tennessee, Illinois and South Carolina showed a significant increase in the number of synthetic opioid overdose deaths between 2017 and 2018. On the other hand, many states west of the Mississippi river, while still reporting low numbers of fentanyl-related overdose deaths, recorded an increase in such overdose deaths over the period 2017–2018. Arizona recorded a 93 per cent increase, followed by California (69 per cent), Washington (53 per cent) and New Mexico (46 percent).[86]

In some of the states, such as New Hampshire in the north-eastern United States, where fentanyl first appeared, mixed with other substances, fentanyl has now emerged as a standalone substance for use rather than as an adulterant. Synthetic opioids predominate overdose there despite a considerable reduction in overdose deaths attributed to pharmaceutical opioids and heroin.

Fig. 22 United States: number of overdose deaths attributed to pharmaceutical opioids and heroin, 1999–2018



Source: United States, Centers for Disease Control and Prevention, National Center for Health Statistics, Wide-ranging Online Data for Epidemiologic Research (CDC WONDER), "Multiple cause of death 1999–2018".

86 Ibid.

Table 4 Regulations for the legalization of the non-medical use of cannabis in Canada

	Federal law	Alberta	British Columbia	Manitoba
Legal process	Government legalislation			
Title	Cannabis Act	Gaming, Liquor and Cannabis Act and Gaming, Liquor and Cannabis regulation	Cannabis control and licensing Act (CCLA) Cannabis distribution Act (CDA)	Safe and Responsible Retailing of Cannabis Act
Date implemented	October 17, 2018			
Regulatory authority		Albertal Gaming Liquor and Cannabis (AGLC)	Liquor and cannabis regulation branch	Liquor, Gaming and Cannabis Authority of Manitoba (LGCA) Manitoba Liquor and Lotteries (MBLL)
Minimum age	18	19	19	19
Personal possession quantity	30 g dried or equivalent i.e., 150 g of fresh cannabis 450 g of edible product 2100 g of liquid product 7.5 g of concentrates (solid or liquid) 30 cannabis plant seeds	30 g or equivalent	30 g or equivalent	30 g or equivalent
Home cultivation	Grow from licensed seeds four cannabis plants per residence for personsal use Cannabis products such as food and drink at home if organic solvents are not used	Yes	Adults can grow up to four cannabis plants per household, but the plants must not be visible from public spaces	Home growing is not permitted
Interpersonal sharing	30 g or equivalent of legal cannabis product			
Retail transaction limit		30 g or equivalent		
Average retail price per gram (2019 average, Cannabis Stats Hub (13-61-X)		Can$10.96	Can$9.32	Can$10.56

	Federal law	Alberta	British Columbia	Manitoba
Maximum THC content	Dried cannabis to be consumed by inhalations must not exceed 1 g in each discrete unit of cannabis product Products intended to be "administered orally, rectally, vaginally or topically" must not exceed a maximum yield quantity of 10 mg of THC Cannabis oil must not exceed a maximum yield of 30 mg of THC per ml of the oil			
Commercial production	Licensed producers. Each province has an Excise stamp that needs to be fixed on the cannabis products			
Commercial distribution		Licensed retailers Private retail stores, provincial online sales	Private and provincial retail stores, online sales Retail licensing regime similar as for liquor	Private retail stores and online sales
Restrictions on edibles	Cannabis edible products and concentrates legal for sale October 2019	Edibles as yet not allowed	Edibles to be allowed within a year	
Advertising	No promotion, packaging or labelling that could be considered appealing to young people, and ensuring that important product information is presented clearly	No promotion, packaging or labelling that could be considered appealing to young people, and ensuring that important product information is presented clearly Advertising allowed inside cannabis stores	Same as Federal Law	
Taxation Cannabis excise duty rates in provinces and territories (Department of Finance, Canada)	Flower $0.25/g Trim $0.75/g Seed $0.25/seed Seedling $0.25/seedling Federal Ad Valorem Rate 2.5% of dutibale amountof cannabis product when delivered to purchaser	Flower: $ 0.75/g plus 16.8% of base amount Trim: $0.225/g plus 17.8% of base amount Seed: $0.75/seed plus 16.8% of base amount Ad Valorem Additional Rate 7.5% plus 16.8% of deductible amount when delivered (total applicable rate 24.3%)	Flower $0.75/g Trim $0.22/g Seed and seedling : $0.75/seed or seedling 7.5% provincial sale tax in addition to Federal taxes	Wholesale mark-up on non-medical cannabis, a $0.75 per gram mark-up plus 9% per cent mark-up applied on top of the $0.75 per gram
Restrictions on use		In cars, areas frequented by children, or tobacco-restricted areas	In cars, areas frequented by children, or tobacco restricted areas	Smoking and vaping cannabis is illegal in public places (including enclosed public places)

	New Brunswick	New Foundland and Labrador	Northwest Territories
Legal process			
Title	Cannabis Control Act Cannabis Management Corporation Act	Newfoundland and Labrador Cannabis Regulations Control and Sale of Cannabis Act	Cannabis Legalization and Regulation Implementation Act
Date implemented			
Regulatory authority	Cannabis Management Corporation	Newfoundland and Labrador Liquor Corporation (NLC)	North West Territories Liquor & Cannabis Commission (NTLCC)
Minimum age	19	19	19
Personal possession quantity	30 g or equivalent	30 g or equivalent	30 g or equivalent
Home cultivation	Can grow up to four plants at primary residence. Plants must be kept in a separate locked space Outdoor plants must be located behind a locked enclosure at least 1.52 metres high	A private dwelling can contain up to four cannabis plants	Grow up to four cannabis plants per household
Interpersonal sharing			
Retail transaction limit			
Average retail price per gram after tax	Can$11.36	Can$10.61	Can$14.45
Maximum THC content			
Commercial production			
Commercial distribution	Cannabis NB retail stores and online sales	Private retail stores, provincial online sales	NWT Liquor Stores, provincial online sales
Restrictions on edibles			
Advertising			

	New Brunswick	New Foundland and Labrador	Northwest Territories
Taxation **Cannabis excise duty rates in provinces and territories (Department of Finance, Canada)**	Flower: $0.75/g Trim:$0.225/g Seed/seedlings $0.75 7.5% of the dutiable amount when delivered to purshaser	Flower: $0.75 /gm Trim:$0.225 /gm Seed/seedlings $0.75 7.5% of the dutiable amount when delivered to purshaser	Flower: $0.75/g Trim:$0.225/g Seed/seedlings $0.75 7.5% of the dutiable amount when delivered to purshaser
Restrictions on use	Illegal to smoke everywhere except private property or residence	Illegal to smoke everywhere except private property or residence	Illegal to smoke everywhere except private property or residendce

	Nova Scotia	Nunavut	Ontario	Prince Edward Island
Legal process				
Title	Cannabis Control Act	Cannabis Act Cannabis Statutes Amendments Act	Cannabis, Smoke-Free Ontario, and Road Safety Statute Law Amendment Act, 2017 Cannabis Statute Law Amendment Act, 2018	Cannabis Control Act Cannabis Management Corporation Act
Date implemented				
Regulatory authority	Nova Scotia Liquor Corporation	Nunavut Liquor and Cannabis Commission	Alcohol and Gaming Commission of Ontario	Provincial cannabis committee Cannabis management corporation
Minimum age	19	19	19	19
Personal possession quantity	30 g or equivalent No limit on home storage for personal use	30 g or equivalent	30 g or equivalent	30 g or equivalent
Home cultivation	Adults can grow up to four cannabis plants per household	Territorial government can regulate whether plants can be grown at home	Adults can grow up to four plants per residence	A household is permitted to have four cannabis plants
Interpersonal sharing				
Retail transaction limit				

	Nova Scotia	Nunavut	Ontario	Prince Edward Island
Average retail price per gram after tax	Can$10.93	Can$13.71 * not for 2019	Can$10.53	Can$11.19
Maximum THC content				
Commercial production				
Commercial distribution	Designated NSLC stores or online	Currently through government-operated online store or by phone	Government retail stores and online sales	Four dedicated government-owned retail stores and online sales
Restrictions on edibles	Sale of edibles illegal under Federal law Edibles can be produced at home for personal use			
Advertising				
Taxation Cannabis excise durty rates in provinces and territories (Department of Finance, Canada)	Flower: $0.75/ g Trim: $0.225/g Seed/seedlings $0.75 7.5 % of the dutiable amount when delivered to purshaser	Flower: $0.75/g plus 19.3% of base amount Trim: $0.225/g plus 19.3% of base amount Seed/seedling: $0.75 seed plus 19.3% of base amount 7.5% plus plus 19.3% of the dutiable amount of a cannabis product when delivered to a purchaser (total applicable rate of 26.8%)	Flower: $0.75/g plus 3.9% of base amount Trim: $0.225/g plus 19.3% of base amount Seed/seedling: $0.75 seed plus 19.3% of base amount 7.5% plus plus 19.3 % of the dutiable amount of a cannabis product when delivered to a purchaser (total applicable rate of 26.8 %)	Flower: $0.75/g Trim:$0.225/g Seed/seedlings $0.75 7.5 % of the dutiable amount when delivered to purshaser
Restrictions on use	Illegal everywhere except for areas where tobacco may be smoked	Illegal everywhere except for areas where tobacco may be smoked	Illegal to smoke everywhere except private property	Illegal to smoke everywhere except private property, some exceptions for certain public spaces

	Prince Edward Island	Quebec	Saskatchewan	Yukon
Legal process				
Title	Cannabis Control Act Cannabis Management Corporation Act	Cannabis Regulation Act Act to constitute the Société québécoise du cannabis	The cannabis control (Saskatchewan) Act The cannabis control (Saskatchewan) regulations	Cannabis control and regulation act
Date implemented				
Regulatory authority	Provincial cannabis committee Cannabis management corporation	Société québécoise du cannabis	Cannabis Authority under the Saskatchewan Liquor and Gaming Authority	Yukon Liquor Corportation Cannabis Licensing Board (2019)
Minimum age	19	18	19	19
Personal possession quantity	30 g or equivalent	30 g in a public place 150 g in a private residence	30 g of dried cannabis or equivalent	30 g of dried cannabis or equivalent
Home cultivation	A household is permitted to have four cannabis plants.	Prohibited to cultivate cannabis for personal use	Limit of four cannabis plants grown per household	Four plants per household
Interpersonal sharing				
Retail transaction limit		30 g per visit at Société québécoise du cannabis		30 g per purchase
Average retail price per gram after tax	Can$11.19	Can$7.88	Can$10.68	Can$10.36
Maximum THC content				
Commercial production		Licensed producers		
Commercial distribution	Four dedicated government-owned retail stores and online sales	Government retail stores and online sales	Private retail stores, provincial online sales	Government retail stores and online sales Cannabis Yukon retail store
Restrictions on edibles				
Advertising				

	Prince Edward Island	Quebec	Saskatchewan	Yukon
Taxation **Cannabis excise durty rates in provinces and territories (Department of Finance, Canada)**	Flower: $0.75/g Trim:$0.225/g Seed/seedlings $0.75 7.5 % of the dutiable amount when delivered to purshaser	Flower: $0.75/g Trim:$0.225/g Seed/seedlings $0.75 7.5 % of the dutiable amount when delivered to purshaser	Flower: $0.75/g plus 6.45% of base amount Trim: $0.225/g plus 6.45% of base amount Seed/seedling: $0.75 seed plus 6.45% of base amount 7.5% plus plus 6.45 per cent of the dutiable amount of a cannabis product when delivered to a purchaser (total applicable rate of 13.95%)	Flower: $0.75/g Trim: $0.225/g Seed/seedlings $0.75 7.5% of the dutiable amount when delivered to purshaser
Restrictions on use	Illegal to smoke everywhere except private property, some exceptions for certain public spaces	Illegal to smoke everywhere except for areas where tobacco may be smoked, excluding university and CEGEP campuses	Illegal to smoke everywhere except private property or residendce	Illegal to smoke everywhere except private property or residendce

Table 5 Regulations for the legalization of the non-medical use of cannabis in jurisdictions in the United States

	Alaska	California	Colorado	District of Columbia	Maine
Legal process	Voter initiative, state statute	Voter initiative	Voter initiative, amendment to state constitution	Voter initiative	Voter initiative
Title	Ballot Measure 2	Proposition 64	Amendment 64	Initiative 71	Question 1
Date passed	Nov-14	Nov-16	Nov-12	Nov-14	Nov-16
Date imple-mented/required date of rule adoption	February 2015: Personal possession, consumption, cultivation October 2016: Retail sales	Licences to be issued by 11 January 2018	December 2012: Personal possession, consumption, cultivation January 2014: Retail sales	February 2015: Personal possession, consumption, cultivation	Take effect on 7 January 2017; regulation for business to be in place August 2017
Regulatory authority	Alcohol and Marijuana Control Office	Bureau of Marijuana Control	Marijuana Enforcement Division (Department of Revenue)	Not applicable; considering separate legislation to regulate commercial production and sale to adults	Department of Agriculture, Conservation and Forestry
Minimum age	21	21	21	21	21
Residency requirement	None	Not specified	None	None	Not specified
Personal possession quantity	28.5 g	1 oz flower 8 g concentrate	28.5 g	2 oz (57 g)	2.5 oz (70.8 g) 5g concentrate
Home cultivation	Six plants, three of which can be flowering; not subject to public views; within property with lawful possession or with consent of the person in lawful possession	Six plants, away from view	Six plants, three of which can be flowering	Six plants per person; Twelve plants per household, six of which can be flowering	Six mature plants, twelve immature plants, unlimited amount of seedlings away from view and tagged with personal identification number. Property owners can prohibit home cultivation. Cultivation for medical purposes not subject to same restrictions
Interpersonal sharing	28.5 g	Yes	28.5 g	28.5 gm or less	Yes for home grow. Not permitted for retail marijuana
Retail transaction limit	28.5 g	Presumably same limits for personal possession	Residents: 28.5 g Non-residents: 7 g	Not applicable	2.5 oz. of marijuana Twelve seedlings
Retail pricing structure	Market	Market/commercial	Market	Market	Market/commercial
Average retail price per gram of medium qualtiy Source: budzu.com	$20.00	$12.03	$14.14	Not applicable	$14.00
Maximum THC content	Not set initially	Not set initially	Not set initially	Not set initially	Not set initially
Registration requirements	None	Not specified	None	None	Not specified

	Alaska	California	Colorado	District of Columbia	Maine
Commercial production	Licensed cannabis producers	Licensed cultivators and manufacturers, varying types	Licensed cannabis cultivation facilities	None	Licensed cultivators; two types based on size
Commercial distribution	Licensed retail cannabis stores	Limits on market concentration	Licensed retail cannabis stores	None	State authority may not limit total number of stores; localities may regulate number and location of establishments
Restrictions on edibles	5 mg of THC for single serving, no more than 50 mg of homogenous THC allowed per package. Child-resistant packaging required. Separate warnings on risks, not appealing to children	10 mg THC per serving. Warning and potency labels. List of ingredients and cannabinoid content	Maximum of 10 mg of THC in each individually packed serving; warning labels "keep out of reach of children"; THC symbol on labels and not attractive to children	Currently not allowed	Serving size and potency limits to be developed in regulations. List of ingredients packing and labels; products and edibles may not contain additives designed to make product more appealing to children
Advertising	Logo or advertisement for licensed marijuana may not promote excessive consumption, depiction appealing to a person under 21 years. Restrictions on advertisements in school areas, public transport, and contrain presribed warning	Restricted to those over 21. Restrictions on false advertisement or claims of untrue health benefits. Products cannot appeal to children	Restricted to media with no more than 30% of the audience under the age of 21	Not applicable, no commercial market	Restricted to those over 21. Restrictions on false advertisement or claims of untrue health benefits. Products cannot appeal to children
Taxation	$50 excise tax per ounce on sales or transfers from cultivation facility to retail store or product manufacturer; other parts of plant, e.g., stems and leaves are taxed at $15 per ounce	15% excise on retail, $9.25 per dry weight ounce on flower after harvest. $2.75 per drug weight ounces on leaves	15% excise tax on cultivation; 10% retail marijuana sales tax to be decreased to 8% in July 2017 2.9% state sales tax Up to 3.5% local sales taxes	Not applicable, no commercial market	10% excise on retail
Cannabis clubs	Not explicitly allowed or prohibited Earlier ban on in-store consumption repealed in November 2015	Not specified although they may exists in the form of microbusiness that allow on-site consumption	Not allowed	Not allowed; currently under investigation by city task force.	State-licensed clubs
Restrictions on use	Cannabis use in public is unlawful	Prohibit cannabis use in a public place unlicensed for such use, including near schools and other areas where children are present.	Not permitted in public places	Not permitted in public places (use on private property)	Not permitted in public places (allowed use in private property or smoking in a state-licensed marijuana social club)
Medical cannabis	1998: Patient registry, no dispensaries registration; out-of-state patients recognized for approved conditions but not for dispensary purchases; possession, home cultivation	1996 and 2003; Patient registry - voluntary registration; cooperatives and collectives; State-wide licensing of dispensaries will begin 2018	2000: Patient registry, dispensaries already existed; out-of-state patients not recognized; possession, consumption; 2010: commercial production and sales	1998/2010: Patient registry; dispensaries allowed	1999: Patient registry or identification card; dispensaries, recognizes patients from other states but not for dispensary purchases

	Michigan	Massachusetts	Nevada	Oregon	Vermont	Washington	Illinois
Legal process	Voter initiative	Voter initiative	Voter initiative	Voter initiative, state statute	Legislative process	Voter initiative, state statute	Legislative process
Title	Proposal 18-1	Question 4	Question 2	Measure 91	No. 86 S.54 (initaited in Feb 2020 to be finalized)	Initiative 502	HB 1438
Date passed	6 December 2018	Nov-16	Nov-16	Nov-14	Jan-18	Nov-12	Jun-19
Date implemented/ required date of rule adoption	Commercial licences application begin by 6 December 2019	15 September 2017. Licences issued starting 1 October 2017	Takes effect on 1 January 2017 and regulations to be in place by 1 January 2018	July 2015: Personal possession, consumption, cultivation October 2015 up to December 2016: Retail sales through medical dispensaries January 2017: retail sales through licensed retailers	01 July 2018	December 2012: Personal possession, consumption July 2014: Retail sales	1-Jan-20
Regulatory authority	Department of Licensing and Regulatory Affairs	1) Cannabis Control Commission, and 2) Cannabis Advisory Board	Department of Taxation	Oregon Liquor Control Commission	Cannabis Control Board (proposed under S.54)	Liquor and Cannabis Board (formerly the Liquor Control Board)	Department of Financial and Professional Regulation
Minimum age	21	21	21	21	21	21	21
Residency requirement		Not specified	Not specified	None		None	Non residents can acquire half the amount allowed for residents
Personal possession quantity	2.5 oz (70.8 g) on person and 10 oz (283 g)at home	1 oz flower (28.5 g)	1 oz flower	In public: 28.5 g	1 oz or 5 g of cannabis	28.5 g	30 g of raw cannabis, 500 mg of THC in cannabis-infused product or 5 g of cannabis concentrate
		5g concentrate	3.5g concentrate	At home: 228 g			
Home cultivation	Up to 12 plants per household	6 plants, 12 in a single residence away from view; 10 oz. of dried marijuana permitted at home	Six plants, no more than twelve on property in indoor or in enclosed with permission of landlord and must be 25 miles away from retail cannabis store	Four plants in flower	2 mature plants or 4 immature plants	Not allowed	Medical cannabis patients can grow up to 5 plants per household. Plants need to be secured and out of view by public.

	Michigan	Massachusetts	Nevada	Oregon	Vermont	Washington	Illinois
Interpersonal sharing	Yes (2.5 oz with a max of 15 mg of concentrate)	Yes	Yes	28.5 g	Same as personal possession limits	Not allowed	
Retail transaction limit		Not specified, presumably same limits as for personal possession	Not specified, presumably same limits as for personal possession	1 oz dried flower 16 oz edible form 72 oz cannabis in liquid form 10 cannabis seeds 4 immature cannabis plants		28.5 g	Not set but would be same as personal possesion limit
Retail pricing structure	Market/commercial	Market/commercial	Market/commercial	Market	No provision for setting up a taxed-and-regulated retail marketplace	Market	Market
Average retail price per gram of medium qualtiy Source: budzu.com	$16.92	$14.64	$16.55	$10.59	NA	$10.55	$11.95
Maximum THC content		Not set initially	Not set initially	Not set initially	Cannabis flower not to exceed 30% THC. Solid concentrates not exceed 60%. Oils — apart from cartridges for vape pens — not allowed.	Not set initially	Initially 100 mg of THC per package; Department of Agriculture may change maximum level of THC contained in each serving of cannabis-infused product
Registration requirements		Personal data collection not required	Personal data collection not required	None		None	None
Commercial production	Licensed establishments	Licensed establishments	Licensed establishment	Licensed cannabis producers	Not clarified in law	Licensed cannabis producers	Licensed marijuana producers
Commercial distribution	A municipality may completely prohibit or limit the number of establishments operating	Licensed establishments; localities can regulate, limit or prohibit the operation of businesses	Limits on market concentration by population	Licensed retail cannabis stores	Not clarified in law	Marijuana can only be sold and purchased at state-licensed retail stores	Dispensary provides products to adult consumers. Medical cannabis dispensary could also apply for adult sale.

	Michigan	Massachusetts	Nevada	Oregon	Vermont	Washington	Illinois
Restrictions on edibles		Serving size and potency limits to be developed in regulations. List of ingredients	Not specified	Maximum of 10 mg of THC in each individually packed serving; edible products to undergo a preapproval process; not appealing to children		10 mg of THC in each individually packaged serving; child-proof packaging; THC labelling; marijuana-infused products, packages and labels to be approved by the State Liquor Control Board before sale	Allowed but with information and warning on consumption
Advertising	Restrictions on public signs related to cannabis establishments	Restrictions on marketing to children to be developed in regulations	A licensed marijuana establishment cannot engage in advertising that contains any false or misleading statements, promotes overconsumption, depicts actual consumption, or appeals to minors. Also applies 70/30 rule from Colorado	Entry sign required on exterior of dispensaries; Oregon Liquor Control Commission has authority to further regulate or prohibit advertising	Advertising could not be deceptive, promote overconsumption, offer free samples, or be appealing to minors. Advertising would only be allowed where the licensee can reasonably expect no more than 15% of viewers will be under 21	Cannabis business licensees are limited to two permanent signs on their licensed premises, and all other forms of outdoor ads on the premises are banned. New rules mandated that billboards and signs can no longer contain images of the cannabis plant or cannabis products. Cannot contain depictions of cartoon characters or any depictions that may be appealing to children	Businesses cannot place advertisements that have false or misleading claims; or advertisements that promote overconsumption; depict actual consumption; depict a person under 21 consuming; make health, medicinal or therapeutic claims; contain images that can be appealing to minors or children; advertisements are not allowed within 1,000 feeet of school or playground, public park or library, publictransport or public property; no sales promotions are allowed; similar restrictions apply on packaging and labelling. Health warnings to be legibly displayed

	Michigan	Massachusetts	Nevada	Oregon	Vermont	Washington	Illinois
Taxation	10% excise tax	3.75% excise on retail	15% excise on wholesale sale 10% excise tax on retail sale	No tax on retail sales from October 2015 to December 2015 25% sales tax after 5 January 2016 17% sales tax in 2017 with options for local communities to establish local tax up to 3%		July 2014 to June 2015: 25% at each stage (production, processing, retail) July 2015: 37% sales tax	10% tax will apply to cannabis flower or products with less than a 35% THC concentration. 20% tax will apply to products infused with cannabis, such as edible products. 25% tax will apply to any product with a THC concentration higher than 35%. In addition, 6.25% sales tax, along with local taxes of up to 3.5%. Consumers may pay between 19.55% and 34.75% depending on a product's potency
Cannabis clubs		Not allowed, although they may exist in establishments that allow on-site-consumption	Not specified	Not allowed		Not allowed	
Restrictions on use	Not permitted in public places or place where prohibited by person who owns, occupies or manages the property, allowed in designated public places that are not accessible to persons under 21 years of age	Cannot use cannabis in a place where smoking tobacco is prohibited	Cannabis consumption is for private use only. It is illegal to smoke in public, on federal land or in a vehicle without risking a fine	Smoking marijuana in public is illegal	Use is limited to individual dwellings. Prohibited in street, alley, park or sidewalk in addition to usual smoke free places	It is illegal to consume marijuana in view of the public	Smoking cannabis is not allowed in any place where smoking is prohibited under the Smoke Free Illinois Act

	Michigan	Massachusetts	Nevada	Oregon	Vermont	Washington	Illinois
Medical cannabis	2008: patient registry, dispensaries can be established with local ordinances; dispensation for specific conditions, recognize out of state patients only for legal protection of possession but not for dispensary purchases	2012/2013; patient registry or identification cards; dispensaries, out-of-state patients not recognized	2000: Patient registry or identification card, No dispensaries; recognize out of state patients if other state's programmes are substantially similar; patients must fill out Nevada paper work	1998: Patient registry, dispensaries already existed but not clearly authorized by law or regulated; possession, home cultivation		1999/2010/2011; no registration or identification card; dispensaries approved as of November 2012, first stores opened in July 2014: 1999 possession 2012: Home cultivation	Compassionate use of medical cannabis pilot programme act, August 2013. Eligible patients with a doctor's recommendation, with a recognized debilitating condtion, after registering with the state, may legally consume medical marijuana. Purchase limit is 2.5 ounces of cannabis flower every 14 days. New law also allows school nurses or administrators to give cannabis products to students who are registered medical patients and permits students to medicate under the supervision of those officials

Table 6 Regulations for the legalization of the non-medical use of cannabis in Uruguay

Uruguay	
Legal process	Government initiative, national law
Title	Law No. 19.172
Date passed	Dec-13
Date implemented/ required date of rule adoption	August 2014: Personal cultivation October 2014: Grower clubs Mid-2017: pharmacy sales
Regulatory authority	Institute for the Regulation and Control of Cannabis (IRCCA)
Minimum age	18
Residency requirement	Uruguayan citizenship or permanent Uruguayan residency required
Personal possession quantity	40 g per month
Home cultivation	Six plants in flower
Interpersonal sharing	Allowed within the home
Retail transaction limit	40 g per month, 10 g per week (sale through pharmacies to registered users)
Retail pricing structure	Government price control
Average retail price per gram after tax	265 Uruguayan pesos per 5 g (approx $1.2 per gram)
Maximum THC content	All products are required to indicate that CBD is equal to or more than 3% and THC is equal to or less than 9%
Registration requirements	Yes, with IRCCA for any of the three modes of access
Commercial production	Licensed marijuana producers
Commercial distribution	Licensed pharmacies
Advertising	Prohibited
Taxation	No tax, although IRCCA can impose tax in the future.
Cannabis clubs	Clubs with 15-45 members allowed to cultivate up to 99 plants, maximum 480 g of dried product per member per year
Medical cannabis	In 2013: Passed (Law 19.172). Decree N° 46/015. Oils under prescription (CBD) and cosmetics with CBD currently for sale in pharmacies.

GLOSSARY

amphetamine-type stimulants — a group of substances composed of synthetic stimulants controlled under the Convention on Psychotropic Substances of 1971 and from the group of substances called amphetamines, which includes amphetamine, methamphetamine, methcathinone and the "ecstasy"-group substances (3,4-methylenedioxymethamphetamine (MDMA) and its analogues).

amphetamines — a group of amphetamine-type stimulants that includes amphetamine and methamphetamine.

annual prevalence — the total number of people of a given age range who have used a given drug at least once in the past year, divided by the number of people of the given age range, and expressed as a percentage.

coca paste (or coca base) — an extract of the leaves of the coca bush. Purification of coca paste yields cocaine (base and hydrochloride).

"crack" cocaine — cocaine base obtained from cocaine hydrochloride through conversion processes to make it suitable for smoking.

cocaine salt — cocaine hydrochloride.

drug use — use of controlled psychoactive substances for non-medical and non-scientific purposes, unless otherwise specified.

fentanyls - fentanyl and its analogues.

new psychoactive substances — substances of abuse, either in a pure form or a preparation, that are not controlled under the Single Convention on Narcotic Drugs of 1961 or the 1971 Convention, but that may pose a public health threat. In this context, the term "new" does not necessarily refer to new inventions but to substances that have recently become available.

opiates — a subset of opioids comprising the various products derived from the opium poppy plant, including opium, morphine and heroin.

opioids — a generic term that refers both to opiates and their synthetic analogues (mainly prescription or pharmaceutical opioids) and compounds synthesized in the body.

problem drug users — people who engage in the high-risk consumption of drugs. For example, people who inject drugs, people who use drugs on a daily basis and/or people diagnosed with drug use disorders (harmful use or drug dependence), based on clinical criteria as contained in the *Diagnostic and Statistical Manual of Mental Disorders* (fifth edition) of the American Psychiatric Association, or the *International Classification of Diseases and Related Health Problems* (tenth revision) of WHO.

people who suffer from drug use disorders/people with drug use disorders — a subset of people who use drugs. Harmful use of substances and dependence are features of drug use disorders. People with drug use disorders need treatment, health and social care and rehabilitation.

harmful use of substances — defined in the *International Statistical Classification of Diseases and Related Health Problems* (tenth revision) as a pattern of use that causes damage to physical or mental health.

dependence — defined in the *International Statistical Classification of Diseases and Related Health Problems* (tenth revision) as a cluster of physiological, behavioural and cognitive phenomena that develop after repeated substance use and that typically include a strong desire to take the drug, difficulties in controlling its use, persisting in its use despite harmful consequences, a higher priority given to drug use than to other activities and obligations, increased tolerance, and sometimes a physical withdrawal state.

substance or drug use disorders — referred to in the *Diagnostic and Statistical Manual of Mental Disorders* (fifth edition) as patterns of symptoms resulting from the repeated use of a substance despite experiencing problems or impairment in daily life as a result of using substances. Depending on the number of symptoms identified, substance use disorder may be mild, moderate or severe.

prevention of drug use and treatment of drug use disorders — the aim of "prevention of drug use" is to prevent or delay the initiation of drug use, as well as the transition to drug use disorders. Once a person develops a drug use disorder, treatment, care and rehabilitation are needed.

REGIONAL GROUPINGS

The *World Drug Report* uses a number of regional and subregional designations. These are not official designations, and are defined as follows:

- East Africa: Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Mauritius, Rwanda, Seychelles, Somalia, South Sudan, Uganda, United Republic of Tanzania and Mayotte
- North Africa: Algeria, Egypt, Libya, Morocco, Sudan and Tunisia
- Southern Africa: Angola, Botswana, Eswatini, Lesotho, Malawi, Mozambique, Namibia, South Africa, Zambia, Zimbabwe and Reunion
- West and Central Africa: Benin, Burkina Faso, Cabo Verde, Cameroon, Central African Republic, Chad, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Equatorial Guinea, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Sao Tome and Principe, Senegal, Sierra Leone, Togo and Saint Helena
- Caribbean: Antigua and Barbuda, Bahamas, Barbados, Cuba, Dominica, Dominican Republic, Grenada, Haiti, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago, Anguilla, Aruba, Bonaire, Netherlands, British Virgin Islands, Cayman Islands, Curaçao, Guadeloupe, Martinique, Montserrat, Puerto Rico, Saba, Netherlands, Sint Eustatius, Netherlands, Sint Maarten, Turks and Caicos Islands and United States Virgin Islands
- Central America: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama
- North America: Canada, Mexico and United States of America, Bermuda, Greenland and Saint-Pierre and Miquelon
- South America: Argentina, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname, Uruguay, Venezuela (Bolivarian Republic of) and Falkland Islands (Malvinas)
- Central Asia and Transcaucasia: Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan
- East and South-East Asia: Brunei Darussalam, Cambodia, China, Democratic People's Republic of Korea, Indonesia, Japan, Lao People's Democratic Republic, Malaysia, Mongolia, Myanmar, Philippines, Republic of Korea, Singapore, Thailand, Timor-Leste, Viet Nam, Hong Kong, China, Macao, China, and Taiwan Province of China
- South-West Asia: Afghanistan, Iran (Islamic Republic of) and Pakistan
- Near and Middle East: Bahrain, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, State of Palestine, Syrian Arab Republic, United Arab Emirates and Yemen
- South Asia: Bangladesh, Bhutan, India, Maldives, Nepal and Sri Lanka
- Eastern Europe: Belarus, Republic of Moldova, Russian Federation and Ukraine
- South-Eastern Europe: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Montenegro, North Macedonia, Romania, Serbia, Turkey and Kosovo[423]
- Western and Central Europe: Andorra, Austria, Belgium, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Netherlands, Norway, Poland, Portugal, San Marino, Slovakia, Slovenia, Spain, Sweden, Switzerland, United Kingdom of Great Britain and Northern Ireland, Faroe Islands, Gibraltar and Holy See

Oceania (comprised of four sub-regions):

- Australia and New Zealand: Australia and New Zealand
- Polynesia: Cook Islands, Niue, Samoa, Tonga, Tuvalu, French Polynesia, Tokelau and Wallis and Futuna Islands
- Melanesia: Fiji, Papua New Guinea, Solomon Islands, Vanuatu and New Caledonia
- Micronesia: Kiribati, Marshall Islands, Micronesia (Federated States of), Nauru, Palau, Guam and Northern Mariana Islands

423 All references to Kosovo in the *World Drug Report* should be understood to be in compliance with Security Council resolution 1244 (1999).

UNODC
United Nations Office on Drugs and Crime

UNODC Research

Vienna International Centre, PO Box 500, 1400 Vienna, Austria
Tel: +(43) (1) 26060-0, Fax: +(43) (1) 26060-5866, www.unodc.org

Presented in six separate booklets, the *World Drug Report 2020* provides a wealth of information and analysis to support the international community in implementing operational recommendations on a number of commitments made by Member States, including the recommendations contained in the outcome document of the special session of the General Assembly on the world drug problem, held in 2016.

Booklet 1 provides a summary of the five subsequent booklets by reviewing their key findings and highlighting their policy implications. Booklet 2 focuses on drug demand and contains a global overview of the extent of and trends in drug use, including drug use disorders, and its health consequences. Booklet 3 deals with drug supply and presents the latest estimates and trends regarding the production of and trafficking in opiates, cocaine, amphetamine-type stimulants and cannabis. Booklet 4 addresses a number of cross-cutting issues, including the macrodynamics that are driving the expansion and increasing complexity of the drug markets, and describes some of the rapidly evolving drug-related concerns: the latest, multifaceted global opioid crisis; rapid market changes; the market for new psychoactive substances; the use of the darknet for supplying drugs; and developments in jurisdictions that have measures allowing the non-medical use of cannabis. Booklet 5 looks at the association between socioeconomic characteristics and drug use disorders, including at the macro-, community and individual levels, with a special focus on population subgroups that may be impacted differently by drug use and drug use disorders. Finally, booklet 6 addresses a number of other drug policy issues that all form part of the international debate on the drug problem but on which in-depth evidence is scarce, including access to controlled medicines, international cooperation on drug matters, alternative development in drug cultivation areas, and the nexus between drugs and crime.

As in previous years, the *World Drug Report 2020* is aimed at improving the understanding of the world drug problem and contributing to fostering greater international cooperation in order to counter its impact on health, governance and security.

The accompanying statistical annex is published on the UNODC website: wdr.unodc.org

ISBN 978-92-1-148345-1