

THE DRUG PROBLEM IN THE AMERICAS: STUDIES

DRUGS AND
PUBLIC HEALTH



Organization of
American States



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TABLE OF CONTENTS

DRUGS AND PUBLIC HEALTH	5
Summary and Findings	5
Introduction	7
Conceptual Framework	7
PART 1 DRUGS AND THEIR EFFECTS	9
How do drugs work?.....	9
The Role of Adulterants.....	12
Patterns of Use	13
PART 2 DRUG USE IN THE HEMISPHERE	17
The Extent of the Problem	17
Social Factors that Contribute to the Drug Problem	23
Risks and Protective Factors.....	26
Impact of Drug Use on Health	28
Impact of Drug Use on Society	30
PART 3 POLICIES AND PROGRAMS	33
Demand Reduction.....	33
Approaches to Demand Reduction in the Hemisphere	33
Prevention	35
Prevention among Children and Youth	36
Family Interventions	37
School-Based Prevention.....	37
Community-Based Prevention	38
Environmental Prevention Strategies.....	39
Adapting Prevention Programs	39
Importance of Evaluation	40
Screening Questionnaires and Brief Interventions	41
Prevention Programs in the Americas.....	41
Harm Reduction.....	42
Drug Treatment: The Evidence.....	44
Effectiveness of Treatment Programs	46

Individualized Medicine.....	47
Treatment Programs in the Hemisphere	47
PART 4 RESOURCES TO ADDRESS THE PROBLEM	53
Human Resources Available	53
Infrastructure for Treatment and Rehabilitation	54
Capacity for Research and Assessment	57

DRUGS AND PUBLIC HEALTH

Summary and Findings

Most people do not use illicit drugs and among those who try them, only a fraction will develop patterns of dependence. Still, drug use constitutes a serious health problem for many people in the Americas. Early age of first use is associated with higher risk of dependence and problems. One of the greatest challenges is delaying or preventing use by young people.

Drug and alcohol use accounts for higher rates of death and disability in the Americas than as an average worldwide. It is a significant risk factor in the case of 60 illnesses or injuries from accidents and violence. Drug use in the hemisphere varies widely among countries, both in terms of the extent of use and the type of substance. This variability raises important questions—such as whether the hemisphere is facing a single drug problem or different problems, and thus what policy or policies would be most effective.

Marijuana is the most widely used illicit drug in the world, and nearly one in four users is in the Americas. While marijuana is associated with lower mortality rates than many other substances, it does present serious health risks, particularly for adolescent users whose brains are still developing.

Cocaine use is growing in parts of the hemisphere. Smokeable forms of cocaine have become a public health problem in several South American countries (Brazil, Argentina, Chile, and Uruguay), especially among the most vulnerable population groups.

Heroin consumption is much less common in Latin America and the Caribbean, with most use concentrated in the United States, Canada, and Mexico. However, it is becoming a growing concern to other countries, including Colombia and the Dominican Republic, where proven health-care approaches ought to be implemented.

Synthetic drugs such as amphetamine-type substances have high prevalence of use in Canada and the United States. Ecstasy-type substances are becoming more common among young people in many other countries in the hemisphere.

Alcohol use among high school students is a problem throughout the hemisphere, with binge drinking a particular concern. While alcohol consumption is legal for adults, any alcohol use by minors is harmful use. Epidemiological studies conducted in the Caribbean and South America concludes that in some countries, past-month use by high school students is over 50 percent.

In terms of response, school-based programs or media campaigns to prevent drug use should go hand in hand with other measures that regulate availability and involve families or tie in with community policies. That implies that the countries must give priority to this strategy, allocating needed resources for its proper implementation and evaluation.

Treatment should be provided through a continuum of care that involves every level of the health care system, with particular emphasis on early detection and brief interventions at the primary care level. All interventions should be evidence-based and of proven effectiveness. They should be run by qualified personnel and meet quality standards. Mental health is a major risk factor in the development of drug dependence, yet many countries lack adequate mental health services or sufficient trained personnel. It is therefore important to promote a sense that drug dependence is a chronic illness and must be treated as such, with full commitment from the health system and respect for patients' rights.

Implementing and assessing effective health policies requires up-to-date information of sufficient quality and quantity; however, few countries have invested in this area. Countries need to strengthen information systems so they can properly monitor the drug problem, fund research to develop the most effective approaches, and invest in human capital and infrastructure.

In the United States and Canada, the most widely misused pharmaceuticals are opioid derivatives (used mainly as analgesics), tranquilizers and sedatives (especially benzodiazepines), and stimulants (such as methylphenidate or dextroamphetamine). The situation is murkier in the rest of the hemisphere, partly due to a lack of information correctly assessing the situation.

Introduction

A public health approach to the drug problem seeks to provide answers to a range of questions of interest to the hemisphere: What are the consequences of drug consumption and abuse, both to individuals and society? What are the multiple factors—biological, environmental, social—contributing to the problem? Is it possible to influence these determinants? Has the effectiveness of policies and programs been evaluated? Which of these have been more effective and which have not worked? Have these policies brought unintended consequences? Do the countries have the capacity to implement, monitor, and assess policies, plans, programs, and interventions?

Conceptual Framework

Public health focuses on analyzing the drug problem at the population level, employing a range of disciplines including the basic biomedical sciences and social, economic, environmental, political, and population sciences. From the perspective of applied science, public health seeks to identify a population's health needs and determining factors, and design responses that provide integrated services for a defined population base. The public health approach also aims to ensure that drug control interventions do not cause more harm than the substances themselves.¹

The health system influences the consequences of an illness; therefore access to services is essential.² Access to the public health system can decrease vulnerability and in the long term affect the quality of life of individuals and their families.³

The importance of a range of environmental, social, economic, and political factors was reinforced by the World Health Organization (WHO) in 2005, when it created the Commission on Social Determinants of Health. These determinants reflect the circumstances under which people live and work.⁴ Depending on the level on which they operate, social determinants may be classified as either *structural* or *intermediary*.⁵ Structural determinants include social factors such as a person's employment, education, and income level. Intermediary determinants cover physical conditions, social environment or psychosocial circumstances, and biological and behavioral factors, and also include the health system. All these conditions, taken together, indicate an individual's degree of vulnerability to a given health problem.

¹ Public Health Perspectives for Regulating Psychoactive Substances: What We Can Do About Alcohol, Tobacco, and Other Drugs (Vancouver: Health Officers Council of British Columbia, 2011), p. 20.

² M. Villar, "Factores determinantes de la salud: Importancia de la prevención, Acta Med Peruana (2011), 28(4):237 - 24.

³ WHO, A Conceptual Framework for Action on the Social Determinants of Health (Geneva: World Health Organization, 2007).

⁴ Irwin A, Valentine N., C. Brown, R. Loewenson, O. Solar, "The Commission on Social Determinants of Health: Tackling the Social Roots of Health Inequities, PLoS Med (2006), 3(6):e106.

⁵ WHO (2007).

The public health approach to the drug problem aims to develop broad interventions designed to change both the environment and individual behavior. This is complemented by the concept of *human security*, which seeks to protect and ensure three basic freedoms for individuals and communities: freedom from fear, freedom from want, and freedom to live in dignity. The lack of basic security manifests itself in seven key dimensions: economic, food, health, environmental, personal, community, and political.⁶

This conceptual framework—a collective approach to health and human security, which also takes into account the individual—provides a foundation for analyzing the drug problem, examining the evidence available, and proposing good practices for action.

⁶ PAHO/WHO, 50th Directing Council, Resolution CD50.R16, “Health, Human Security, and Well-Being” (Washington, D.C., 2010.)

PART 1

DRUGS AND THEIR EFFECTS

The terms “psychoactive substance” or “drug” cover a wide variety of substances with significantly varying degrees of addictive potential and risk. These variations stem not only from the particular pharmacological characteristics of each substance, but also from frequency of use, dosage, route of administration, user profile, and the context in which the substance is consumed.

How do drugs work?

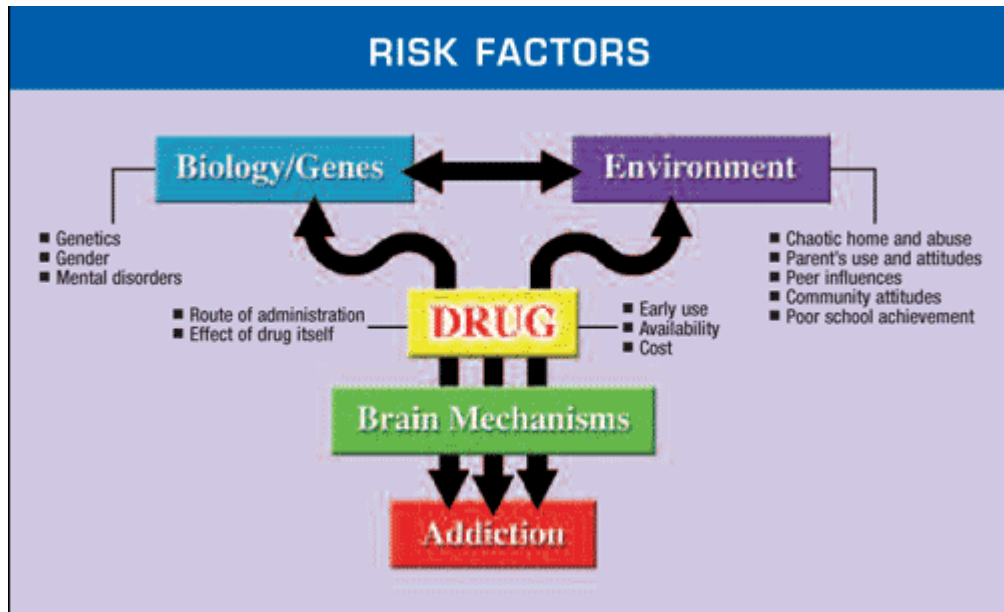
Drugs impact and change the brain. Research over the last few decades in the field of the neurosciences has yielded evidence that shows a close relationship between the structures of the brain and drug-using behaviors, in addition to predisposition to drug use; potential short- and long-term effects of substance use; and the important role of environmental factors.⁷ However, what leads someone to initiate drug use and the reasons a person may become drug-dependent involve powerful interactions between the brain and a series of biological, psychological, and social factors. Drug dependence manifests itself as a compulsive drive to take a drug despite serious adverse consequences. Such behavior was traditionally regarded as reflecting “bad choices” made voluntarily by the addicted individual. However, recent studies of the neurobiology of addiction have shown that repeated drug use leads to long-lasting changes in the central nervous system.⁸

Drugs, whether legal or illegal, can produce dependence. In this process, a key mechanism is that drugs increase the concentration of a neurotransmitter called dopamine, in a specific area of the brain, the nucleus accumbens—probably the brain’s most important pleasure center. The brain also has areas and circuitry linked to the capacity to assess risks in a situation and inhibit potentially harmful behavior. Brain imaging studies show that individuals dependent on psychoactive drugs present a dysfunction in those areas of the brain that are critical in decision-making, learning, memory, and behavior control.⁹

⁷ N.D. Volkow and T.K. Li, “Drug addiction: the neurobiology of behavior gone awry,” *Nature Reviews Neuroscience* (2004), 12:963-70; R.Z. Goldstein and N.D. Volkow ND, “Dysfunction of the prefrontal cortex in addiction: neuroimaging findings and clinical implications,” *Nature Reviews Neuroscience* (2011), 12(11):652-69; N.D. Volkow, J.S. Fowler, and G.J. Wang, “The addicted human brain: insights from imaging studies,” *Journal of Clinical Investigation* (2003), 111(10):1444–51.

⁸ Volkow and Li (2004).

⁹ Volkow, Folwer, and Wang (2003); Goldstein and Volkow (2011).



NIDA/NIH

While no single factor determines whether a person will become drug-dependent, science has identified a variety of risk factors that contribute to drug addiction. One of the most important is age of first use: neuroscience has shown that children’s and adolescents’ brains are still in development, and drug use during this developmental period can have significant long-term consequences.

Certain structural areas of the human brain continue to mature up to the age of 25, particularly those areas related to complex mental functions and impulse control. Drugs alter the brain’s neurochemical balance and the signals that drive the complex maturing process of those structures. Drug use during this stage can lead to long-term repercussions, as it can also alter the selection of the neurotransmitters that will enable the brain to function fully in the future¹⁰—hence the importance of preventing use, or at least delaying the age of first use. The longer substance use is delayed, the more it can be postponed until after the brain develops, the greater the preventive impact.

Cannabis sativa, or marijuana, warrants special attention, given its prevalence, the growing use of marijuana for medical purposes, and the growing trend toward decriminalization of recreational use.

As the chapter on Legal Alternatives shows, therapeutic use of this drug is already a reality in parts of the United States and some countries in Western and Central Europe. The evidence on therapeutic use is still being developed and currently shows varied results. It is necessary to delve into this subject further, using proper scientific methodology. Some countries, such as Uruguay and Chile have decriminalized the possession of marijuana for personal use in

¹⁰ T. Paus, M. Keshavan, and J.N. Giedd, “Why do many psychiatric disorders emerge during adolescence?” *Nature Reviews Neuroscience* (2008), 9(12):947-57.

minimal doses that vary by country, and in other places it has been done “de facto”, as in some states of the US.

The available scientific evidence indicates that while marijuana is associated with lower mortality rates than other substances, it is not without potential harm and is associated with higher risks for adolescent users.

The active compound in marijuana, *tetrahydrocannabinol* (THC), affects regulation of emotion, memory, attention, and perception.¹¹ Heavy marijuana use increases the likelihood of developing psychotic symptoms, depression, and suicidal behavior.¹² Some research indicates that the cognitive impairment associated with marijuana use may be reversible once a person stops using marijuana; however, other studies show that marijuana use during adolescence may produce lasting changes.¹³

Cocaine is a powerful, highly addictive stimulant extracted from the leaves of the *Erythroxylon coca* plant. Cocaine use has a wide range of adverse effects on health. Short-term effects include changes in nerve impulse transmission, clots inside the blood vessels, heart rhythm and heart contraction disorders, and stroke in especially susceptible organs such as the heart and brain. Long-term effects include cerebral atrophy, memory impairment, and sleep and mood disorders, such as depression.¹⁴

Heroin belongs to the class of opiates and is obtained from processing poppy. It is consumed intravenously and quickly reaches the brain, where it turns into morphine and activates specific cellular receptors. This process generates intense feelings of pleasure in users and encourages repeat consumption. Some hours after consumption, users experience periods of intense drowsiness. Some of the main risks faced by users are overdose and infectious disease transmission.¹⁵

Alcohol is the main factor behind more than 60 kinds of illnesses and injuries, and is responsible for approximately 2.5 million deaths per year

¹¹ D. Piomelli, “The molecular logic of endocannabinoid signaling,” *Nature Reviews Neuroscience* (2003), 4(11):873-84.

¹² T.H. Moore, S. Zammit, A. Lingford-Hughes, T.R. Barnes, P.B. Jones, M. Burke, and G. Lewis, “Cannabis use and risk of psychotic or affective mental health outcomes: a systematic review,” *Lancet* (2007), 370(9584):319-28.

¹³ It has been reported that cannabis use before the age of 26 increases the likelihood of presenting with psychotic symptoms by 1.20 to 7.04 times, or even more when the individual has a genetic susceptibility. See A. Caspi, T.E. Moffitt, M. Cannon, J. McClay, R. Murray, H. Harrington, and A. Taylor, “Moderation of the effect of adolescent-onset cannabis use on adult psychosis by a functional polymorphism in the catechol-O-methyltransferase gene: longitudinal evidence of a gene X environment interaction,” *Biological Psychiatry* (2005), 57(10); R.D. Crean, N.A. Crane, B.J. Mason, “An evidence based review of acute and long-term effects of cannabis use on executive cognitive function,” *Journal of Addiction Medicine* (2011), 5(1):1-8; M.A. Fontes, K.I. Bolla, P.J. Cunha, P.P. Almeida, F. Jungerman, R.R. Laranjeira, R.A. Bressan, A.L. Lacerda, “Cannabis use before age 15 and subsequent executive functioning,” *British Journal of Psychiatry* (2011), 198(6):442-7; B. Becker, D. Wagner, E. Gouzoulis-Mayfrank, E. Spuentrup, J. Daumann, “The impact of early-onset cannabis use on functional brain correlates of working memory,” *Progress in Neuro-Psychopharmacology and Biological Psychiatry* (2010), 34(6):837-45.

¹⁴ SOCIDROGALCOHOL, *Cocaína: Guías Clínicas SOCIDROGALCOHOL basadas en la Evidencia Científica* (Valencia, España: SOCIDROGALCOHOL, 2007); NIDA, *Cocaine: Abuse and Addiction, Research Reports* (Bethesda, Md.: National Institute on Drug Abuse, 2010).

¹⁵ NIDA. *Heroin: Abuse and Addiction, Research Reports* (Bethesda, Md.: National Institute on Drug Abuse, 2005).

worldwide.¹⁶ Heavy alcohol use over long periods of time presents serious health risks.

Alcohol use during adolescence is particularly harmful to health.¹⁷ Evidence shows that people who begin to drink before the age of 15 are four times more likely to meet the criterion for dependence at some point in their lives. Given how the brain develops, alcohol use in adolescence, particularly heavy use, may cause changes in the brain, affecting both its structure and its functioning. This may lead to cognitive or learning problems that make an adolescent more prone to dependence.

Inhalants include a diverse range of substances that have differing psychoactive and toxicological effects. Long-term use is associated with a variety of neuropsychological disorders, including loss of muscular coordination and widespread brain damage. Toluene produces damage to the heart, lungs, liver, and kidneys.

The Role of Adulterants

The psychoactive substances available on the market for personal consumption are not pure; in many cases, they are combinations of substances—including adulterants that are used to supplement the effects of the drugs or make them more potent. Although some adulterants are innocuous, others have psychoactive and toxic effects above and beyond the effects of the drug itself. (See Annex 1.)

The adulterants most often detected include the following:

In marijuana—Oregano and other plants (generally speaking, not harmful to health); microscopic particles of glass (0.2 – 0.3 mm in diameter).¹⁸

In cocaine—Levamisole, in up to 70 percent of samples seized in the United States.¹⁹ This substance was recalled from U.S. and Canadian markets due to associated adverse side effects.²⁰ The reason for “cutting,” or adulterating, cocaine with levamisole is unclear, though it is thought it may enhance the pleasurable effects of cocaine. Cocaine is also frequently cut with talcum powder, sugar, procaine, or amphetamines.²¹

¹⁶ WHO, *Global Status Report on Alcohol and Health* (Geneva: World Health Organization, 2011).

¹⁷ NIAAA, “Underage Drinking,” Website of National Institute on Alcohol Abuse and Alcoholism: <http://www.niaaa.nih.gov/alcohol-health/special-populations-co-occurring-disorders/underage-drinking>
http://pubs.niaaa.nih.gov/publications/UnderageDrinking/Underage_Fact.pdf

¹⁸ S.B. Karch, *Karch’s Pathology of Drug Abuse*, 4th ed. (Boca Raton, FL: Taylor & Francis Group, 2009).

¹⁹ U.S. Substance Abuse and Mental Health Services Administration, “Nationwide Public Health Alert Issued Concerning Life-Threatening Risk Posed by Cocaine Laced with Veterinary Anti-Parasite Drug”: <http://www.samhsa.gov/newsroom/advisories/090921vet5101.aspx>.

²⁰ P.R. Chai, W. Bastan, J. Machan, and J.B. Hack J, “Levamisole Exposure and Hematologic Indices in Cocaine Users,” *Academic Emergency Medicine* (2011), 18(11):1141–7.

²¹ C. Cole, L. Jones, J.M. Veigh, A. Kicman, “CUT. A Guide to the Adulterants, Bulking agents and other Contaminants found in illicit drugs” (Liverpool, U.K.: Centre for Public Health, Faculty of Health and Applied Social Sciences, John Moores University, 2010).

In **methamphetamines**—Caffeine,²² which appears to be toxic at low doses (5-20 mg) when combined with methamphetamines.²³

Patterns of Use

Most people in the world do not use drugs, and of those who experiment with drug use, only a small number will continue using them regularly; of these, only a fraction will develop harmful patterns of use and dependence.²⁴ Transitioning from one stage of drug use to another is associated with a variety of risk and protective factors related to individuals and their surroundings.²⁵ The relationship between the individual, the substance, and the consequences of drug use covers a wide spectrum of possible combinations and outcomes.

Experimental use: An individual tries a drug to experience its effects, and after a few times, stops using.

Social or regular use: The person continues to use the substance after experimenting with it, and makes it part of his or her habitual lifestyle.

Harmful use: WHO defines this as a pattern of use that causes harm, whether mental or physical.

Abuse and dependence: The American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders classifies these two categories as diseases associated with psychoactive substance use.²⁶

It is estimated that in the United States, 12 percent of people who used an illicit drug in the year prior to the survey (2011) were dependent (equivalent to 4.6 million people), with significant variations in dependence rates by type of drug: 59 percent for those who reported heroin use, 15 percent for cocaine, 11 percent for psychotherapeutic drugs without prescription, and 9 percent for marijuana. For alcohol, the rate was 4.6 percent. The age of first use plays an important role. Among people aged 18 and over who had used marijuana during the previous year, 9.1 percent of those who started before the age of 15 showed dependence, compared with 3.6 percent who started between the

²² C. Cole, L. Jones, J. McVeigh, A. Kicman, Q. Syed, and M. Bellis, "Adulterants in illicit drugs: a review of empirical evidence," *Drug Testing and Analysis* (2011), 3(2):89-96.

²³ R. McNamara, A. Kerans, B. O'Neill, and A. Harkin, "Caffeine promotes hyperthermia and serotonergic loss following co-administration of the substituted amphetamines, MDMA ('Ecstasy') and MDA ('Love')," *Neuropharmacology* (2006), 50(1):69-80.

²⁴ <http://www.hcp.med.harvard.edu/wmh/publications.php>; A. Agrawal and M.T. Lynskey, "Are there genetic influences on addiction: evidence from family, adoption and twin studies," *Addiction* (2008), 7:1069-81.

²⁵ This process does not occur in the same way in all populations: some indigenous communities that use substances, primarily hallucinogens in their religious and community rituals, tend to have rules that regulate their use, and their impact tends to be less dangerous than when they are used under other circumstances. This means that these special conditions should be taken into account when developing laws, regulations, and programs to reduce the risks associated with drug use.

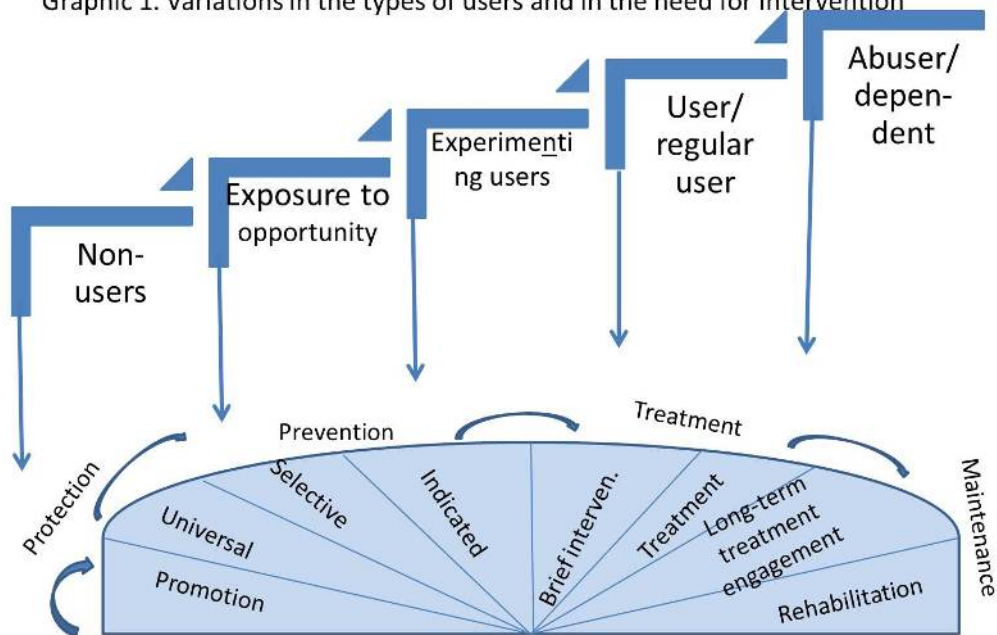
²⁶ American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders - Text Revision*. 4th ed. (Washington: American Psychiatric Publishing, 2000).

ages of 15 and 17, and only 1.4 percent of those whose use started after age 17.²⁷

The moderate use of some substances may be beneficial to health—including potentially addictive prescription drugs such as narcotics for pain management and tranquilizers. Alcohol, when drunk in limited amounts, is known to have a protective effect in men, reducing the risk of heart attack.²⁸

The development of dependence disorders can follow different patterns. The classic evolving pattern begins with voluntary use of a social, recreational nature. At first, the effect is positive and pleasurable, and the user feels in control. Gradually, for some people, the reasons for using the drug change. The person goes from using in order to feel pleasure to using in order to avoid feeling bad or to feel better or normal, increasing the intensity of use by increasing dose and frequency. Finally, some individuals lose control over their use. Their patterns of use may become compulsive, and they are unable to stop using in spite of being aware of the harm the substances are causing them.

Graphic 1. Variations in the types of users and in the need for intervention



²⁷ SAMHSA, "Results from the 2011 National Survey on Drug Use and Health: Detailed Tables," available at: <http://www.samhsa.gov/data/>.

²⁸ NIAAA, "Frequency of Light-to-Moderate Drinking Reduces Heart Disease Risk in Men": <http://www.niaaa.nih.gov/news-events/news-releases/frequency-light-moderate-drinking-reduces-heart-disease-risk-men>.

Determining the severity of a drug use disorder is critical to determining the type of action to be taken. The field of prevention describes “universal” intervention, to delay or prevent initiation of drug use by people who have not yet used drugs; “selective” intervention, when there is exposure to risk factors (individual or contextual characteristics) that increase the likelihood of drug use; or “indicated” intervention, when the person has already started to use drugs but has not yet developed a pathology of abuse or dependence. Other interventions—such as detoxification and management of withdrawal symptoms, treatment for dependence, relapse prevention during recovery, and social reintegration—may be designed to correct imbalances associated with drug use.

PART 2

DRUG USE IN THE HEMISPHERE

Before examining the epidemiology of drug use in the hemisphere, it is important to look at the context in which epidemiological studies are conducted. The first point to be noted is the high degree of variation among countries—from the size of their populations (some have fewer than 100,000 inhabitants, others tens of millions) to their different levels of development (ranging from 0.4 to 0.9 on the Human Development Index), to significantly different percentages of rural and indigenous populations.

Significant variations also exist with respect to drug production and consumption levels and perceptions of the problem. In some countries, the authorities focus more on social and health problems; for others, security problems triggered by drug markets are the primary concern. Resources devoted to addressing the drug problem differ according to its consequences for each particular country.

This variability, both between and within countries, raises important question, including whether the hemisphere is facing a single drug problem or different problems. Differences in drug use between and within countries suggest that there is no single solution. While nationwide policies may serve as a frame of reference, they are not adequate for addressing the situation at the local or community level.

The Extent of the Problem²⁹

According to a report by the United Nations Office on Drugs and Crime (UNODC),³⁰ in 2010 an estimated 230 million people worldwide used some illicit drug in the past year, the midpoint of estimates ranging from 150 to 300 million users. This represents about 5 percent (between 3.4 and 6.6 percent) of the total world population aged 15 to 64.

Alcohol—Alcohol is the most widely abused substance in the world. For purposes of this report, the focus will primarily be on alcohol use among schoolchildren, mainly those aged 13-17. An important reminder: even though alcohol consumption is legal for adults, any alcohol use by minors is harmful use.

Alcohol use by the school population is fairly widespread in the Americas; epidemiological studies conducted in the Caribbean and South America

²⁹ For an extensive review of the drug use situation in the region, see OAS, Report on Drug Use in the Americas 2011 (Washington, D.C.: OAS/CICAD Inter-American Observatory on Drugs, 2011): http://www.cicad.oas.org/oid/pubs/DrugUse_in_Americas_2011_en.pdf

³⁰ United Nations Office on Drugs and Crime: Annual Report 2011.

concludes that in some countries, past-month use by high school students is over 50 percent. According to studies done in 2011 in Chile and the United States, past-month prevalence among high school students was 35 percent in Chile and around 25 percent in the United States. Alcohol is the drug most used by Canadian students in grades 7 to 12. The Canadian general population survey shows that 70.8 percent of young people reported having used alcohol in the past year, which represents a decrease from 82.9 percent in 2004.³¹

Prevalence of alcohol use by students aged 14 and under differs considerably from one country to another. While for eighth-grade students (mostly aged 13) in the United States³² the figure is 13 percent, and it is 19 percent in the case of Chile,³³ countries such as Colombia,³⁴ Trinidad and Tobago, and Dominica have prevalence rates of around 40 percent. In Saint Lucia, more than half of the school population in that age group drinks alcohol. In the case of students aged 17 and over, prevalence in the United States is 40 percent and in Uruguay and Saint Lucia, 70 percent.³⁵

Quite aside from the extent of alcohol use, binge drinking by young people is of particular concern. In its surveys of secondary school students, CICAD defines binge drinking as having consumed five or more alcoholic drinks at a single sitting during the last two weeks prior to the survey. According to the *Report on Drug Use in the Americas 2011*, between one third and half of students who had consumed alcohol during the past month also reported some episode of binge drinking in the two weeks prior to the survey.

The harm that using drugs, including alcohol, causes during early childhood development is well-known. Early use of alcohol increases the likelihood of use of illicit drugs and the risk of problem use and alcohol dependence later in life.

Marijuana—Marijuana is the most widely used illicit drug in the world. An estimated 119 to 224 million people aged 15 to 64—between 2.6 and 5 percent of people in that age group—have used marijuana at least once in the past year. That means marijuana users may account for 75 to 80 percent of all illicit drug users worldwide.

Nearly one of every four marijuana users—24 percent—is in the Americas; Western and Central Europe account for 13 percent of total users. Within the Americas, 81 percent of users are from North America,³⁶ even though this subregion represents only 50 percent of the hemisphere's population.

In the Americas, 6.6 percent of the population aged 15-64 has used marijuana in the past 12 months. Marijuana use in the hemisphere is practically identical to that in Western and Central Europe, and surpasses by far the world

³¹ Canadian Alcohol and Drug Use Monitoring Survey (CADUMS) 2011.

³² Data from the Monitoring the Future Survey, University of Michigan: <http://www.monitoringthefuture.org/data/11data/pr11t3.pdf>.

³³ Government of Chile, Servicio Nacional para la Prevención y Rehabilitación del Consumo de Drogas y Alcohol (SENDA): <http://www.senda.gob.cl/observatorio/estadisticas/estudio-nacional-drogas-escolar/>.

³⁴ http://www.odc.gov.co/docs/publicaciones_nacionales.

³⁵ OAS, *Report on Drug Use in the Americas 2011*.

³⁶ This subregion covers the United States, Canada, and Mexico.

average.³⁷ Regional averages encompass significant variations among countries. In some countries of the Americas, past-year use is less than 1 percent of the 15-64 year-old population, while in others it is more than 14 percent.³⁸

Marijuana use in North America averages 10.8 percent of the population, with very marked differences between the United States and Canada (both countries are near 14 percent) compared to Mexico (1 percent). In Central America, the average is around 2.4 percent of the population, a figure similar to the average in South America. No comparable data are available for the Caribbean region.

Marijuana use is found not only among the adult population; a significant level of use is also seen among schoolchildren. In 9 of the 33 countries that were evaluated in the hemisphere, over 30 percent of the student population had used marijuana at some point in their lives. In 12 countries, it should be noted, more than 10 percent of students aged 14 or under had used marijuana at least once; in 11 countries, marijuana use among 17-year-olds was over 30 percent. In those countries with higher levels of marijuana use, the difference between males and females was smaller.

Marijuana use is increasing among high school students in the majority of countries in the Americas. An exception is Canada, where from 2010 to 2011 a drop from 27 to 21 percent in past-year prevalence of cannabis use was reported among students in the 7th to 12th grades.³⁹

The overall increase in cannabis use in the hemisphere could be related to two factors. For one, the perception that experimental use of marijuana is risky has dropped significantly among young people; for another, access is easier. A large percentage of schoolchildren in different countries say it would be easy for them to obtain marijuana. In other words, conditions are ripe for use of this substance to continue to increase.

Cocaine—Worldwide, 0.3 to 0.4 percent of the population aged 15-64 reported having used cocaine at least once in the past year.⁴⁰ The total number of users in the Americas was around 7 to 7.4 million people, for a prevalence rate of 1.2 percent—a percentage similar to that found in Europe.⁴¹ Approximately 45 percent of cocaine users worldwide are in the Americas, while 25 percent are in Western or Central Europe.

Both regions have large variations in cocaine use among countries. In some countries of the Americas, the prevalence of cocaine use is less than 0.1 percent of the population, while in others it is over 2 percent.

³⁷ United Nations Office on Drugs and Crime: Annual Report 2011.

³⁸ OAS, Report on Drug Use in the Americas 2011.

³⁹ Canadian Alcohol and Drug Use Monitoring Survey (CADUMS) 2011.

⁴⁰ United Nations Office on Drugs and Crime: Annual Report 2011.

⁴¹ European Monitoring Center on Drugs and Drug Addiction, Annual Report 2012: The State of the Drugs Problem in Europe (Luxembourg: EMCDDA, 2012).

The percentage of users may also vary significantly within countries. For example, general population studies conducted in Colombia,⁴² Chile,⁴³ and Argentina⁴⁴ show that prevalence of use in their departments/regions/provinces ranges from 0.1 to 2 percent. Something similar occurs when states within the United States are compared to each other.⁴⁵

As noted with marijuana, cocaine use is fairly widespread among the student population aged 13-17. In several countries of the hemisphere, it is estimated that 2 percent or more of that population used cocaine in the past year.⁴⁶

In addition, among those countries that have trend data on cocaine use by students, the Southern Cone countries of Argentina, Chile, and Uruguay saw an increase in the prevalence of cocaine use between 2005 and 2011. By comparison, in the United States, prevalence of use among middle-school students dropped over the same period.⁴⁷

Smokeable forms of cocaine—This category includes smokeable drugs that are by-products of the process used to produce cocaine hydrochloride (cocaine base paste or basic paste: basuco), or are derived from cocaine hydrochloride (crack and freebase). In the last 10 years, the use of cocaine base paste, which was previously confined largely to the Andean countries, has been spreading to countries such as Argentina, Chile, and Uruguay.⁴⁸ Although prevalence is lower than with other illicit drugs, a high percentage of users of this drug require treatment, which suggests that this substance has highly addictive and toxic qualities.

The use of cocaine base is less frequent in Central and North America. However, these regions have a higher prevalence of crack, a substance not widely used in the South American countries mentioned earlier. Meanwhile, different forms of smokeable cocaine have become a growing problem in Brazil.

Amphetamine-type stimulants (ATS)—Worldwide, amphetamine-type stimulants are the most widely used class of illicit drugs after marijuana, with estimates ranging between 14 million and 53 million users in the case of amphetamines and between 10 and 28 million users in the case of ecstasy-type substances. In the Americas, use of these drugs varies widely, with high rates of ATS use in Canada and the United States. However, significant use of

⁴² Government of Colombia, Estudio nacional de consumo de sustancias psicoactivas en población escolar Colombia–2011: [http://www.odc.gov.co/docs/publicaciones_nacionales/Estudio %20Sustancias %20Psicoactivas percent20en percent20Escolares percent202011.pdf](http://www.odc.gov.co/docs/publicaciones_nacionales/Estudio_%20Sustancias%20Psicoactivas_percent20en_percent20Escolares_percent202011.pdf).

⁴³ Government of Chile, SENDA, Estudio nacional de drogas en población general de Chile–2010: http://www.senda.gob.cl/wp-content/uploads/2012/02/2010_noveno_estudio_nacional.pdf.

⁴⁴ Government of Argentina, Estudio nacional en población de 12 a 65 años, sobre consumo de sustancias psicoactivas. Argentina 2010: http://www.observatorio.gov.ar/investigaciones/Estudio_Nacional_sobre_consumo_en_poblacion_general-Argentina2010.pdf.

⁴⁵ SAMHSA: Tables of Model-Based Estimates (50 States and the District of Columbia): <http://www.samhsa.gov/data/NSDUH/2k10State/NSDUHsae2010/NSDUHsaeAppB2010.htm>.

⁴⁶ OAS, Report on Drug Use in the Americas 2011.

⁴⁷ Ibid.

⁴⁸ OAS/CICAD, Hemispheric Report Fifth Evaluation Round: Evaluation of Progress in Drug Control 2011, Multilateral Evaluation Mechanism.

ecstasy-type substances has also been seen among young people in many other countries in the hemisphere.

Opioids—Worldwide estimates find that between 26 and 36 million people use opioids; about half of them (13-21 million) use opiates, mainly heroin, with the remainder abusing prescription opioid pain relievers. The highest prevalence of opioid use is in North America, with respect to both heroin and prescription opioids. Heroin use is concentrated in the United States, Canada, and Mexico. In Mexico, heroin use began along the northern border and has spread to the rest of the country.⁴⁹ Heroin use is also a concern for other countries such as Colombia and the Dominican Republic, a recent development that merits careful attention. Prescription opioid abuse (see below under pharmaceuticals) may expand from its North American base to the rest of the hemisphere.

Inhalants—CICAD's 2011 analysis of drug use indicates that inhalants are among the most common substances used among high school students in the hemisphere, behind alcohol, tobacco, marijuana, and pharmaceuticals, and in more than one country, they are the top drug used. The 2011 study found that the highest prevalence of inhalant use was in Brazil (14.4 percent),⁵⁰ followed by Jamaica (13.9 percent), Trinidad and Tobago (13.3 percent), and Guyana (10.4 percent), while the United States (6 percent) and Mexico (5 percent) both have significant prevalence.

Inhalants represent a diverse range of substances that have differing psychoactive and toxicological effects. To understand the type of inhalant use in a country, it is important to differentiate between the various substance categories. Currently, this breakdown by types of substance has been done for only a few countries in Latin America and the Caribbean. Without such information, policymakers cannot design targeted campaigns on specific substances and their uses, as part of their overall prevention programs.

Poly drug use—The use of two or more illicit substances over a period of time is known as poly drug use. In a study in six South American countries⁵¹—Argentina, Bolivia, Chile, Ecuador, Peru, and Uruguay—it was found that among the group of heaviest users (ages 15-34), fewer than 20 percent in Bolivia, Chile, and Ecuador reported that they had used two or more drugs in the past year. In Peru and Uruguay, that figure was below 30 percent, and in Argentina, slightly higher than 30 percent. In other words, among current users of illicit drugs, the use of a single substance predominates. In addition, in those countries more than 70 percent of total drug users in Bolivia, Chile, and Ecuador and more than 60 percent in Argentina and Uruguay used only marijuana.

⁴⁹ C. Tena, "Heroin Use in Mexico," OEA/Ser.L/XIV.2.51 CICAD/doc.1947/12 (OAS, May 2012).

⁵⁰ A more recent Brazilian study of secondary students found that inhalant use over the past year had dropped to 5.2 percent, but inhalants were still the most commonly used substance after alcohol and tobacco.

⁵¹ UNODC, OAS/CICAD et al., Elementos orientadores para las políticas públicas sobre drogas en la subregión: primer estudio comparativo sobre drogas y factores asociados en población de 15 a 64 años. 2008.

A similar finding was noted in a study among students aged 13-17 in the same countries,⁵² where it was shown that between 65 and 73 percent of using students said they had used only one illicit drug in the past year. In Argentina, Chile and Uruguay, the countries with the highest rates of drug use in that study, a large proportion used marijuana exclusively.

When it comes to poly drug use among substance-dependent persons seen in treatment centers, the situation is different. In Argentina,⁵³ a 2010 study found that more than 70 percent of people in treatment had used two or more illicit drugs in their lifetime. In Chile,⁵⁴ 90 percent of people treated in publicly funded facilities in 2010 presented with problem use of more than one substance, with 40 percent using at least three substances.

Pharmaceuticals—The abuse of potentially addictive pharmaceutical drugs is different in North America than in Latin America and the Caribbean. In the United States and Canada, the most widely misused pharmaceuticals are opioid derivatives (used mainly as analgesics), tranquilizers and sedatives (especially benzodiazepines), and stimulants (methylphenidate or dextroamphetamine). Most individuals gain access to these substances through someone they know or from a family member who has been prescribed the medication,⁵⁵ though other methods (as discussed in Chapter “Illicit Economy of Drugs”) include robbery, forged prescriptions, counterfeit drugs, and illegal Internet sales. For the most part, empirical data on the scope and extent of diversion of prescription drugs are nonexistent.⁵⁶

Data from the U.S. Substance Abuse and Mental Health Services Administration⁵⁷ indicate that in 2011, 2.4 percent of the population over 12 years of age in the United States had used prescription-type psychotherapeutic drugs for non-medical use in the past year. The highest misuse of such medications occurs with narcotics (4.3 percent), with an upward trend in the abuse of and dependence on these compounds, especially opioid derivatives. Frequency of use of these drugs has been surpassed since 2009 only by cannabis.⁵⁸ Stimulant use, meanwhile, has been linked to level of academic study, with full-time university students most likely to use these substances.⁵⁹

In Mexico, by contrast, the misuse of pharmaceuticals is low. In a 2011 national survey of addictions, 0.4 percent of the population aged 12-65

⁵² UNODC OAS/CICAD et al., Informe subregional sobre uso de drogas en población escolarizada: Segundo estudio conjunto, 2009/2010.

⁵³ Government of Argentina, Cuatro fase del registro continuo de pacientes en tratamiento: [http://www.observatorio.gov.ar/informes/regionales/Informe %20Region %20Centro %204ta %20Fase.pdf](http://www.observatorio.gov.ar/informes/regionales/Informe%20Region%20Centro%204ta%20Fase.pdf).

⁵⁴ Government of Chile, SENDA: <http://www.senda.gob.cl/wp-content/uploads/2011/04>

⁵⁵ J.M. Manubay, C. Muchow, and M.A. Sullivan, “Prescription Drug Abuse: Epidemiology, Regulatory Issues, Chronic Pain Management with Narcotic Analgesics,” *Primary Care* (2011), 38(1): 71–2011;38(1):71–vi.

⁵⁶ <http://www.unodc.org/southerncone/es/drogas/jife.html>

⁵⁷ SAMHSA, *Results from the 2011 National Survey on Drug Use and Health: Summary of National Findings*, NSDUH Series H-44, HHS Publication No. (SMA) 12-4713 (Rockville, Md.: Substance Abuse and Mental Health Services Administration, 2012).

⁵⁸ *Report of the International Narcotics Control Board for 2011* (New York: UN, 2012); SAMHSA, Office of Applied Studies, *Results from the 2008 National Survey on Drug Use and Health: National Findings*, NSDUH Series H-36, HHS Publication No. SMA 09-4434 (Rockville, Md.: SAMHSA, 2009).

⁵⁹ SAMHSA, Office of Applied Studies, “Nonmedical Use of Adderall among Full-Time College Students,” *The NSDUH Report* (Rockville, Md.: SAMHSA, 2009).

reported non-medical use of pharmaceuticals during the past year. The medications most often used without prescription were tranquilizers (0.3 percent of the population); 0.2 percent of the population aged 12-65 reported having used narcotics without a prescription at least once, while in the United States, that number was 13.3 percent.⁶⁰

In summary, the principal drug use problem in the Americas is harmful alcohol consumption, and of special concern is alcohol abuse by adolescents and young people of both sexes. Of the illegal drugs, marijuana accounts for the vast majority of use, and the general trend is upward. Average levels of cocaine use are similar to those seen in Western and Central Europe, with significant variations among countries. The use of heroin and methamphetamines is uncommon in most countries in the hemisphere. Pharmaceutical misuse is a major problem in the United States, while it is generally lower in Latin America and the Caribbean.

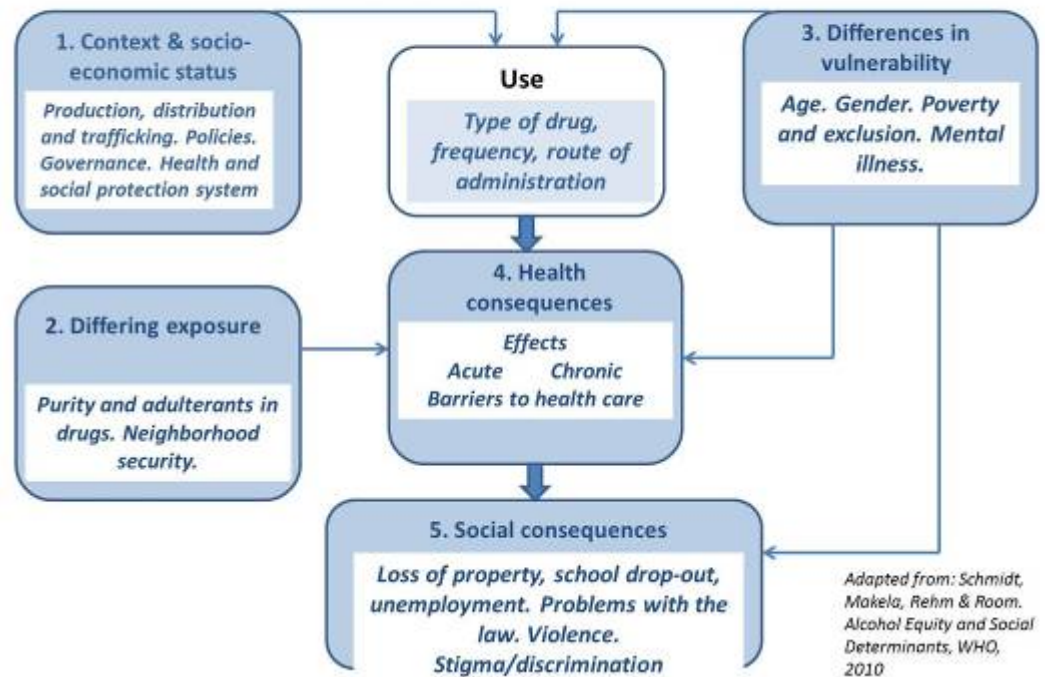
Social Factors that Contribute to the Drug Problem

Examining the drug problem from the perspective of social determinants of health suggests five areas for analysis: socioeconomic context and position, differential exposure, differential vulnerability, differential health care outcomes, and differential social consequences. (See Graphic 2.)

These categories, proposed by the World Health Organization, serve as a basis to identify those social factors that help to explain the consequences of the drug problem in society, as well as the differences between countries and between types of drug use. For example, there is widespread inequity when it comes to the care provided to people with drug addictions as compared to the care given to patients with other illnesses. Among people with an addiction, those who come from marginalized communities, as well as those who have a mental illness, face more discrimination and have less access to treatment.

⁶⁰ SAMHSA, *Results from the 2011 National Survey on Drug Use and Health: Summary of National Findings*.

Graphic 2. Analytical framework for social determinants, WHO



Exposure to risk: Settings where drugs are used may present greater or lesser degrees of danger. Among the factors at work are level of development and extent of urbanization and services available; availability of drugs and weapons, along with crime levels; and the existence of groups that may be involved in drug dealing, some of who may be more violent than others. Police actions and strategies to combat crime or drug use may also play a role. In some settings, adulterated drugs are used more often, with more serious health consequences, and children and adolescents are more likely to witness or become victims of violence.

Differences in vulnerability: The risks associated with drug use are higher for adolescents, women, people who live in poverty and exclusion, and those who have a mental illness. Among these groups, initiation of drug use tends to be early, with few cases before the age of 15 but rapid increases in adolescence and early adulthood.⁶¹ Early initiation increases the risk of dependence.⁶²

Women have greater vulnerability than men to certain consequences of drug use, stemming from their motives for using drugs and differences in their sensitivity to the effects of the substances. They tend to be more at risk for

⁶¹ R.C. Kessler et.al. "Lifetime prevalence and age-of-onset distributions of mental disorders in the World Health Organization's World Mental Health Survey Initiative," *World Psychiatry* (2007), 6(3):168-76.

⁶² A.F. Buchmann et al., "Early smoking onset may promise initial pleasurable sensations and later addiction," *Addict Biology* [Epub ahead of print].

dependence and more susceptible to relapse. Women who are drug-dependent also face greater discrimination from society than men. Early initiation, victimization, and unwanted pregnancies aggravate the condition of some women.⁶³

Adolescents who do not have a job or go to school are more at risk of using substances⁶⁴ and becoming involved in activities related to drug dealing. They more often use poor-quality drugs, and the problems they may have faced earlier in life, such as poor nutrition, increase the likelihood of adverse consequences. People who have a mental illness are at greater risk of developing a dependence on drugs. It has been estimated that the pre-existence of mental disorders is associated with the appearance of half of the cases of drug dependence.⁶⁵

Health care outcomes and social consequences: These categories look at such factors as barriers in access to health services, especially by the poor.⁶⁶ People who suffer from an addiction and their families are more at risk of losing their property, being unemployed, or having problems with the law, and they are more often victims of violence and discrimination. These consequences are most visible in low-income groups.

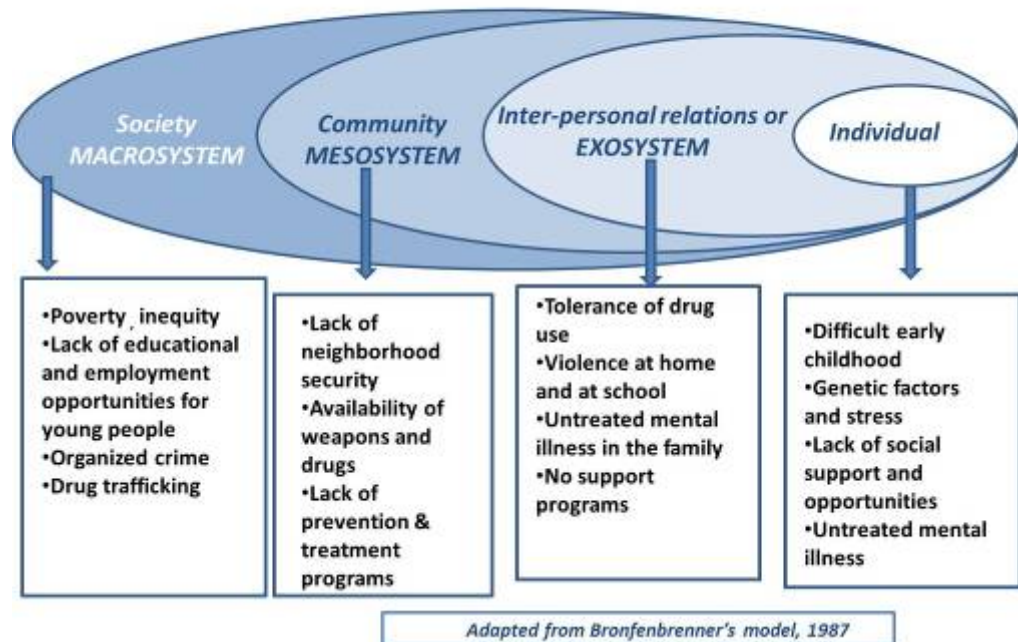
⁶³ J.B. Becker and M. Hu, "Sex Differences in Drug Abuse," *Frontiers in Neuroendocrinology* (2008), 29(1):36–47.

⁶⁴ C. Benjet, "Childhood adversities of populations living in low-income countries: prevalence, characteristics, and mental health consequences," *Current Opinion in Psychiatry* (2010), 23(4):356-62.

⁶⁵ R.C. Kessler, The World Health Organization International Consortium in Psychiatric Epidemiology (ICPE): initial work and future directions—the NAPE Lecture 1998. Nordic Association for Psychiatric Epidemiology, *Acta Psychiatrica Scandinavica* (1999), 1:2-9; K.R. Merikangas et al., "Comorbidity of substance use disorders with mood and anxiety disorders: results of the International Consortium in Psychiatric Epidemiology," *Addictive Behaviors* (1998), 23(6):893-907; M.E. Medina-Mora et al., "Comorbidity: Depression and Substance Abuse," in S.A. Aguilar-Gaxiola and T.P. Gullotta (eds.), *Depression in Latinos: Assessment, Treatment, and Prevention* (U.S.: Springer, 2008), p. 73-91.

⁶⁶ G. Borges et al., "Treatment of mental disorders for adolescents in Mexico City," *Bulletin of the World Health Organization* (2008), 86:757-64.

Graphic 3. Psychosocial factors associated with drug use



Risks and Protective Factors

The preceding section addressed the social determinants of the drug problem, which are found at the level of societies and communities. (See Graphic 3.)⁶⁷ This section looks at factors related to interpersonal relationships and the individual.

Psychosocial factors that come into play at the individual level can be divided into two categories: risk factors that, though not causally linked to drug use or dependence, precede them and increase the likelihood that they will occur; and protective factors that strengthen people to resist risks. Some individuals identified as resilient do not use drugs or develop dependence, despite being exposed to many risk factors. Understanding risk factors helps to identify opportunities for prevention; understanding protective factors shows how to intervene. The change in focus from a person's drug use to how to reduce his or her vulnerability by acting on risk factors has opened the door to a new approach, built around prevention from the earliest stages of development.

Until recently, prevention was divided into different stages: primary prevention (geared toward people who do not yet have the problem); secondary (early detection and timely treatment); and tertiary (treatment and rehabilitation, and more recently, relapse prevention). This model assumed that

⁶⁷ U. Bronfenbrenner, *La ecología del desarrollo humano. Cognición y desarrollo humano* (Spain: Paidós, 1987).

all non-users were the same and that primary prevention would be effective for anyone who had not started to use drugs. However, scientific evidence shows that these individuals exhibit different characteristics and live in different environments that in turn make them vulnerable to substance abuse to a greater or lesser degree. Therefore, they require tailored intervention strategies, both in terms of content and intensity.

Risk factors can arise in different domains: the individual (for example, having emotional or learning disorders or sensation-seeking personality disorders); family (living with alcoholic parents); school (dropping out); peers (having friends who are drug users); and community (having easily available substances). Such factors interact differently with each person, as he or she processes, interprets, and responds to the stimuli in different ways. The importance of these factors also varies throughout the various stages of an individual's development.

Protective factors can also be found in every domain of life: at the individual level (for example, having high self-esteem or a risk-avoidance personality); family (living with parents who are able to provide for children's emotional needs); school (staying in school); peers (having friends who are intolerant of drug use); and community (belonging to social support networks). These can be defined not as the opposite of risk, but rather as those factors that, in the presence of risk, protect individuals from using drugs. For example, a girl who lives in a chaotic family is less likely to use drugs if she stays in school and has friends who are intolerant of drug use.

Factors that contribute to resiliency may include: a close relationship with parents or another adult who provides a consistent, affectionate environment from an early age; children's feelings of success, self-control, and self-respect; and strong inner resources (for example, good physical and psychological health) and external resources (a good social support network that includes the family, the school, and the community). Other factors include social skills, including communication and negotiation skills and the ability to make good decisions and reject activities that may be dangerous; problem-solving skills; a perception that adversity can be overcome through perseverance and effort; and experience surviving earlier risk situations.⁶⁸

While this complex array of determinants includes factors that are difficult to address through public policies, understanding them is the first step in being able to study new approaches and proposals. Further on, this chapter will lay out some models that have been effective.

⁶⁸ P.J. Brounstein, D.M. Altschell, H.P. Hatry, L.H. Blair, *Substance use and delinquency among inner city adolescent males* (Washington, D.C.: Urban Institute Press, 1989).

Impact of Drug Use on Health

The figures on prevalence of substance use noted earlier provide an idea of the scope of the problem, but numbers alone do not tell the whole story about the impact drugs have on people's health and on society. From a health standpoint, alcohol and drug use constitutes a significant risk factor, reflected primarily in lost healthy life days and also, increasingly, in mortality rates.

Substance use increases the costs of health care, because of its role as a risk factor for a number of conditions: intoxication-related injuries (accidents and violence); infectious diseases (such as HIV/AIDS and hepatitis B and C); and chronic diseases (including cirrhosis, cardiovascular disease, cancer, mental illness); and for harmful drug use, abuse and dependence.⁶⁹ Comorbidity—the presence of more than one disease or disorder—is particularly important, since people with drug addictions often suffer from some other psychiatric disorder as well.⁷⁰

In the 1990s, a study found that in a sample U.S. community, one-third of patients with a psychiatric disorder (other than a substance use disorder) also had a substance use disorder: 22 percent involving alcohol and 15 percent involving other drugs. Looking at comorbidity from the standpoint of persons with substance use disorders, 37 percent of those with alcohol dependence or abuse had experienced another psychiatric disorder, while for those who had a drug use disorder, this figure rose to 50 percent.⁷¹ The findings of a number of studies show that drug use disorders significantly increase the risk of suicidal behavior.⁷²

The impact of drugs on health can be assessed through different indicators, such as mortality and disability, which can be evaluated separately or together. The combined evaluation is known as the “burden of disease.”

Global Burden of Disease: A useful tool for analyzing the health consequences of substance use is a WHO indicator called the Global Burden of Disease (GBD), which assesses the impact of diseases, injuries, and other risk factors in terms of premature death and days of healthy life lost. Worldwide, drug use disorders rank 31 out of 88 conditions on the GBD list, with alcohol disorders at 35. Illicit drugs and alcohol account for some 0.8 percent and 0.7 percent, respectively, of the worldwide burden of death and disability. All regions of the Americas have alcohol and drug burdens that exceed the global average, with drugs in the United States and Canada ranking in 11th place, while alcohol ranks 19th. For the countries of Southern Latin America (defined

⁶⁹ E. Single, J. Rehm, L. Robson, M.V. Truong, “The relative risk and etiologic fractions of different causes of death and disease attributable to alcohol, tobacco and illicit drugs use in Canada, *Canadian Medical Association Journal* (2000), 162(12):1669-75.

⁷⁰ K.R. Merikangas et al. (1998).

⁷¹ D.A. Regier et al., “Comorbidity of mental disorders with alcohol and other drug abuse, *Journal of the American Medical Association* (1990), 264:2511–8.

⁷² B.M. Coelho et al., “The influence of the comorbidity between depression and alcohol use disorder on suicidal behaviors in the São Paulo Epidemiologic Catchment Area Study, Brazil, *Revista Brasileira de Psiquiatria* (2010), 32(4):396-408; G. Borges et al., “Psychiatric disorders, comorbidity, and suicidality in Mexico,” *Journal of Affective Disorders* (2010), 124(1-2):98–107; M. Miller et al., “Exposure to alcohol, drugs and tobacco and the risk of subsequent suicidality: findings from the Mexican Adolescent Mental Health Survey, *Drug and Alcohol Dependence* (2011), 113(1-2):110-7.

as Chile, Argentina, and Uruguay) drugs and alcohol rank in 18th and 19th place respectively on the GBD list, while for Tropical Latin America (Brazil and Paraguay) drugs and alcohol fall in 22th and 17th place, respectively.⁷³

Alcohol and drug use is a significant risk factor among 60 illnesses and injuries from accidents and violence. Hemisphere-wide, drug use ranks 19th among the 43 risk factors analyzed, though it is a bigger factor in high-income North America (ranked 10th), the Andean countries (11th), and the Southern and Tropical countries of Latin America (both 13th).⁷⁴

Mortality: According to the most recent GBD estimates, alcohol abuse worldwide accounted for more than 1.1 million deaths, or 0.21 percent of total deaths in 2010, with an increase of 48.9 percent between 1990 and 2010. Worldwide, deaths from alcohol abuse disorders rank 55th among 106 causes of death. Alcohol is an important factor in much of the Western Hemisphere: in Tropical Latin America, it ranks 25th; Central America, 29th; Southern Latin America, 41st; and high-income North America, 32nd.

Drug abuse disorders rank 58th on the worldwide scale of 106 causes of death. In the United States and Canada, however, they rank in 15th place—making them much more important as a cause of death. In the Andean region, substance abuse disorders rank in 40th place, and they fall 52nd in Central Latin America, closer to the worldwide average. The GBD report indicates that the abuse of illegal drugs accounted for 776,000 deaths worldwide in 2010, an increase of 191.7 percent when compared with 1990.

Opioids are responsible for just over half the deaths related to illicit drugs (55.4 percent), with opioid-related deaths increasing by 385 percent between 1990 and 2010, largely reflecting the growing abuse of opioid prescription drugs. Cocaine’s share of overall mortality remains marginal, at 0.6 percent, and has declined since 1990.⁷⁵

Cannabis deaths were not reported separately. The group of analysts that studied the contribution of illicit drugs to the global burden of disease came to the conclusion that because of the small number of studies that had been done, there was insufficient evidence to determine whether death rates from all causes went up among cannabis users. These experts indicated that the case studies and controls that had been done suggested that some rates may be higher for certain causes of death, chiefly from motor vehicle accidents and

⁷³ C.J. Murray et al., “Disability-adjusted life years (DALYs) for 291 diseases and injuries in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010,” *Lancet* (2010), 380(9859):2197-223. The authors of this article examined the relative importance of mortality for six regions of the Americas: high-income North America (United States and Canada); Southern Latin America (Chile, Argentina, and Uruguay); Tropical Latin America (Brazil and Paraguay); Andean Latin America (Bolivia, Peru, and Ecuador); and Central Latin America, which includes the countries of Central America, Colombia, Venezuela, and Mexico as well as the Caribbean, which includes the Guyanas and Suriname.

⁷⁴ S.S. Lim et al., “A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010,” *Lancet* (2013), 380(9859):2224-60.

⁷⁵ R. Lozano et al., “Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: a systematic analysis for the Global Burden of Disease Study 2010,” *Lancet* (2013), 380(9859): 2095-128.

possibly lung cancers and brain cancers. The evidence is not yet clear as to the role of cannabis in suicides.⁷⁶

Disability: Another GBD-based study⁷⁷ estimated the impact, in terms of years lived with disability, for 1,160 conditions related to 289 diseases and injuries over the 1990-2012 period, and found that substance abuse disorders (not counting alcohol or tobacco) accounted for more than 16.4 million years of healthy life lost during this period. In the Americas as a whole, drug and alcohol use disorders rank high on the list of conditions that result in days lost due to disability (12th and 15th out of 166 conditions). Alcohol is an even more important factor in the case of Southern Latin America, the Andean countries, and Tropical Latin America; drugs are an important factor in Southern Latin America, the United States and Canada, and Tropical Latin America.

Impact of Drug Use on Society

The most significant social repercussions of substance use include poor school performance and school dropout; low work productivity and unemployment; economic costs to individuals who are ill and their families; and crime and violence. Given the hemisphere's deep concern about violence, this section will address that issue briefly from a public health perspective, while Chapter "Production of Drugs" of this report examines the issue of crime and violence in more detail.

Violence represents a public health problem with high individual, social, and economic costs.⁷⁸ In the context of the drug problem, violence takes many forms—from large-scale conflicts over production and trafficking to street crime committed under the effects of drugs or to obtain money and drugs.

Drug-related violence and crime vary from country to country, depending on the problems presented and the public policies adopted. The United States, for example, has very high levels of drug use (both occasional and problem use), low levels of trafficking, high levels of violence, and very high levels of crime committed by drug-dependent individuals, either under the influence of drugs or as a means of obtaining drugs in the illegal market. Mexico, by contrast, has lower rates of occasional and problem drug use and very high levels of trafficking and violence, but crime that can be attributed to drug users is still low.

According to the ecological model, violence is multicausal, and both the commission of violence and the likelihood of being a victim of violence result

⁷⁶ B. Calabria, L. Degenhardt, W. Hall, M. Lynskey, "Does cannabis use increase the risk of death? Systematic review of epidemiological evidence on adverse effects of cannabis use," *Drug and Alcohol Review* (2010), 29(3):318-30.

⁷⁷ T. Vos et.al., "Years lived with disability (YLDs) for 1160 sequelae of 289 diseases and injuries 1990-2010: a systematic analysis for the Global Burden of Disease Study 2010," *Lancet* (2012), 380(9859):2163-96.

⁷⁸ The World Health Organization defines violence as "[t]he intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation."

from the interaction of four causes: individual, relational, community, and societal factors. At the individual level, risk factors may include a person's genetic and sociodemographic characteristics. The dynamics of the person's closest interpersonal relationships constitute the relational level, while the community sphere involves the components of the environment in which the individuals live—for example, the ethnic makeup of the community. Finally, at the societal level are the determinants that make for a climate of violence, such as tolerance of violence or discrimination.⁷⁹

At the individual level, evidence shows that in some countries, the likelihood of committing a violent act is greater among those who use alcohol, methamphetamines, cocaine, benzodiazepines,⁸⁰ and inhalants.⁸¹ Nearly half of those who commit homicides are under the influence of alcohol or other drugs (mainly marijuana or cocaine) at the time they commit the crime.⁸² Some 35 percent of users of methamphetamines have caused injury to someone else after using the substance.⁸³ The PAHO report *Alcohol, Gender, Culture and Harms in the Americas* estimates that in some countries, more than 25 percent of men and 15 percent of women have started fights when drunk.⁸⁴

The relationship between alcohol use and partner violence has been reported in a number of studies.⁸⁵ Around 50 percent of women who were subjected to violence say that their partner was intoxicated with alcohol at the time of the attack.⁸⁶ Use of alcohol and other drugs has also been linked to other types of violence, including sexual violence, child abuse, and abuse of the elderly.⁸⁷

The association between violence and the use of alcohol or other drugs is related to a number of different factors. These substances may facilitate violent behavior by lowering inhibition, judgment, and the person's capacity to correctly interpret social signals.⁸⁸ The link between alcohol and violence is also found across generations. Children in the care of parents or guardians who

⁷⁹ L.L. Heise, "Violence Against Women: An Integrated, Ecological Framework," *Violence Against Women* (1998), 4:262-90. See also Violence Prevention Alliance, Global Campaign for Violence Prevention: <http://www.who.int/violenceprevention/approach/ecology/en/index.html>.

⁸⁰ "Interpersonal violence and illicit drugs" (Liverpool, U.K.: Centre for Public Health, John Moores University, WHO Collaborating Centre for Violence Prevention, 2009).

⁸¹ M.E. Medina-Mora et al. "La agresión y la violencia: una mirada multidisciplinaria" (Distrito Federal Colegio Nacional, 2011).

⁸² S. Darke, "The toxicology of homicide offenders and victims: A review," *Drug and Alcohol Review* (2010), 29(2):202-15.

⁸³ S. Baskin-Sommers and I. Sommers, "Methamphetamine use and violence among young adults," *Journal of Criminal Justice* (2006), 34:661-74.

⁸⁴ B. Taylor et al. *Alcohol, Gender, Culture and Harms in the Americas* (Washington, D.C.: PAHO, 2007).

⁸⁵ M. Ellsberg et al., "Candies in hell: women's experience of violence in Nicaragua," *Social Science & Medicine* (2000), 51(11):1595-610; K. Rodgers, "Wife assault: the findings of a national survey," *Juristat Service Bulletin* (1994), 14(1 - 22); M.F. Moreno, "La violencia en la pareja," *Revista Panamericana de Salud Pública* (1999), 5:245-58.

⁸⁶ "Intimate partner violence and alcohol," WHO fact sheet (Geneva: WHO, 2006); *Mujeres violentadas por su pareja en México* (Mexico City: INEGI, 2003).

⁸⁷ A. Abbey, "Alcohol's Role in Sexual Violence Perpetration: Theoretical Explanations, Existing Evidence, and Future Directions," *Drug and Alcohol Review* (2011), 30(5):481-9; A.C. Homer and C. Gilleard, "Abuse of elderly people by their carers," *BMJ* (1990), 301:1359-62; "Interpersonal violence and alcohol," WHO policy briefing (Geneva: WHO, 2006); "Child maltreatment and alcohol," WHO fact sheet (Geneva: WHO, 2006).

⁸⁸ A.J. Heinz et al., "Cognitive and neurobiological mechanisms of alcohol-related aggression," *Nature Reviews Neuroscience* (2011), 12(7):400-13.

consume alcohol are more frequently subjected to child abuse—something that is in turn associated with substance abuse later in life.⁸⁹

Use of alcohol and other drugs by an aggressor is not the only substance-related factor associated with acts of violence. Victims are often substance users and may also be in a state of intoxication during the attack. It is possible that violence-related stress may increase the use of alcohol and other drugs, and that during intoxication, loss of judgment and a lowered response capability may increase a victim's potential exposure to risky situations.⁹⁰

Communities with users of inhalants and methamphetamines may be more violent.⁹¹ Violence is influenced by such factors as the availability of weapons or drugs; police tactics; lack of educational, employment, and recreational opportunities; and attitudes that validate aggression as a means of settling conflict. The next section includes some of the strategies that have been developed to prevent violence.

⁸⁹ C. Walsh, H.L. MacMillan, E. Jamieson, "The relationship between parental substance abuse and child maltreatment: findings from the Ontario Health Supplement," *Child Abuse & Neglect* (2003), 27(12):1409-25.

⁹⁰ T.L. Kramer et.al. "Physical victimization of rural methamphetamine and cocaine users," *Violence and Victims* (2012), 27(1):109-24.

⁹¹ Medina-Mora ME, et.al. (2011).

PART 3

POLICIES AND PROGRAMS

Demand Reduction

Effective national demand reduction policies require a range of integrated interventions in multiple settings, targeting varying levels of risk. The epidemiology of drug use suggests that reducing drug use across the hemisphere requires addressing both new cases of drug use through prevention interventions and existing cases of drug abuse and drug abuse disorders through early interventions, treatment, and maintenance.

Public health offers a three-pronged approach to prevention: interventions that are designed to have an impact on the drug user or potential drug-using populations; on the availability of the drug itself; and on the environment that tolerates or condones the use of drugs. Such an approach requires a balance between demand and supply reduction efforts that reflects the level and patterns of use within a defined geographic area and population. The policies countries adopt should reflect those services that are specifically needed to alter the epidemiology of drug use and related health and social consequences.

For several reasons, among them the lack of sound epidemiological information, many countries in the hemisphere currently have only a few demand reduction interventions in place at the national level, and focus more on supply reduction activities. Even the most effective and proven interventions will have only a limited impact if they are isolated or exist for only a limited time.

Approaches to Demand Reduction in the Hemisphere

The main goal of any demand reduction policy is not only to prevent and treat drug use but, more broadly, to reduce the social consequences of drug use. Effective demand reduction policy requires political support, a solid legal framework, and an adequate budget and resources to sustain policies. Currently, according to the Multilateral Evaluation Mechanism, just over half the OAS member states—18 of the 33 assessed—reported having national anti-drug plans or strategies in place. The remaining 15 either did not have up-to-date plans or else did not provide any information.

One essential issue is having the funds needed to carry out the actions proposed in the national anti-drug strategies or plans. According to the most recent MEM report, of the 31 member states that said they have an anti-drug commission or authority, 27 reported that they had an annual budget assigned to them, but did not give details about the resources earmarked directly for implementation and operations. The other four countries said they conducted

their drug-control activities under the budget of other agencies or entities. This difference in funding flow, with the administrative and bureaucratic channels that implies, may have an impact on effectiveness of actions. Again, there is a clear need to perform cost-benefit or cost-effectiveness studies periodically so as to better understand how the countries of the hemisphere are dealing with the drug problem.

Scientific evidence and research are the underpinnings of a well-designed demand reduction policy. Although it is assumed that national strategies are evidence-based, the information available does not specify the type or category of evidence.⁹² Ideally, the design of public policies should make use of the best evidence available, on the strength of its quality, using a standardized system⁹³

Additional information is also needed to determine whether countries with anti-drug plans and strategies have evaluated their implementation (process evaluation) or the actual results obtained (outcome evaluation). A useful approach for this purpose is that of evaluation research.⁹⁴ Evaluations are needed to collect accurate information on the impact national strategies or plans are having on populations; to learn the extent to which they are meeting their goals; to identify the relationship between the resources used and the stated goals; and to distinguish the effects produced by the program from other factors that might influence the outcomes obtained.⁹⁵

Despite all the available research on prevention and treatment programs, a basic, ongoing problem in Latin America and the Caribbean is the widespread lack of solid information about what approaches are working best in the countries of the hemisphere. Most have not conducted evaluations of their drug policies, either at the national or local level—and of course it is difficult to assess the impact of policies without such data. Over the long term, it is each country's responsibility to develop policies and programs based on the best scientific information available and to evaluate those measures. The current lack of information that might confirm the success or failure of policies represents a significant gap that prevents policymakers from gaining a clear view of the road ahead.

In terms of information systems, 28 of the 33 countries evaluated have observatories or centralized offices to collect, organize, analyze, and disseminate drug-related data; of those countries, 21 have an assigned budget for their operations. In the previous MEM evaluation round, 25 countries reported having observatories or centralized offices, so some progress was made on this front in the period between the two evaluations.

The latest MEM round found that 16 of the countries evaluated had registers of patients in treatment centers, one country more than in the

⁹² T.F. Babor et al., *Drug Policy and the Public Good* (Oxford, U.K.: Oxford University Press, 2010).

⁹³ G.H. Guyatt et al., "GRADE: an emerging consensus on rating quality of evidence and strength of recommendations," *BMJ* (2008), 336:924-6.

⁹⁴ P. Rossi, H. Freeman, S. Rosenbaum, *Evaluation: a Systematic Approach* (California: Sage Publications, 1982).

⁹⁵ B.R. Worthen, J.R. Sanders, J.L. Fitzpatrick, *Program Evaluation: Alternative Approaches and Practical Guidelines* (New York: Longman Publishers, 1997).

previous round. Such records are important so that over the long term, with increasingly better systems for information and analysis, it may be possible to understand the impact of public policies on improving the quality of services, the human resource capacity, and the cost-effectiveness and cost-benefit of treatment interventions. The information currently available through the MEM gives no details about treatment system indicators that may be available in the countries. In order to collect, compare, and analyze the information from different countries, a basic data set needs to be drawn up and the data collection methods harmonized.⁹⁶ Developing a real-time information system is essential to this process.

Because the use of psychoactive substances can lead to the development of mental and behavioral disorders,⁹⁷ countries should include health care officials in their national efforts to develop anti-drug strategies or plans, along with other sectors involved in development and welfare. To this end, countries should develop an integrated system of services to coordinate the various organizations and programs that provide services to people with substance use problems.⁹⁸ Thus, they need to determine the current extent of cooperation between National Anti-Drug Commissions and Ministries or Departments of Health.

Finally, any regulations must bear in mind the need to respect human rights. Measures that have been shown to produce negative consequences for society should be avoided. The ultimate objective of prevention policies should be to create a comprehensive system that, in addition to reducing the social harms caused by drug abuse and dependence, can protect individual and collective well-being.

Prevention

Effective prevention strategies provide children, adolescents, and adults the tools they need to lead healthy, productive lives. In public health, prevention approaches are generally broken down into three categories:

Primary prevention aims to reduce the number of individuals who use drugs for the first time, or else delay the age at which someone begins to use drugs. This is achieved through interventions that reduce risk factors and strengthen protective factors.

Secondary prevention strategies aim to identify people who already demonstrate signs of substance abuse and dependence or risky use of substances, and intervene as early as possible in order to avoid progression.

⁹⁶ UNODC, *Guidelines for the measurement of drug treatment demand* (Vienna: UNODC, 2006); EMCDDA, *Treatment demand indicator (TDI) Standard protocol 3.0* (Lisbon: EMCDDA, 2012).

⁹⁷ WHO, *International Statistical Classification of Diseases and Related Health Problems, 10th Revision* (Geneva: WHO, 1995).

⁹⁸ H. Klingemann and H.-D. Klingemann, "National Treatment Systems in Global Perspective," *European Addiction Research* (1999), 5:109-17.

Tertiary prevention refers to strategies meant to limit the adverse emotional, health, social, and economic consequences of using psychoactive substances.

About 20 years ago, prevention scientists refined the framework for primary prevention recognizing that the original public health approach was based more on medical or clinical criteria while mental, emotional, and behavioral prevention programming is more often based on levels of risk. For this reason, drug use prevention programs are designed to reduce vulnerability or risk to initiating drug use and if drug use has begun, to avoid progression to drug use disorders or dependence.

These types of programs are categorized by the populations they target:

Universal prevention programs are geared toward general populations with mixed levels of risk to drug use.

Selective prevention programs target individuals, families, or specific groups that are at higher risk to drug use and associated problems—such as children of drug-dependent parents.

Indicated prevention programs are designed for people who have already initiated drug use and who demonstrate problem behaviors associated with use, such as behavioral disorders associated with substance abuse.

Prevention science provides solid evidence on effective strategies. Effective prevention strategies integrate different sectors at different levels. For example, at the national level, the process of planning, delivering, monitoring, and evaluating prevention services should incorporate the education, health, law enforcement, and labor sectors, among others. It is also critical, when possible, to include NGOs in the development of effective prevention and treatment services. The players and decision-makers involved may vary at the local or municipal level, but it is essential to contemplate broad participation in order to have the infrastructure and sustained support needed to deliver effective services. Of utmost importance is that any prevention strategy is appropriate to the setting and the target population.

Prevention among Children and Youth

Although effective prevention programs are available for all ages, the most effective ones target children and adolescents. Research has shown that the earlier drug use prevention takes place, the greater the likelihood for positive long-term outcomes. There is strong epidemiologic evidence showing that the longer that initiation into alcohol and other drug use can be delayed, the less likely dependence on alcohol or other drugs will occur. Therefore, prevention interventions that target children and adolescents are considered essential aspects of good prevention programs.

While the majority of prevention efforts usually target adolescents—the years in which alcohol and drug use mainly begin—prevention efforts can be

aimed at populations as early as preschool age. The most effective interventions are tailored to children’s level of development, key role models, and major social influences at each stage. It is therefore important when planning prevention programs to make sure they are aimed at the appropriate target population.

Family Interventions

The primary influence on children is the family. Family bonding is fundamental to the relationship between parents and children for passing on what are the acceptable emotional, attitudinal, and behavioral responses within a community and society. Effective family interventions promote family cohesion and communication, problem-solving, and the development of positive parenting skills. Even though parenting programs have an impact on very young children, they are also important for preparing parents to deal with the challenging adolescent years. Parenting programs have been effective in addressing such problems behaviors such as aggressive behavior, poor social skills, and academic struggles.

Family-based programs that promote active parental involvement, develop social competencies and ability for self-control, and encourage positive parenting may be useful in reducing alcohol and cannabis use by minors. Examples of such approaches include the Iowa Strengthening Families Program (ISFP) and the Preparing for the Drug-Free Years Program (PDFY).⁹⁹

School-Based Prevention

After the family, the next most important socialization environment for most children and adolescents is the school. School-based prevention interventions aim to improve the school environment, promote bonding, encourage positive behaviors, and improve academic performance through rules, beliefs, and expectations. They also seek to establish school policies related to substance use—particularly those that provide guidance on how to manage children who have used alcohol, tobacco, or other drugs in school—and include drug use prevention in the curriculum. In the case of school-based interventions, programs based on the development of personal skills are slightly more effective in reducing drug use than the usual classroom activities.¹⁰⁰

Effective school-based programs include the following components:

⁹⁹ D.R. Foxcroft and A. Tsertsvadze, “Universal family-based prevention programs for alcohol misuse in young people,” *Cochrane Database of Systematic Reviews* (2011), 9:CD009308; J. Petrie, F. Bunn, G. Byrne, “Parenting programmes for preventing tobacco, alcohol or drugs misuse in children <18: a systematic review,” *Health Education Research* (2007), 22(2):177-91; S. Gates, J. McCambridge, L.A. Smith, D. Foxcroft, “Interventions for prevention of drug use by young people delivered in non-school settings. *Cochrane Database of Systematic Reviews* (2006), 1:CD005030.

¹⁰⁰ D.R. Foxcroft and A. Tsertsvadze (2011); F. Faggiano et al., “School-based prevention for illicit drugs use: a systematic review,” *Preventive Medicine* (2008), 46(5):385-96.

Breaking myths and false notions about norms of substance use and altering expectations. Informing students about actual prevalence and countering the false belief that the majority uses drugs or ideas in popular culture that may lead adolescents to perceive drug use as more common or less harmful than it really is.

Changing the perception of risks associated with the use of psychoactive substances for children and adolescents (that is, stressing the immediate, generally social, consequences—not the long-term consequences).

Providing and practicing life skills, including decision-making, particularly about substance use; communicating about those decisions; and developing resistance skills to reject the use of alcohol, tobacco, and other drugs, modeling the behavior through realistic exercises.

Providing and reinforcing interventions for a number of years throughout primary and middle-school education, when students are at higher risk.

As for interventions aimed at reducing alcohol use among university students, evidence indicates that programs built around brief motivational interviews are effective.¹⁰¹ Students' perceptions of alcohol use by their fellow students play a role in harmful use. These programs, known as "social norms" programs, are effective in reducing problems associated with alcohol consumption by university students.¹⁰²

Community-Based Prevention

The broader community plays a significant role in reinforcing societal attitudes and behaviors. Effective prevention at the community level can take various forms. Some interventions that have been shown to be effective are based on theories developed around community organization and participation, and often draw together a number of components geared toward schools, families, friends, and the community at large.

Community prevention programs that combine multiple strategies and approaches or that target multiple populations within a single community have been found to be effective. In communities where both family- and school-based programs are offered, these programs together can be more effective than any single program alone.¹⁰³ Having these and other community sectors supporting the same elements and messages reinforces positive attitudes and

¹⁰¹ T. Babor et al., *Alcohol: No Ordinary Commodity, Research and public policy, Second Edition* (Oxford, U.K.: Oxford University Press, 2010).

¹⁰² M.T. Moreira, L.A. Smith, D. Foxcroft, "Social norms interventions to reduce alcohol misuse in university or college students," *Cochrane Database of Systematic Reviews* (2009), 3:CD006748.

¹⁰³ V. Battistich, D. Solomon, M. Watson, and E. Schaps, "Caring school communities," *Educational Psychologist* ((1997), 32, 137-151.

behaviors that discourage alcohol and tobacco use by minors and the use of illicit drugs and misuse of prescription drugs and other substances.¹⁰⁴

Evidence shows the benefits of programs that seek to develop communities by improving security and promoting active community participation. Programs evaluated in Latin America include social intervention approaches that proactively identify cases and provide counseling; assess the type and origins of the violence; look at environmental design, urbanization, and infrastructure; promote mediation and conflict resolution; support alternative livelihoods and capacity-building; provide family support services and education and recreation for young people; work with community and municipal liaisons; and monitor and evaluate processes and outcomes. These elements provide the foundations for community coalitions.

While universal prevention programs should address all forms of drug abuse, community programs should tailor the prevention message to the type of problem experienced locally, targeting the modifiable risk and protection factors for that particular community.

Environmental Prevention Strategies

Environmental strategies seek to change the physical, social, or cultural environment of a population or entire community by affecting the perception of norms about substance use, the availability of substances, and regulations governing substances. In contrast with traditional prevention strategies that aim to reduce risk and strengthen protective factors for individuals, environmental strategies focus on changing these conditions for an entire population, thus creating an environment that discourages substance use.

Some examples of environmental prevention strategies to limit access to substances are minimum legal drinking ages and laws prohibiting retail sales of tobacco to minors. Policies aimed at affecting culture or context of use might include lowering allowable blood alcohol concentration in drivers or adding warnings to cigarette packets. Policies that seek to reduce harmful consequences might include designating smoke-free areas to reduce non-smokers' exposure to secondary smoke. The ultimate goals of environmental policies are to limit access to substances, change the culture or context in which substances are used, and reduce the negative consequences associated with substance abuse.

Adapting Prevention Programs

Prevention interventions that have been designed and evaluated within certain populations and communities may need to be adapted to the specific

¹⁰⁴ C. Chou et al., "Effects of a community-based prevention program in decreasing drug use in high-risk adolescents," *American Journal of Public Health* (1998), 88:944-948.

needs of others. Guidance on adapting evidence-based programming has only recently been addressed in the research literature. Addressing how to most effectively adapt prevention programming will enable the broader adoption and implementation of these programs across diverse sociocultural contexts. When adapting a program, it is absolutely essential to maintain the core elements of the original research-based intervention.

Importance of Evaluation

Over time there have been multiple examples of well-intentioned prevention strategies and programs that were later demonstrated to have been ineffective or even harmful. Strategies that employ scare tactics to frighten users away from drug use are not effective. Programs that employ methods of punishment or shaming are also ineffective and may in fact have negative impact on self-esteem—thus increasing the risk of drug use. Other research has found that random drug screening and non-science-based ad campaigns to persuade young people not to use drugs¹⁰⁵ are ineffective unless they incorporate key elements of prevention programming, including many discussed above.

Thus, prevention interventions should be evaluated on an ongoing basis to determine how they work and whether they in fact translate into lower drug use, a delay in age of first use, or a reduction of the harms associated with use. By way of example, an evaluation of the combined effect of different models based on the development of social skills¹⁰⁶ found that these interventions reduce the likelihood of cannabis use by between 1 and 23 percent and the likelihood of using other drugs by 34 to 85 percent, after seven years of participation in the program. For its part, the ISFP family intervention mentioned above has been associated with less harmful use of alcohol in the long term.¹⁰⁷ Information derived from such evaluations can lay the groundwork for developing policies and designing better prevention standards and programs.

Although most program evaluation studies do not integrate cost assessments, there is a growing recognition of the importance of doing this. Policymakers should be able to see the relationship between the cost of implementing prevention programs and the resources that may be saved by preventing new cases or reducing the harms associated with drug use. However, to date no standard guidelines have been developed on how to make this integration work effectively.

¹⁰⁵ R. Yamaguchi, L.D. Johnston, P.M. O'Malley, "Relationship Between Student Illicit Drug Use and School Drug-Testing Policies," *Journal of School Health* (2003), 4:159-64; J. Kern et al., *Making Sense of Student Drug Testing: Why Educators Are Saying No* (New York: Drug Policy Alliance, 2006); N. McKeganey, *Random drug testing of schoolchildren: A shot in the arm or a shot in the foot for drug prevention?* (York: Joseph Rowntree Foundation, 2005).

¹⁰⁶ T.F. Babor et al., *Drug Policy and the Public Good* (2010).

¹⁰⁷ D. Foxcroft, D. Ireland, G. Lowe, R. Breen, "Primary prevention for alcohol misuse in young people," *Cochrane Database of Systematic Reviews* (2011), 9:CD003024.

Screening Questionnaires and Brief Interventions

Screening to identify individuals with dangerous patterns of alcohol or drug use can be considered a secondary prevention strategy. It may reduce weekly drinking and binge drinking, specifically among males, and also reduce substance abuse and harmful use of alcohol among both sexes.¹⁰⁸

The World Health Organization developed a screening tool known as ASSIST (Alcohol, Smoking and Substance Involvement Screening Test), which categorizes individuals on the basis of high, medium, or low risk. Research conducted in four countries, including Brazil and the United States, sought to assess whether use of this tool, followed by a brief intervention, was effective in patients with “high risk” substance use. For those who received the intervention, except for the subjects recruited in the United States, the risk assigned by the ASSIST scale was lower three months following treatment.¹⁰⁹

Annexes 2 and 4 to this chapter provide tables summarizing the findings about various prevention programs that have been studied in the hemisphere.

Prevention Programs in the Americas

Information on drug prevention in the Americas is incomplete. Some countries in the hemisphere report that they have evaluated or are in the process of evaluating some prevention programs. Nevertheless, in most cases these evaluations focus on process and implementation rather than on the impact of the programs.

With respect to the types of prevention programs in place, half of the countries in the hemisphere use audiovisual media to convey prevention messages, though no data are available on the outcome of such efforts. Community-based programs exist in half of the countries, and 73 percent of the countries in the hemisphere report some type of school-based prevention efforts. Some 53 percent of the countries have prevention programs targeted toward vulnerable groups.

Viewing the situation in each subregion, the countries of North America use audiovisual media in their prevention programs. They also conduct school-based and family and community programs, as well as programs for underprivileged groups.

¹⁰⁸ R.E. Thomas, D. Lorenzetti, W. Spragins, “Mentoring adolescents to prevent drug and alcohol use,” *Cochrane Database of Systematic Reviews* (2011), 11:CD007381; R.J. Tait and G.K. Hulse, “A systematic review of the effectiveness of brief interventions with substance using adolescents by type of drug,” *Drug and Alcohol Review* (2003), 22(3):337-46; E.I. Vasilaki, S.G. Hoseir, W.M. Cox, “The efficacy of motivational interviewing as a brief intervention for excessive drinking: a meta-analytic review,” *Alcohol & Alcoholism* (2006), 41(3):328–35.

¹⁰⁹ R. Humeniuk et al., “A randomized controlled trial of a brief intervention for illicit drugs linked to the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) in clients recruited from primary health-care settings in four countries,” *Addiction* (2012), 107(5):957-66.

Most Central American countries broadcast prevention messages using audiovisual media. Nearly half of them have community-based prevention efforts, and some have programs for vulnerable groups. Most of the countries also carry out prevention efforts geared toward schools and the family.

In South America, most of the countries promote messages through audiovisual media as well. All the countries report that they conduct prevention interventions in the schools. Two-thirds of the countries in that subregion have community-based programs, almost half have family prevention programs, and most have some prevention program or activity geared toward vulnerable groups.

In the Caribbean, it was not possible to document whether there were media prevention programs in half of the countries, while the remainder reported that they did carry out this type of prevention effort.

Almost 60 percent of the countries of the hemisphere conduct some type of screening for alcohol and drug use, but most report that they are not yet doing so systematically.

Some countries (depending on the source consulted) have needle exchange programs for intravenous drug users, to reduce the transmission of HIV and hepatitis C. In most countries with such programs, needle exchanges are part of programs that include other prevention methods, such as mobile needle distribution units and distribution of materials for needle sterilization. Only Canada has a program for supervised administration of injecting drugs. Only Canada and the United States distribute opiate agonists—maintenance drugs such as methadone—as part of their preventive measures to reduce the transmission of infectious diseases.¹¹⁰

Harm Reduction

Harm reduction refers to policies, programs, and practices that seek to minimize the social, economic, and health effects associated with the use of legal and illegal psychoactive substances, without necessarily reducing use. The goal is to change or modify the consequences rather than the drug-using behavior itself, to complement prevention and treatment efforts. It focuses on making changes in the way individuals use drugs and in the environment in which drug use takes place, starting from the idea that in some groups of people, psychoactive drug use will continue in spite of prevention and therapy efforts. Harm reduction seeks to diminish the risks inherent in buying drugs on the illegal market and in drug use and withdrawal, and to reduce the adverse

¹¹⁰ WHO, *ATLAS on substance use (2010): Resources for the prevention and treatment of substance use disorders* (Geneva: WHO, 2010); OAS/CICAD, *Hemispheric Report Fifth Evaluation Round: Evaluation of Progress in Drug Control 2011*, Multilateral Evaluation Mechanism; Government of Chile, *Alcohol Estrategia Nacional de Drogas y Alcohol* (Santiago: CONACE, 2011); D. Burrows, Evaluation of progress in drug control. (Washington: OAS/CICAD, 2009); D. Burrows, "Advocacy and coverage of needle exchange programs: results of a comparative study of harm reduction programs in Brazil, Bangladesh, Belarus, Ukraine, Russian Federation, and China," *Cadernos de Saúde Pública* (2006), 22(4):871-9.

consequences to a user's health, relationship with family or with the law, or in his or her work, interpersonal relationships, and educational development.¹¹¹

Many harm reduction programs have targeted intravenous drug users who in the hemisphere are largely limited to heroin users in the U.S. and Canada. According to WHO, measures to promote the use of sterile needles (such as needle exchange programs and vending machines) are useful in preventing HIV infections among injecting drug users. They have also been shown to be cost-effective.¹¹² On the other hand, current evidence has not established conclusively that needle exchange programs have a significant impact on the transmission of hepatitis C. Disinfecting the materials used for injection has not been shown to be a useful tactic in controlling HIV infection.¹¹³ For those with opiate addiction, methadone substitution therapy is effective in reducing behaviors that present a risk for HIV transmission or seroconversion in users and overdose deaths by intravenous drug users.¹¹⁴

Other approaches to reducing the prevalence of sexually transmitted diseases among intravenous drug users include distributing condoms and teaching people about the risks of intravenous drug use. These interventions have been effective in changing high-risk sexual behaviors in this population.¹¹⁵

Harm reduction programs have also been applied to the crack problem. There are programs in the United States, Canada, and Brazil that provide crack users with inhaler pipes (to decrease the transmission of respiratory diseases), together with condoms and flyers that talk about the risks of crack use and risky sexual behaviors.¹¹⁶ Studies have shown that the distribution of these kits increases availability and use of safe inhaler materials and reduces the frequency of some risky practices, although the impact that this measure has on the transmission of infectious diseases is not yet known.¹¹⁷ The

¹¹¹ C. Hallam et al., *Drug Policy Guide* (International Drug Policy Consortium, 2012); "What is Harm Reduction? A position statement from the International Harm Reduction Association" (London: IHRA, 2010).

¹¹² H.K. Belani, P.A. Muennig, "Cost-Effectiveness of Needle and Syringe Exchange for the Prevention of HIV in New York City," *Journal of HIV/AIDS & Social Services* (2008), 7(3):229-40; WHO, UNODC, UNAIDS *Technical Guide for countries to set targets for universal access to HIV prevention, treatment and care for injecting drug users* (Geneva: WHO, UNODC, UNAIDS, 2009); "Effectiveness of sterile needle and syringe programming in reducing HIV/AIDS among injecting drug users," Evidence for action technical papers (Geneva: WHO, 2004).

¹¹³ T. Rhodes and D. Hedrigh, *Harm reduction: evidence, impacts and challenges* (Luxembourg: EMCDDA, 2010); WHO, UNODC, UNAIDS *Technical Guide* (2009); Committee on the Prevention of HIV Infection Among Injecting Drug Users in High-Risk Countries, *Preventing HIV Infection among Injecting Drug Users in High Risk Countries: An Assessment of the Evidence* (Washington: The National Academies Press, 2006).

¹¹⁴ T. Rhodes and D. Hedrigh (2010); L. Gowing et al., "Oral substitution treatment of injecting opioid users for prevention of HIV infection," *Cochrane Database of Systematic Reviews* (2011), 8:CD004145; G.J. MacArthur et al., "Opiate substitution treatment and HIV transmission in people who inject drugs: systematic review and meta-analysis," *BMJ* (2012), 345:e5945.

¹¹⁵ S. Semaan et al., "A meta-analysis of the effect of HIV prevention interventions on the sex behaviors of drug users in the United States," *Journal of Acquired Immune Deficiency Syndrome* (2002), 30 Suppl (Suppl 1):S73-93.

¹¹⁶ T. Rhodes and D. Hedrigh (2010).

¹¹⁷ L.A. Malchy et al., "Do crack smoking practices change with the introduction of safer crack kits?" *Canadian Journal of Public Health* (2011), 102(3); L. Leonard et al., "I inject less as I have easier access to pipes": injecting, and sharing of crack-smoking materials, decline as safer crack-smoking resources are distributed. *Canadian Journal of Public Health* (2008), 19(3):255-64.

implementation of harm reduction programs for crack users in Brazil is currently being assessed.¹¹⁸

In the case of alcohol, many harm reduction efforts have focused on reducing drunken driving, which is associated with a higher frequency of automobile accidents. There is sufficient evidence to confirm that checkpoints for random testing of alcohol levels in drivers reduce auto accidents. Setting a lower threshold is also a useful tactic, particularly for young drivers. Suspending the licenses of drunken drivers does not show solid evidence of effectiveness.¹¹⁹ Studies have been done on whether training bartenders to manage potentially dangerous situations may help reduce episodes of physical aggression by people in a state of drunkenness, but more evidence is needed to support the use of this strategy.¹²⁰

Drug Treatment: The Evidence

Treatment models for substance use problems should be integrated into and coordinated with the health care system. Drug treatment and health care are inseparable and essential components of an effective demand reduction policy.

Substance use disorders are complex and influenced by many factors. Effective treatment must be tailored to individual circumstances, which can vary depending on such factors as type of substance and patterns of use; physical, psychological, and social conditions, both preexisting and those associated with the drug use; and comorbidity with other disorders or chronic conditions that affect the individual's health.

An effective response to a person's need for care depends on the participation of the health care system at every level, as well as coordination with the community and other services outside the health system. This is particularly true when it comes to social welfare and access to quality services over time, as befits the chronic nature of these problems.

Addressing substance use problems means intervening at various phases in the short, medium, and long term. Mechanisms should be in place for detoxification and timely management of withdrawal symptoms, with patients encouraged to enroll in treatment and rehabilitation programs. Also important are early detection and brief intervention programs, of proven cost-effectiveness, at the primary care level. Community-based treatment modalities and social reintegration and aftercare programs are among other efforts that help recovery by reducing the stigma against users and their families. Programs should also be developed for the treatment of especially vulnerable populations,

¹¹⁸ A. Domanico and M. Malta, "Implementation of harm reduction toward crack users in Brazil: barriers and achievements, *Substance Use & Misuse* (2012), 47(5):535-46.

¹¹⁹ T. Babor et al., *Alcohol: No Ordinary Commodity* (2010).

¹²⁰ Ibid.; T.B. Dinh-Zarr et al., "Interventions for preventing injuries in problem drinkers," *Cochrane Database of Systematic Reviews* (2009), 10:CD001857.

such as prison inmates and street people, where the impact of substance use is greater.¹²¹

Treatment interventions should be based on protocols of proven efficacy and should be delivered by properly qualified staff who receive systematic technical and administrative supervision and who maintain quality and protect the basic rights of all individuals in treatment. Access to needed medication should be ensured, including pharmacological substitution and maintenance therapy, as well as access to comprehensive interventions that cover clients' complex biological, psychological, and social needs.¹²² (See Annex 3.)

Evidence on the effectiveness of treatment interventions makes it possible to identify some good practices that are associated with improved results—such as a combination of psychosocial interventions and pharmacological therapy, and individualized treatment plans based on a comprehensive assessment of a person's needs. As with other chronic illnesses, relapse is common, and interventions for relapse management should be anticipated. How patients with substance use disorders respond to treatment varies from one person to another.

Research indicates that between 18 and 35 percent of alcohol-dependent patients will remain abstinent one year after receiving treatment using any of the more common interventions (cognitive behavioral therapy, 12-step programs, motivational therapy, or Naltrexone).¹²³ The results of the COMBINE study (Combined Pharmacotherapies and Behavioral Interventions for Alcohol Dependence) suggest that nearly 80 percent of people dependent on alcohol will have one episode of heavy use in the 12 months following treatment.¹²⁴

One of the main obstacles in the treatment of patients with substance use disorders is low adherence to interventions. Controlled trials have found that between 30 and 50 percent of subjects quit treatment prematurely.¹²⁵ Self-help groups such as 12-step programs are one approach often used to treat patients with substance use disorders. The efficacy of such programs has been proven, and it is recommended that they be part of the treatment for patients with addictions.¹²⁶

Just as there are good practices, there are also negative approaches that violate patients' human rights. In some cases, individuals with substance-use

¹²¹ M.E. Medina-Mora, R. Robles, T. Real, *Panorama mundial en el área del diagnóstico y tratamiento de las adicciones. Avances en los métodos diagnósticos y terapéuticos de las adicciones* (Distrito Federal: CONACID/SSA, 2012).

¹²² Ibid.

¹²³ W.R. Miller, S.T. Walters, M.E. Bennett, "How effective is alcoholism treatment in the United States?" *Journal of Studies on Alcohol* (2001), 62(2):211-20.

¹²⁴ R.F. Anton et al., "Combined Pharmacotherapies and Behavioral Interventions for Alcohol Dependence. The COMBINE study: a randomized controlled trial," *Journal of the American Medical Association* (2006), 295(17):2003–17.

¹²⁵ J. Chick et.al, "A multicentre, randomized, double-blind, placebo-controlled trial of naltrexone in the treatment of alcohol dependence or abuse," *Alcohol and Alcoholism* (2000), 35(6):587-93; C.O. Milligan, C. Nich, K.M. Carroll, "Ethnic differences in substance abuse treatment retention, compliance, and outcome from two clinical trials," *Psychiatric Services* (2004), 55(4):167-73.

¹²⁶ J.N. Chappel and R.L. DuPont RL, "Twelve-step and mutual-help programs for addictive disorders," *The Psychiatric Clinics of North America* (1999), 22(2): 425-46.

disorders receive mandatory treatment in facilities that have neither trained personnel nor adequate infrastructure for treating patients with addictions.¹²⁷

Effectiveness of Treatment Programs

When it comes to treatment programs, no single approach has been universally shown to be superior to any other. However, some pharmaceuticals and some behavioral programs are successful in a majority of cases. For example, it is estimated that after 12 weeks of cognitive behavioral therapy or in a 12-step program, 40 percent of alcohol-dependent patients stopped using alcohol or reduced their use, compared with 28 percent of those who received motivational therapy.¹²⁸ In the case of patients with cocaine dependence, cognitive behavioral therapy appears to be more effective than a 12-step intervention.¹²⁹ In some cases, patients with cannabis dependence respond well to cognitive behavioral therapy and motivational therapy; however, this has not been demonstrated convincingly.¹³⁰ It has also been suggested that behavioral interventions with these patients should be given in brief sessions, given their short attention span.¹³¹

Cognitive behavioral therapy—an intervention based on the social learning theory, which holds that substance use behavior is learned and therefore can be unlearned by acquiring cognitive aptitudes and different behaviors.

Motivational therapy—interventions that encourage people to see the changes in their behavior through a collaborative, evocative focus that is centered on the individual and seeks to elicit the person’s motivation and commitment.

12-step program—a recovery approach based on the model developed originally by self-help groups such as Alcoholics Anonymous.

¹²⁷ BBC, “Peru drug rehabilitation clinic fire kills 14,” May 5, 2012, at: <http://www.bbc.co.uk/news/world-latin-america-17967855>; G. Moncau, “A internação compulsória é sistema de isolamento social, não de tratamento,” *Pensa Livre*, January 11, 2013: <http://oesquema.com.br/penselivre/2013/01/29/a-internacao-compulsoria-e-sistema-de-isolamento-social-nao-de-tratamento.htm>; “Mexico: Left with No Better Option,” in *Treated with Cruelty: Abuses in the Name of Drug Rehabilitation* (New York: Open Society Foundations, 2011).

¹²⁸ Project MATCH Research Group, “Matching alcoholism treatments to client heterogeneity: treatment main effects and matching effects on drinking during treatment,” *Journal of Studies on Alcohol* (1998), 59(6):631-9.

¹²⁹ P.M. Maude-Griffin et al., “Superior efficacy of cognitive-behavioral therapy for urban crack cocaine abusers: main and matching effects,” *Journal of Consulting and Clinical Psychology* (1998), 66(5):832-7.

¹³⁰ C. Denis et al., “Psychotherapeutic interventions for cannabis abuse and/or dependence in outpatient settings,” *Cochrane Database of Systematic Reviews* (2006), 3:CD005336.

¹³¹ SAMHSA, at: <http://www.samhsa.gov/>. See also S. Konghom et al., “Treatment for inhalant dependence and abuse,” *Cochrane Database of Systematic Reviews* (2010), 12(CD007537).

Individualized Medicine

One approach geared toward the development of personalized medicine involves the pharmacogenetics of substance use disorders¹³²—the way genes respond differently to treatment. In addition to biological markers, the characteristics of an individual’s personality, behavior, and cultural environment may be predictors of how that person will respond.¹³³ For example, after a three-year monitoring process, a larger percentage (76.4 percent) of individuals described as “highly angry” who were treated with motivational therapy abstained from alcohol use, compared with patients who received cognitive behavioral therapy or a 12-step program (66 percent).¹³⁴

The tables in Annex 3 summarize the results of recent meta-analyses and clinical trials on responses to different pharmacological interventions to treat alcohol, cocaine, amphetamine, cannabis, benzodiazepine, and opioid use disorders. They also describe the characteristics of the therapeutic approaches that have been shown to be useful in the treatment of these patients.

The benefits of treatment and chance of success will increase the more it is possible to tailor a particular method to a person’s individual traits and the characteristics of the disease. Understanding the various neurobiological and behavioral mechanisms that underlie both the development of an addiction and the response to therapeutic and pharmacological interventions makes it possible to develop an “ideal” treatment or one that is tailored for each individual.¹³⁵

Treatment Programs in the Hemisphere

As is the case in general with health services in the region, the care provided to people affected by problems caused by psychoactive substance use is also segmented and fragmented. Treatment services for drug dependence have essentially developed outside the public sector, into a loosely organized care network composed mainly of facilities or units that are not integrated with each other and are run by private individuals or community-type organizations, with religious associations playing a significant role.

Public services, meanwhile, are largely part of the mental health care system and share its lack of resources and the “asylum”-type features that predominate in the hemisphere. Potential violations of the human rights of those who use these services should be of concern to OAS member states.

¹³² K.E. Hutchison, “Substance use disorders: realizing the promise of pharmacogenomics and personalized medicine,” *Annual Review of Clinical Psychology* (2010), 6:577-89.

¹³³ M. Villanueva, J.S. Tonigan, W.R. Miller, “Response of Native American clients to three treatment methods for alcohol dependence,” *Journal of Ethnicity in Substance Abuse* (2007), 6(2):41-8.

¹³⁴ Project MATCH Research Group (1998).

¹³⁵ K.E. Hutchison (2010).

The PAHO Strategy on Substance Use and Public Health notes the following with regard to treatment:

- Significant barriers exist to the provision of services, and individuals with substance use disorders are often denied or have difficulty obtaining general medical care and access to services.
- Individuals affected by substance use may be assigned to involuntary treatment without due process.
- In some countries of the hemisphere, treatment services are available only in remote areas, or in asylums, sometimes for long periods of time without regular assessment of the patient's progress.
- Some services may be located far from an individual's own community, or may prohibit access to visitors or the involvement of family members.
- Services are often provided without the necessary medical supervision and without minimum standards of care or any follow-up or evaluation to ensure compliance.
- Costs of treatment must often be covered out-of-pocket by the patients or their family, which makes it unaffordable to the majority of people who need it.
- The homeless and other marginalized groups may not be entitled to services or may have no access to them.
- The prevailing stigma attached to substance use prevents individuals from seeking treatment and care, and may force them to receive poor-quality, ineffective services under conditions that violate their basic human rights.

Most countries have a limited number of health professionals and services specialized in substance use. The most feasible way to improve treatment coverage is to integrate prevention and treatment services for substance use disorders into health and social welfare systems that are based on primary health care and the criminal justice system, in order to develop the capacity of professionals and nonprofessionals to provide proper care. In addition, psychotropic medications must be properly prescribed and regulated, in order to significantly reduce their non-medical use and to increase their availability where and when they are needed.

PAHO is adapting the guidelines and training materials for managing disorders related to harmful alcohol use and psychoactive drug use as a component of the resources available for other mental-health priority conditions. The aim is to better integrate the treatment of alcohol and substance use disorders at the national level and to implement complementary, innovative models for strengthening the capacity of health professionals.

The hemisphere has been making progress on proposed ways of organizing treatment services, in order to improve the quality of approaches to the problems stemming from psychoactive drug use. Several reference documents contain points of agreement in their guidelines on this topic, including the Strategy on Substance Use and Public Health (PAHO, 2010), Hemispheric Drug Strategy (CICAD, 2010), Principles of Drug Dependence Treatment (WHO-UNODC, 2008), and Basic Principles of the Treatment and Rehabilitation of Drug-Abusing and Drug-Dependent Persons in the Hemisphere (CICAD, 2009). Among the guidelines proposed are the following:

- Integration of treatment into the general health care system
- Strengthening of primary care and community-based interventions
- Effective, evidence-based, and systematically evaluated treatment protocols
- Interventions in the framework of human rights protection, and priority access to services for the most vulnerable populations
- Human resources development

In many countries of the hemisphere, up-to-date specialists are in short supply in the fields of both mental health and substance use. In addition, health care staff is ill-equipped when it comes to the theoretical and practical foundation required to adequately address this type of problem. Governments should invest the necessary resources to determine and identify the requisite profile and number of staff needed at the various levels of intervention to cover program demand, in keeping with the health care strategy to be followed.

Integrating treatment of substance use problems into the general health care system may translate into a greater demand for health care staff with specific training to address such problems and, at the same time, less demand for specialists. Integration and the development of community-based interventions will also make it necessary to redefine the functions of the health care team at different levels.

Several training and professional development initiatives are underway in the hemisphere—often with little or no cross-coordination—which are aimed at developing the new competencies required for a health care team’s new functions and responsibilities. These initiatives include on-the-job staff training in both public and private settings, as well as continuing education at the university level for health-related professionals.

In the early 1990’s, PAHO and CICAD began a cooperative effort to promote among the member countries standardization of treatment for substance dependence, through the adoption of minimum standards of care. This initiative made a significant contribution to placing the issue of treatment on the public agenda and highlighting the responsibility of governments for regulating drug treatment services provided by public and private entities.

The OAS Multilateral Evaluation Mechanism reported in its Fifth Evaluation Round that two-thirds of the countries have official standards in place to

regulate the operations of treatment services, and have registers of treatment centers. While this is the same percentage as found in prior rounds, the MEM also reports that implementation efforts in several member states have expanded.

In most countries, this effort is coordinated by the Ministries of Health, which are responsible for issuing and enforcing the standards. Ongoing training and development of human resources is also underway; however, it has been impossible to determine from information available from the MEM survey whether these developments have been associated with improved quality of services, since evaluation of the quality and effectiveness of treatment is not a widespread practice in the hemisphere.

Clearly, many services have been provided by civil society groups that lack adequate funding and are not sufficiently trained. In recent years, countries such as Mexico, El Salvador, Costa Rica, and several Caribbean countries have launched pilot programs to train and certify counselors in the field of treatment. The overall scope, effectiveness, and long-term impact of these programs have yet to be evaluated.

Some countries lack information on treatment outcomes, personnel qualifications, and levels of client satisfaction. In the rare cases where it does exist, this type of information facilitates interaction among countries, in the form of horizontal cooperation, and enables the exchange of best practices which can be adapted to the particular characteristics and needs of each population.

There is a significant gap between the need for quality care for substance use problems and the availability of treatment. Although many of the countries in the hemisphere have developed and approved quality standards for services, these standards have not been applied systematically, nor have treatment systems been integrated into the health care systems.¹³⁶

The hemisphere still needs to make progress in providing treatment based on principles of best practice.¹³⁷ Treatment services should be accessible to anyone who needs them and offered in a timely fashion, without discrimination, in a framework of respect for human rights, in the least restrictive setting, and as freely, safely, and effectively as possible.

Treatment should be systematic, integrated into the health care system at the different levels of complexity, with priority given to community-based interventions, in an effort to provide maximum coverage and achieve the greatest impact, at the lowest cost. It should provide scientific, evidence-based interventions of proven effectiveness, including detection, assessment, diagnosis, individualized treatment plans, and social reintegration services

¹³⁶ OAS/CICAD, *Hemispheric Report Fifth Evaluation Round: Evaluation of Progress in Drug Control 2011*, Multilateral Evaluation Mechanism.

¹³⁷ WHO/UNODC, "Principles of Drug Dependence Treatment," Discussion paper (March 2008); OAS/CICAD, "Basic Principles of the Treatment and Rehabilitation of Drug-Abusing and Drug-Dependent Persons in the Hemisphere (2009); OAS/CICAD, *Guide to the development of treatment systems* (2004).

provided by qualified staff, subject to systematic monitoring in keeping with quality standards.

The treatment system should be based on a framework of policies and programs that are allocated the resources needed for accountable, effective, and efficient implementation. Services should be community-based and widely available over the long term, and take into consideration the specific health care needs of highly vulnerable populations.

PART 4

RESOURCES TO ADDRESS THE PROBLEM

In this section, the focus of analysis shifts to the resources available to deal with the problem of the problem of drug dependence and its social and health implications. The aim is to provide an overview, based on available information, of the human resources available to address the problem, as well as the infrastructure for treatment and rehabilitation.

Some countries have specialized addiction treatment models that operate independently of the primary, secondary, and tertiary levels of care; others address the problem in a more integrated way and allocate the resources to mental health, since this is the area under which substance use disorders are classified. It is certainly desirable for treatment to be integrated into the overall health care system, with the primary and secondary levels of care identifying and treating cases. There seem to be no studies analyzing the advantages, disadvantages, and impact of integrated and independent models; this is a task for the future. But whichever model is followed, treatment provided for the individual at different stages of life should be part of a comprehensive program managed by means of an effective patient referral system.

Human Resources Available

There is a significant treatment gap between the care received by patients with alcohol and drug abuse or dependence and the care received in general by patients with mental disorders. A high percentage of people who need treatment for substance use do not receive it. The gap can be explained by the imbalance between the demand for treatment and the supply of services. This problem is not exclusive to the Americas, but rather occurs worldwide. Comparatively speaking, with 14.8 mental health care workers per 1,000 inhabitants, the Americas as a region ranks in the middle of the various WHO regions, although higher than the world average of 10.7 per 1,000 inhabitants.

A breakdown of human resources statistics by type of worker shows that there are more nurses (general nurses and specialized psychiatric nurses) than any other mental health professionals, both worldwide (5.8 per 1,000 inhabitants) and in the Americas (3.92 per 1,000). While the total number of workers in the Americas is higher than worldwide, the specific proportion of nurses is 32 percent lower than the world average.¹³⁸ (See Annex 5.)

Breaking down the overall situation shows an uneven pattern between subregions and countries. For example, the ratio of psychiatrists in South

¹³⁸ WHO Assessment Instrument for Mental Health Systems (AIMS) Reports: South America, the Caribbean, Central America, and the Dominican Republic.

America ranges from 1.06 (Bolivia) to 19.36 (Uruguay) per 100,000 inhabitants. In Central America, it ranges from 0.81 (Honduras) to 3.46 (Panama), and in the Caribbean, from 0.5 (Guyana) to 4.0 (Barbados). Several countries in the Caribbean have populations of fewer than 100,000 people, suggesting that these figures must be viewed with caution.

The ratio of nurses per 100,000 inhabitants also varies considerably throughout the Americas, ranging from 0.34 per 100,000 inhabitants in Bolivia to 39.8 in Barbados, bearing in mind the caveat about population size. Moreover, nursing schools in different countries grant different types of professional qualifications, ranging from nurse's aide or assistant to registered nurses with a full university degree.

In the countries of South America, the ratio of psychologists is much higher than that of nurses. This raises a question as to whether psychology professionals could be tapped to stand in for nurses in some community-based drug treatment settings, given the nursing shortage.¹³⁹ (See Annex 5.)

In addition to the numbers of health care professionals, it is also important to consider their distribution and accessibility. One way of approaching this is to examine the institutions in which mental health personnel work. In South America, the most common practice is for psychiatrists to work in both public and private institutions during a single work day.¹⁴⁰ (See Annex 5.)

With the notable exception of Brazil, fewer than 50 percent of total psychiatrists in South American countries work exclusively in the public sector. Given that the poorest segments of the population in the hemisphere—which because of their poverty require the most care—are the responsibility of government institutions, the inequity is obvious: They are less likely to have access to care. Health care personnel are concentrated predominantly in the countries' capitals and urban areas. If this inequality is viewed from a broader mental health perspective, it would be fair to assert that the "inverse care law" operates there as well. However, given that the drug problem is more prevalent in urban areas, the higher concentration of resources in these areas may also be a positive factor.¹⁴¹ (See Annex 5.)

Infrastructure for Treatment and Rehabilitation

There is considerable variation in the Americas in the way mental health services are organized. Facilities providing services include psychiatric hospitals, outpatient mental health units, and day hospitals; psychiatric services are also provided in general hospitals, residential facilities, and day health care centers. The information available about this category is limited.

Several Caribbean states, because of their small population size, do not have psychiatric hospitals. In South American, there are a number of hospitals

¹³⁹ AIMS Report—World Health Organization: South America, 26.

¹⁴⁰ Ibid.

¹⁴¹ AIMS Report- World Health Organization: South America, WHO2009.

that serve more as residential homes than care-providing centers.¹⁴² Psychiatric hospital care is also provided through psychiatric beds within general hospitals. This is the case in the Caribbean, for example in Dominica, Saint Kitts and Nevis, and others.

Community homes or residential programs are another type of care offered, though information for this category is spotty. There are countries (for example Ecuador, Peru, Uruguay, Bolivia) that do not report this type of care when they report results of evaluations of mental health services, which could mean that this type of rehabilitation service does not exist.

In countries that do report on these types of care, these institutions play an important role in the system of health care services. Two types of daytime care centers can be seen in the countries of the hemisphere: one geared toward curative care and the other toward rehabilitation.

The role of NGOs is very important because, in many instances, they are the most important—or even the only—providers of rehabilitation services. In Brazil and Chile, this modality of care has been expanding, with 2.1 slots per 100,000 inhabitants in Brazil and 5.0 per 100,000 in Chile. In Chile, of the total number of residential centers and shelters, 65 percent are run by NGOs and 22 percent by families. In Paraguay, all slots (1.1 per 100,000 inhabitants) are administered by a faith-based entity.

Table 4 shows the rates of psychiatric beds by population in some countries of South America, as well as specific information on services for individuals with substance abuse problems. Information on slots for treatment of individuals with substance abuse problems is quite sparse. It is very likely that the countries do not have systems in place for regularly gathering this type of information. (See Annex 5.)

In general, the data available on resources for mental health care and, as a subset of this, for care of people with addictions, are based on information provided by the public sector, which includes Ministries of Health and social security agencies. In most of the countries, the available information does not take into account data from the private sector. This presents a significant limitation, as the for-profit and not-for-profit private sector plays an important role as a service provider at different levels of care. By way of example, in Chile, only 397 beds are set aside for mental health care in public-sector general hospitals—less than half of those available in private hospitals or clinics, which total 886 beds.

In short, the human resources and infrastructure available for mental health care in general—and for individuals with substance abuse problems in particular—are clearly inadequate. This imbalance between need and supply translates into significant gaps in treatment for patients with substance use disorders—as seen, for example, in Brazil and Chile, where the gaps are 53.3 percent and 84.6 percent, respectively. And throughout the hemisphere, the gaps would be even greater if everyone who needed treatment were to seek it.

¹⁴² Ibid.

Capacity for Research and Assessment

The topic of evaluation and accountability is one that has emerged relatively recently in health policy. The introduction of research on how to organize and fund health services is an even more recent development, as it was not until the beginning of the 21st century that it was identified as a policy focus.¹⁴³

In 2000, PAHO/WHO launched a performance evaluation of Essential Public Health Functions in the Americas, the results of which were released in 2004. Among other functions, the evaluation looked at performance of national health entities in the areas of research, development, and execution of innovative public health solutions. Throughout the Americas, this function came in second to last; only the function of quality assurance in personal and population-based health services fared worse.

One factor that works against improving evaluation in the areas of mental health and drugs is the weakness of information systems. When the WHO Assessment Instrument for Mental Health Systems (WHO-AIMS) was applied in the countries of the Americas, it showed that the information being sent by the various decentralized facilities to central health authorities is incomplete. Most of this information is provided by psychiatric hospitals, with general hospitals providing a lesser amount and outpatient services even less. The exception is the Caribbean, which reports that 80 percent of its outpatient units provide information to central health authorities. In Central America, only 56.5 percent of psychiatric hospitalization units in general hospitals convey information to the central level. The obvious conclusion that can be drawn from these facts on the ground is that mental health information reporting systems are deficient and require urgent attention for improvement.

¹⁴³ N. Fulop et al., "Issues in studying the organisation and delivery of health services," in N. Fulop et al. (eds.), *Studying the Organisation and Delivery of Health Services: Research methods* (London and New York: Routledge, 2001).

Annex 1

Drugs of Abuse: Classification and effects ⁽¹⁾

Substance	Classified by its effect on the brain	Route of administration	Short-term effects	Long-term effects
Marijuana <i>Cannabis sativa</i> , Active component delta-9-tetrahydrocannabinol or THC. Its most concentrated form called hashish.	Central Nervous System (CNS) Depressant/hallucinogen	Inhalation Orally	- Distortion of sensory perception - Slight feeling of euphoria and disinhibition - Redness of the conjunctiva - Impairment of short-term memory, attention, orientation and eye-motor coordination. - In some individuals, anxiety, panic attacks, transient psychotic symptoms - Increased heart rate and decreased blood pressure	- Dependence - Amotivational syndrome - Immune Deficiency - Decreased fertility - Increases the risk for anxiety and depression - Respiratory problems and increases the risk of cancer - During adolescence: Risk of cognitive decline, schizophrenia, depression and anxiety later in life
Cocaine Hydrochloric salt (powder); Crack (crystallized rock) Base paste	CNS Stimulant	Inhalation Insufflation Intravenous	- Feeling of euphoria, increased energy, irritability, anxiety and paranoia. - Increased body temperature, heart rate and blood pressure - Decreased appetite and sleep - At high doses: - May cause erratic and violent behavior - Risk of respiratory failure, seizures, abdominal pain, nausea, gastrointestinal complications and sudden death	- Dependence - Anxiety, irritability - It can cause panic attacks and psychotic symptoms - Problems in the airways, allergic reactions and infection risk (intravenously) - Weight loss and malnutrition - Severe complications: - Strokes and heart attacks, digestive tract gangrene, death - During pregnancy: - Damage to the product: Light weight, premature delivery, impaired psychomotor development, etc.
Hallucinogens <u>(LSD, peyote, PCP, psilocybin)</u>	Action on the serotonergic system (involved in regulating mood, motor function, perception, sensory, control of temperature, appetite, etc.)	Oral Topic	Depending on the amount and type of substance: - synesthesia - Mood swings - Pupillary dilation - Hallucinations, delusions, panic - Increased temperature, heart rate and blood pressure - Symptoms similar to alcohol intoxication: - Disinhibition, euphoria feeling, speech problems, attention and motor coordination failures) - Loss of appetite, nausea and headache - Severe complications: - Loss of consciousness, sudden death from arrhythmia or asphyxiation	- Tolerance, drastic changes in perception - Disorientation, confusion and memory impairment - Psychotic Symptoms - Can cause amotivational syndrome
Inhalants (Volatile substances such as Aerosol sprays, nitrites and solvents)	Central Nervous System Depressants	Inhalation	- Euphoria, feeling of increased mental abilities, increased sensory perception and energy - Nausea, chills, sweating, muscle cramps and blurred vision. - Difficulty regulating body temperature, increased heart rate and blood pressure - Severe complications: - Hyperthermia, seizures, brain damage	- Dependence - Difficulty concentrating, memory loss and learning problems - Anxiety, hallucinations, disintegration of thought - Respiratory (rhinitis, chronic bronchitis) - Severe complications: - Brain damage and bone marrow, hearing loss and optic neuropathy, death - During pregnancy: - Damage to the product: fetal solvent syndrome (microcephaly, growth retardation, learning, language, and motor coordination)
MDMA Ecstasy	Central nervous system stimulant; action on the serotonergic system.	Oral	- Euphoria, feeling of increased mental abilities, increased sensory perception and energy - Nausea, chills, sweating, muscle cramps and blurred vision. - Difficulty regulating body temperature, increased heart rate and blood pressure - Severe complications: - Hyperthermia, seizures, brain damage	- Dependence - Confusion, depression, difficulty sleeping and anxiety - Difficulty to perform cognitive tasks - Severe complications: - Is associated with death from myocardial infarction
Methamphetamines Crystal meth, crank, ice or glass	Central nervous system stimulant, acting on different neurotransmitters (dopamine, norepinephrine and serotonin)	Intravenous Inhaled nasally Oral	- Euphoric intense "rush", increased energy and alertness - Confusion, anxiety, suspicious and violent behavior - High doses:	- Dependence - Insomnia and loss of appetite - Hypertension - Dental problems

<p>Opiates Poppy plant derivatives (morphine, heroin, meperidine and codeine)</p>	<p>CNS Depressant</p>	<p>Intravenous Oral sublingual inhaled Rectal and intranasal</p>	<p>- Arrhythmias, seizures, hyperthermia</p> <p>- Initially intense feeling of wellbeing</p> <p>- Drowsiness, sedation, confusion and indifference to the environment</p> <p>- Dry mouth, increased redness and skin temperature, miosis</p> <p>- Decreased bowel function, respiratory rate and blood pressure (when standing)</p> <p>- At high doses: - Death</p> <p>- Depending on the blood level (and tolerance of the individual):</p> <p>- Euphoria, disinhibition</p> <p>- Irritability, agitation, drowsiness, headache, changes in speech and coordination, nausea and vomiting</p> <p>- Incoherent speech, decreased muscle tone and level of consciousness (stupor or coma)</p> <p>- Cardio respiratory arrest and death</p>	<p>- Intravenous: - Risk of transmission of HIV and Hepatitis C Virus</p> <p>- Dependence</p> <p>- Heart, kidney, liver and lung</p> <p>- Decreased immune function</p> <p>- Spontaneous Abortions</p> <p>- Intravenous: - Risk of transmission of HIV and Hepatitis C Virus</p>
<p>Alcohol</p>	<p>CNS Depressant</p>	<p>Oral</p>	<p>- Increased attention, decreased anxiety, feelings of pleasure</p> <p>- Increase in blood pressure, heart rate and respiratory rate</p>	<p>- Dependence</p> <p>- Malnutrition</p> <p>- Heart problems (cardiomyopathy) and hypertension</p> <p>- Cirrhosis</p> <p>- Memory loss (dementia)</p> <p>- Immune system deficiency</p> <p>- Increased risk of cancer (liver, digestive tract)</p> <p>- During pregnancy: - Changes in the product: fetal alcohol syndrome (microcephaly, psychomotor retardation, mental retardation, etc.)</p>
<p>Tobacco</p>	<p>CNS Stimulant</p>	<p>Inhalation Oral</p>	<p>- Increased attention, decreased anxiety, feelings of pleasure</p> <p>- Increase in blood pressure, heart rate and respiratory rate</p>	<p>- Dependence</p> <p>- Decreased taste and smell</p> <p>- Emphysema</p> <p>- Stroke and cerebrovascular events</p> <p>- Significant increase in the risk of cancer (lung, mouth, pancreas, bladder, etc.)</p> <p>- During pregnancy: - Damage to the product: growth retardation, low birth weight, sudden infant death, learning disabilities and behavioral</p>
<p>Prescription drugs Opiates: hydrocodone, oxycodone, propoxyphene, hydromorphone, meperidine, diphenoxylate Dextromethorphan (found in cough syrups) Barbiturates and Benzodiazepines: sodium pentobarbital, diazepam, alprazolam, clonazepam, etc.. Amphetamines and derivatives: Dextroamphetamine, amphetamine, methylphenidate</p>	<p>Opiates, Barbiturates and Benzodiazepines: Central Nervous System Depressants Dextrometorfano: inhibitor Central Nervous System (modifies the synthesis of tachykinins, and acts on glutamate receptors in the central nervous system center regulating cough reflex.) Amphetamines and derivatives: Central Nervous System Stimulants</p>	<p>Opiates and benzodiazepines: Oral intravenous Barbiturate (pentobarbital): intravenous Amphetamines and derivatives dextromethorphan Oral</p>	<p><i>Note: The effects of prescription drug consumption are related to dose or longer periods and / or outside a clinical setting to justify its use.</i></p> <p>opiates</p> <p>- See section opiates</p> <p>- Death from overdose</p> <p>Amphetamines and derivatives: - See section methamphetamine</p> <p>Benzodiazepines and barbiturates: - Effects similar to alcohol intoxication</p> <p>- Decrease in blood pressure</p> <p>- Death by overdose (in the case of the barbiturates, benzodiazepines if doses are required extremely altas_</p> <p>dextromethorphan: - Restlessness, euphoria, hallucinations</p> <p>- Confusion, drowsiness</p> <p>- Vomiting, stomach pain</p> <p>High Doses: - Tachycardia, respiratory distress seizures, loss of consciousness, death</p>	<p>Opiates</p> <p>- See section opiates</p> <p>Amphetamines and derivatives: - See section methamphetamine</p> <p>Benzodiazepines and barbiturates: - Dependence</p> <p>- Changes in memory</p> <p>dextromethorphan: - Insomnia, fatigue</p> <p>- Alterations in memory, anxiety, psychotic symptoms</p> <p>- Liver damage</p>

1. www.drugabuse.gov.

Prevention Programs

Program	Efficacy	Studies supporting its effectiveness	Countries where the studies were conducted	Comments
SCHOOLS				
Life Skill Program and other school programs based on the development of social and life skills	Evidence of efficacy to: Reduce the frequency of alcohol intoxication and "binge drinking" Decreased use of cannabis and also in the use of other drugs	1 Meta – analysis alcohol consumption in under 18 2 Consumption of illicit substances in under 18 (Babor T, 2010; Faggiano F, 2008, Foxcroft DR, 2011)	Meta - analysis included studies in the U.S. and Canada	Programs based on the development of social skills decrease between 1 and 23% probability of consuming cannabis and decrease between 34% and 85% the likelihood of using other drugs (follow-up for 5-7 years) For the prevention of dangerous alcohol use are more effective programs with general objectives (interventions also reduce drug use and antisocial behavior)
Changes of management in the classroom and in the school environment "Good Behavior Game"	Decrease in the use of cannabis and other drugs.	1 Meta – analysis Illicit drug use in children under 18 years (compared to other models) Data derived from a randomized – controlled clinical replication cohort (Faggiano F, 2008; Kellam S, 2011; Poduska JM, 2008)	Developed clinical trial in USA The meta - analysis includes studies in the United States and Canada.	In one study the "Good Behavior Game" reduced lifetime drug abuse by up to 50% in boys aged 14 years. Less use of health services (general) in boys upon reaching ages 19 - 21 years. Especially effective in children identified as aggressive. Not effective in the case of girls.
Programs based only on the dissemination of information in the classroom and affective Education	They have not shown to be effective in reducing alcohol and drug use	1 Meta - analysis Illicit drug use in children under 18 years 1 Meta - analysis Alcohol use in children under 18 years (compare programs based on dissemination and affective education vs. other school programs) (Faggiano F, 2008; Foxcroft DR, 2011)	Includes studies in the United States	Few well-controlled studies
Incentive-based programs to reduce the consumption of tobacco	Have proven effective in reducing the consumption of tobacco in adolescents	1 Meta-analysis in less than 18 year olds (only 5 studies) (Johnston V, 2009)	US (1 study)	Little information, but evidence is necessary to replicate the results.
D.A.R.E (Drug Abuse Resistance Education)	Not shown effectiveness in reducing alcohol consumption, drugs and tobacco	3 Meta - analysis, alcohol, illicit drugs and tobacco at age 18 (Faggiano F, 2008; Foxcroft DR, 2011; West SL, 2004)	Two of the meta - analysis included studies in the United States and Canada, A meta - analysis includes studies in the U.S.	The program has become adopted (some still in force) in several countries of America and the Caribbean (including Canada, Costa Rica, El Salvador, Mexico, Chile, Nicaragua, Saint Lucia, Trinidad and Tobago, the Cayman Islands, Grenada , Honduras, Virgin Islands, Panama, St. Vincent and the Grenadines, Montserrat, Barbados, Brazil, Colombia,

						Guatemala, Dominican Republic, Saint Kitts and Nevis and Puerto Rico)
Random drug use screening	Not shown effectiveness	2 Studies (Yamaguchi R, 2003; Kern J, 2006; McKeagney N, 2005)	USA	There is no evidence to support its effectiveness, however the program has been adopted in several schools		
Prevention programs "social norms" for alcohol in college students	Evidence of effectiveness to shorten and medium term to reduce hazardous alcohol consumption	1 Meta - analysis Moreira MT, 2009	USA	Evidence that prevention programs "social norms" administered face - face or via the Internet are effective, although the effect is lost in the long term		
Programs based on motivational interviewing	Evidence of effectiveness in reducing alcohol consumption in college students	1 Meta - analysis Babor T, 2010	USA	The results are better if combined with other programs, such as personal feedback and "social norms"		
Program	Efficacy	Studies supporting its effectiveness	Countries where the studies were conducted	Comments		
PROGRAMS BASED ON FAMILY AND COMMUNITY INTERVENTIONS						
	Some of the programs have proven effective in reducing alcohol and tobacco consumption and drug use	2 Meta - analyses , alcohol, illicit drugs and tobacco at age 18 1 Meta - analysis Alcohol use in children under 18 years (Gates S, 2006; Petrie J, 2207; Foxcroft D 2011)	In the meta-analysis included studies in the USA and one study in Chile	Positive results in preventing the use of tobacco, alcohol and cannabis-oriented programs in skills parentage: SPF (Iowa Strengthening Families Program) and PDFY (Preparing for the Drug Free Years) Long-term positive results Universal Building Program of Families (Children 10 to 14 Years old). Evidence of cost - effectiveness. Other programs for family / parents have not been evaluated so positively.		
Multicomponent Programs	They have not shown to be effective	1 Meta - analysis Alcohol use in children under 18 years 1 Study for prevention / reduction in the use of tobacco 3 Studies on prevention / reduction in the	USA	The magnitude of the effects tends to be small or insignificant.		

Program	Efficacy	Studies supporting its effectiveness	Countries where the studies were conducted	Comments
SOCIAL AND MEDIA MARKETING				
Mass diffusion	Not shown effectiveness	2 Reports (Hawks D, 2002; Orwin R, 2004;	USA	Few high-quality scientific assessments. It can be concluded that the exclusive use of the media does not prevent or reduce substance use
Social Marketing	Evidence of effectiveness in reducing cannabis use	1 Study (Slater MD, 2006	USA	A single study A social marketing intervention was able to reduce the probability of initiating marijuana use between 10% and 72% at two years after.
Program	Efficacy	Studies supporting its effectiveness	Countries where the studies were conducted	Comments
BRIEF SCREENING INTERVENTION				
Screening and brief intervention to reduce alcohol and drug use	Evidence of effectiveness in reducing alcohol and drug use Moderate evidence on their effectiveness in reducing harm associated with alcohol consumption	2 Meta – analyses Alcohol consumption 1 Meta – analysis drug consumption Studies to decrease alcohol and drugs 1 Meta – analysis on the secondary damage impact of alcohol (fatal and nonfatal injuries due to violence) (Vasilaki EI, 2006; Alarcón LF, 2008; MLS-G, 2011; De-Micheli D, 2004; Martínez-Martínez, 2008; Dinh-Zarr TB, 2009)	USA, Canada (Meta – analysis) Studies: USA , Brazil, Colombia, México	Effective in reducing hazardous alcohol consumption in patients attending a first class service for reasons not related to alcohol consumption subject (males) Other studies examining the use of brief interventions in alcohol and drug users confirm that this type of approach is effective. In a multicenter study (which included Brazil and USA) was used screening tool known as ASSIST (Alcohol, Smoking and Substance Involvement Screening Test) followed by brief intervention, evidence of efficacy of the model in Brazil. Other models of brief intervention have proved useful in various countries of Latin America Moderate evidence on the impact of secondary damage to alcohol.
HARM REDUCTION				
Maintenance methadone for drug users (opiate)	Evidence that succeeds in reducing risk behaviors for transmission of HIV / HCV seroconversion and overdose death	Meta – revision 2 Meta – Analysis Revision of evidence	Meta - analysis, review and meta review of evidence including studies U.S. and Canada	Dose-related effect Evidence of being a cost - effective intervention Substitution programs in other American countries (Brazil, Argentina), whose impact is

		(Amato L, 2005; Gowing L, 2011; Macarthur GJ, 2012; Rhodes T, 2010)			being assessed. Best results are accompanied by psychosocial interventions. Associated with a decrease in behavior risk, but cannot ensure that reduce the transmission of HIV
Needle Exchange or access to sterile syringes in vending machines / pharmacy Supervised administration of drugs	Evidence of needle exchange programs for reducing risk behaviors Regarding programs that allow access to sterile syringes through pharmacies or vending machines, programs in prisons and probation administration, number and methodology of the studies do not provide sufficient evidence to determine its effectiveness	Review of the Evidence (Rhodes T, 2010; Committee on the Prevention of HIV Infection Among Injecting Drug Users in High Risk Countries, 2006)	Some of the studies included in the review of the evidence has been made in the USA and Canada. Ongoing studies in Brazil (Domanico A, 2012)	Needle exchange may reduce risk behaviors associated with HIV transmission Still cannot be said that this intervention decrease HIV seroconversion and HCV infections. The needle exchange does not increase the onset of intravenous drug use intravenous These programs have never been subjected to a randomized clinical trial.	
Programs for harm reduction in crack users	There is no evidence that these programs are effective	1 Study (Malchy LA, 2011)	Canada	Very little information The data indicate that the equipment provided to crack users do not decrease risk behaviors (use of contaminated equipment, risky sexual behavior)	
Prevention of violent incidents involving alcohol by training the bar staff	Moderate level of evidence	Review of the Evidence (Babor T, 2010)	Review of evidence: Studies in U.S.	Staff training in bars to handle potentially hazardous situations may contribute to less events of physical aggression in intoxicated subjects	
Random screening programs alcohol levels in drivers and license suspension	The evidence supports these programs are useful for reducing damage (the most effective is the review random alcohol levels)	Review of the Evidence (Babor T, 2010)	Review of the Evidence: Studies carried out in USA and Canada	There is insufficient evidence to say that the review points to random alcohol levels in drivers decreases automobile accidents associated with alcohol. The set the threshold at lower levels is also a useful maneuver, particularly in young drivers.	
Program	Efficacy	Studies supporting its effectiveness	Countries where the studies were conducted	Comments	
INTERVENTIONS AIMED AT REDUCING THE PHYSICAL AND ECONOMIC AVAILABILITY					
Increase in the price of alcohol	The evidence supports the effectiveness of intervention to reduce alcohol consumption and related harms. Intervention is cost - effective	Review of the Evidence Study cost – effectiveness (Babor T, 2010; Medina-Mora M E, 2010)	Review of evidence: Studies in U.S. Evidence of cost effectiveness in Mexico.	There is sufficient evidence to say that the increase in cost and effective intervention is effective in reducing alcohol consumption and related harms.	
Restricting the sale of tobacco to minors by monitoring the premises	Evidence of greater local adherence of restricting sales to minors There is no conclusive evidence on the impact on the underage tobacco consumption	1 Meta – analysis (Stead LF, 2005)	Meta – Analysis includes USA and Canada	The monitoring and supervision of businesses that sell tobacco is effective to achieve a greater number of establishments to adhere to this measure However there are no data to support that this intervention leads to reduced access of minors to tobacco	

Restricting tobacco consumption in public places	Evidence of effectiveness (reduction in the number of smokers in public places, evidence of lower intake units subject to intensive cities)	1 Meta – analysis (Callinan JE, 2010)	The meta - analysis includes studies in U.S.	Evidence of effectiveness particularly in comprehensive programs in public institutions (in addition to the smoking ban include dissemination of information and treatment for smoking) Improvement in health indicators (self-reported and entries to ICUs) There are data that suggest a downward trend in the number of smokers
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PHARMACOLOGICAL TREATMENT OF SUBSTANCE USE DISORDERS

Alcohol withdrawal syndrome (AWS)

Intervention	Research	Measurable Indicators	Evidence	Comments
Treatment with Gamma-hydroxybutyrate (GHB)	Meta-analysis 13 controlled clinical trials(1).	Incidence of withdrawal symptoms during detoxification Abstinence	More effective than naloxone or disulfiram in maintaining abstinence. Effective in preventing withdrawal symptoms (equivalent to efficacy of benzodiazepines).	Although this treatment is effective, caution is advised due to risk of abuse.
Various pharmacological treatments (benzodiazepines (BZD), anticonvulsants, GHB, baclofen)	Meta-analysis 114 controlled studies (placebo or active control)(2).	Seizures, delirium, intensity of withdrawal symptoms	Compared to placebo, BZDs were significantly more effective in preventing seizures. No significant differences were found when comparing pharmaceuticals to each other, although the outcomes with chlordiazepoxide were the most favorable.	The outcomes show that BZDs are the most effective treatment in preventing seizures. The quality of the evidence on this is considered moderate.
Treatment with benzodiazepines (BZDs)	Meta-analysis 64 controlled studies (placebo or active control)(3).	Seizures, delirium, intensity of withdrawal symptoms.	Benzodiazepines have a protective effect on withdrawal symptoms (vis-à-vis placebo). Trending towards significance in comparison with other medications.	The addition of BZDs to another medication did not show significant differences. As to the profile of each medication, the best outcomes were obtained with chlordiazepoxide.
Treatment with anticonvulsants	Meta-analysis 56 controlled studies (placebo or active control)(4).	Seizures, delirium, intensity of withdrawal symptoms.	No differences were found when comparing anticonvulsants with placebo. Better than lorazepam or oxazepam in reducing the intensity of withdrawal symptoms.	Insufficient evidence for superiority of anticonvulsant treatment for AWS, although carbamazepine might be more effective than some benzodiazepines.
Treatment with baclofen	1 controlled clinical trial (5).	Seizures, delirium, intensity of withdrawal symptoms.	It was reported that patients treated with baclofen required lower doses of benzodiazepines to control withdrawal symptoms.	Insufficient evidence to assess the utility of baclofen in AWS.

Alcohol dependence

Intervention	Research	Measurable Indicators	Evidence	Comments
Naltrexone treatment	Meta-analysis 50 controlled clinical trials (vs. placebo or active control)(6).	Heavy alcohol use Number of days of use Quantity of alcohol consumed Abstinence	Effective in reducing the risk of heavy alcohol use and the number of days of use	This treatment was not associated with greater abstinence (although outcomes do show a tendency to a significant difference)
Acamprosate treatment	Meta-analysis 24 controlled trials (vs. placebo or active control)(7)	Use Length of abstinence	Effective in reducing the risk of heavy use and in increasing the length of abstinence	Although the size of the effect is moderate, it is useful clinically, given that treatment options are limited. The most frequently reported adverse effect is diarrhea.
Treatment with disulfiram	Meta-analysis 24 trials (not controlled or controlled with placebo or active control)(8).	Alcohol use Length of abstinence	Effective in maintaining short-term abstinence, compared to other types of treatment or placebo.	The quality of the evidence is considered to be moderate. Most of the studies were follow-up studies. Apparently has a better effect in the initial months following detoxification.

Cocaine dependence

Intervention	Research	Measurable Indicators	Evidence	Comments
Stimulant treatment (methylphenidate, amphetamine derivatives, modafinil, selegiline)	Meta-analysis 16 controlled clinical trials (9).	Abstinence Retention in treatment	Contradictory outcomes. No conclusion reached as to efficacy. Possible effect of some medications (bupropion, amphetamine derivatives)	Stimulant treatment was not associated with higher retention of patients in treatment nor with greater abstinence (although a trend towards significance was found in this variable).
Treatment with dopamine agonists (levodopa/carbidopa, amantadine, bromocriptine)	Meta-analysis 23 clinical trials (dopamine agonists with/without psychosocial intervention vs. no treatment or placebo or other active treatment) ⁽¹⁰⁾ .	Abstinence Retention in treatment	No evidence that dopamine agonists are effective in maintaining abstinence in cocaine-dependent persons	This finding contradicts an earlier one that favors the use of dopamine agonists + psychosocial interventions.
Treatment with antidepressants	Meta-analysis 23 clinical trials (antidepressants with/without psychosocial intervention vs. no treatment or placebo or other active	Abstinence Retention in treatment	No evidence that antidepressants are effective in maintaining abstinence in cocaine-dependent persons	Except for certain patients, antidepressants cannot be considered the treatment of choice for cocaine dependence.

Treatment with disulfiram	treatment)(11). Meta-analysis 7 clinical trials (disulfiram with/without psychosocial intervention vs. no treatment or placebo or other active treatment)(12).	Abstinence Retention in treatment	One study reported superiority of disulfiram over placebo. No evidence of greater efficacy than other treatment.	There is as yet very little information on which to determine whether disulfiram can be useful in the treatment of cocaine dependence.
Treatment with carbamazepine	Meta-analysis 5 controlled clinical trials (carbamazepine vs. placebo)(13).		There is no evidence that carbamazepine is useful in treating cocaine dependence.	The authors remark that it is possible that further studies will not lead to changes in the evidence on the effect of this medication.

Amphetamine withdrawal and dependence

Intervention	Research	Measurable Indicators	Evidence	Comments
Treatment of amphetamine withdrawal	Meta-analysis 4 controlled clinical trials (pharmacological treatment with/without psychosocial interventions) ⁽¹⁴⁾ .	Withdrawal symptoms Craving	It was not possible to identify any effective intervention for the treatment of amphetamine withdrawal symptoms.	Insufficient and contradictory information about the usefulness of mirtazapine to treat withdrawal symptoms
Treatment of amphetamine abuse and dependence	Meta-analysis 4 controlled clinical trials (pharmacological treatment vs. placebo) ⁽¹⁵⁾ .	Amphetamine use Abstinence Craving	It was not possible to conclude that any of the interventions is effective in the treatment of abuse and dependence.	Some benefit from antidepressants. Fluoxetine was associated with less craving in the short term, and imipramine with greater adherence to treatment.

Cannabis withdrawal

Intervention	Research	Measurable Indicators	Evidence	Comments
Various pharmacological treatments	4 controlled clinical trials in laboratory studies (placebo vs. dronabinol; divalproex; bupropion; nefazodone) (16-19).	Intensity of withdrawal symptoms	Dronabinol was the most effective treatment for the management of cannabis withdrawal symptoms. Nefazodone and lofexidine were effective in reducing anxiety and restlessness. Treatment with bupropion and divalproex in the early phase of abstinence caused mood changes.	Efficacy of dronabinol for the management of withdrawal symptoms in the patients' normal surroundings (20).

Cannabis dependence

Intervention	Research	Measurable Indicators	Evidence	Comments
Buspirone	Controlled clinical trial (buspirone + motivational therapy vs. placebo + motivational therapy)(20).	Cannabis use (self-reported and urine testing) Treatment adherence	Trending towards significance in favor of buspirone in the number of patients who remained abstinent	Although the results of the study do not show the superiority of buspirone over placebo, a close-to significant effect was noted, which suggests that this medication may be useful in treating cannabis-dependent patients.
Dronabinol + lofexidine	Controlled clinical trial (dronabinol vs. lofexidine vs. dronabinol + lofexidine vs. placebo)(19).	Cannabis use Spending on purchases of cannabis	Treatment with lofexidine or dronabinol was not effective in reducing cannabis use; however, the combination of both drugs doubled the percentage of patients who remained abstinent (25 vs. 50%)	In comparison with other groups, persons treated with dronabinol reported spending less on purchasing cannabis
Dronabinol	Controlled clinical trial (dronabinol + motivational therapy vs. placebo + motivational therapy)(20).	Cannabis use Treatment adherence Withdrawal symptoms	No differences in the percentage of patients who remained abstinent during follow-up (monitoring)	Patients treated with dronabinol reported fewer withdrawal symptoms and a smaller percentage dropped out of the follow-up (monitoring).

Benzodiazepine dependence (mono-dependence)

Intervention	Research	Measurable Indicators	Evidence	Comments
Pharmacological treatment	Meta-analysis 8 controlled clinical trials (vs. placebo)(21).	Abstinence from use of benzodiazepines Treatment adherence	In one study, carbamazepine was effective in reducing withdrawal symptoms during gradual tapering off of benzodiazepines, although the impact on long-term abstinence was not significant. Other types of treatment did not show favorable results (propanolol, tricyclic antidepressants, progesterone, management with longer half-life BZDs).	Confirms that discontinuation should be slow and progressive. The authors point to the need for further studies to assess the usefulness of carbamazepine and other pharmacological alternatives.

Opioid Withdrawal¹⁴⁴

Intervention	Research	Measurable Indicators	Evidence	Comments
Treatment with buprenorphine	Meta-analysis 22 controlled clinical trials (vs. low doses of methadone, alpha2-adrenergic agonists, symptomatic treatment) ⁽²³⁾ .	Severity and duration of withdrawal symptoms	More effective than Alfa- agonists in resolving withdrawal symptoms. Compared to methadone, resolution of the symptoms is more rapid.	There is evidence that buprenorphine is effective for management of opioid withdrawal. When managing residential patients, it may resolve the syndrome more rapidly than methadone, and is associated with a higher percentage of adherence to detoxification.
Treatment with Alpha2-adrenergic agonists	Meta-analysis 24 controlled trials (vs. tapering doses of methadone or symptomatic treatment) ⁽²⁴⁾ .	Severity and duration of withdrawal symptoms	Clonidine and lofexidine are more effective than placebo in managing withdrawal symptoms.	Not found to be superior to management with tapered doses of methadone, although treatment with alpha2-adrenergic agonists was associated with more adverse effects.
Treatment with tapered doses of methadone	Meta-analysis 16 controlled trials (vs. other treatment or placebo)	Severity and duration of withdrawal symptoms	Superiority of methadone over placebo. Significant differences were noted in the study designs, and therefore no difference could be shown between methadone and other pharmacological treatment.	Evidence that methadone is effective; however, it was not possible to determine whether it is superior to other types of treatment.

¹⁴⁴ Withdrawal symptoms may occur during the detoxification stage (i.e., when opioid use stops) and involve the use of approaches such as administration of an opioid that is gradually tapered off (methadone), the administration of a partial agonist (such as buprenorphine) or abrupt cessation of opioid use, using treatment such as alpha2-adrenergic agonists. Maintenance treatment for opioid dependence consists of the controlled administration of an opioid medication, in order to prevent resumption of heroin use.(22). Guidelines for the Psychosocially Assisted Pharmacological Treatment of Opioid Dependence: UNOCD.
The Drug Problem in the Americas: [Studies](#)

Opioid dependence

Intervention	Research	Measurable Indicators	Evidence	Comments
Methadone treatment	Meta-analysis 11 studies (vs. placebo or non-pharmacological treatment) ⁽²⁵⁾ .	Abstinence Criminal behavior Death	Methadone treatment is effective for treating patients with opioid dependence.	Methadone treatment was effective in reducing heroin use. No significant effects were found on criminal activity or mortality/death rates.
Treatment with naltrexone	Meta-analysis 13 studies (vs. placebo or active control) ⁽²⁶⁾ .	Abstinence Incarceration Criminal activities	No evidence that naltrexone was better than other treatment (buprenorphine, benzodiazepines)	The methodological design of the studies does not allow for a sufficiently valid conclusion as to the usefulness of naltrexone in the treatment of opioid dependence.
Treatment with extended-release naltrexone.	Meta-analysis Only one study was included (extended-release naltrexone vs. placebo)	Days in treatment Drop-out from treatment	Information is insufficient to conclude whether extended-release naltrexone is effective in the treatment of opioid-dependent persons.	The adverse effects associated with depot injection of naltrexone were reported as slight and limited in time (particularly at the injection site).
Treatment with buprenorphine	Meta-analysis 24 studies (buprenorphine vs. placebo or vs. methadone) ⁽²⁷⁾ .	Heroin use Treatment adherence	Medium and high dosages of buprenorphine reduced heroin use compared to placebo. Medium dosages of buprenorphine are less effective than medium doses of methadone in continuing the treatment and in reducing heroin use.	Buprenorphine is efficacious in the maintenance treatment of opioid-dependent patients, but is not a better alternative than methadone.
Supervised heroin treatment	Meta-analysis 8 studies (heroin with/without methadone vs. other treatment) ⁽²⁸⁾ .	Treatment adherence Criminal activity Illicit substance use Incarceration Death	Persons who received treatment with dosed heroin, with or without methadone, showed greater adherence to treatment and less use of illicit substances.	The results indicate that persons receiving supervised heroin administration tended to engage in less criminal activity. May be considered as an option for opioid-dependent patients who do not respond to other treatment.

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Behavioral treatment for patients with substance use disorders

Intervention	Description
Cognitive-Behavioral Therapy	Cognitive-Behavioral Therapy (CBT) was initially developed as a method to prevent relapse when treating alcohol-dependent patients, and later it was adapted for the treatment of dependence on other substances. Cognitive-behavioral strategies are based on the theory that addiction involves a learning process. This technique seeks to identify and correct mal-adaptive thinking and behaviors, anticipate problems, improve self-control and self-monitoring, identify situations that might put one at risk for use, develop strategies for avoiding high-risk situations, and manage contingencies that may lead to relapse. There is evidence that this type of therapy is effective in the treatment of dependence on alcohol, marijuana, cocaine, methamphetamines and nicotine.
Twelve-step program	The 12-step program consists of forming self-help groups that promote abstinence. The key ideas behind this intervention are: 1) awareness and acceptance of the disease as a chronic, progressive health problem over which the person has no control, and that abstinence is the only alternative; 2) following the program, which is in twelve steps. It involves accepting the existence of a "higher power", and accepting the fellowship and support structure of other members of the group who are abstinent; 3) Active involvement in meetings and activities of the 12-step groups. The efficacy of this type of approach has been demonstrated for the treatment of alcohol dependence and it is a promising strategy for the management of other types of dependency. A meta-analysis published in 2006 compared the use of a 12-step program to other treatment modalities commented that there are no unequivocal data as to the superiority of this type of intervention, although participants in a 12-step program tend to be more accepting of treatment and remain in treatment for longer.
Motivational therapy	Motivational Therapy is a counseling approach that helps individuals resolve their ambivalence about engaging in treatment and stopping their drug use. It aims to evoke rapid and internally motivated change, rather than guide the patient through the recovery process. It consists of an initial assessment, followed by two to four individual treatment sessions in which the therapist provides feedback, encourages discussion and seeks to elicit a personal commitment to change. Motivational interviewing also seeks to build a plan for change and develop coping strategies for high-risk situations. In subsequent sessions, the therapist monitors changes in the patient's behavior and thinking, reviews the cessation strategies being used, and encourages commitment to abstinence. There is some evidence that this therapy can be useful in treating dependence on alcohol, marijuana and nicotine.

<p>Community Reinforcement Approach + vouchers</p>	<p>This is an intensive therapy for treating people addicted to cocaine and alcohol. It uses a range of recreational, familial, social, and vocational reinforcers, along with material incentives. The treatment goals are twofold: To maintain abstinence long enough for patients to learn new life skills to help stop their use, and to reduce alcohol consumption for patients whose drinking is associated with cocaine use. Patients attend one or two individual counseling sessions each week, and urine samples are taken two or three times a week; if the tests are negative, they are rewarded with vouchers that may be exchanged for retail goods that are consistent with a drug-free lifestyle. This approach has been useful in treating patients who are dependent on alcohol, cocaine and/or opioids.</p>
<p>The Matrix Model</p>	<p>Provides a framework for engaging stimulant users (amphetamines or cocaine) in treatment. Patients learn about issues critical to addiction, treatment and relapse, receive direction about self-help programs. The therapist also plays the role of teacher, using the therapeutic relationship to reinforce behavior change. The interaction between the therapist and the patient tries to be authentic and direct but not paternalistic. The patient is monitored through urine testing.</p>
<p>Family Behavior Therapy</p>	<p>Family Behavior Therapy (FBT) has demonstrated positive results in both adults and adolescents with substance use disorders and other co-occurring problems (unemployment, conduct disorders). Family Behavioral Therapy combines behavioral contracting and contingency management strategies, and involves third parties who live with the person in treatment. The therapist seeks to engage the family in applying behavioral strategies and improving the home environment. Parents with substance abuse disorders are encouraged to develop parenting skills. Goals are reviewed at each session.</p>
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Annex 4.

Prevention Programs in the Americas and the Caribbean.

COUNTRY	Drug Policy	Government Agencies in the field of addiction prevention	Budget allocated to the prevention of addictions	Prevention Programs												Vulnerable groups	
				Advertising (audiovisual)		Advertising (print)		School programs		Community programs		Family programs		Evaluation	Evaluation		
				%	Evaluation	%	Evaluation	%	Evaluation	%	Evaluation	%	Evaluation				
Antigua and Barbuda	✓	✓	✓	---	---	---	---	✓	X	---	X	X	---	X	---	X	---
Argentina	✓	✓	X	✓	-----	-----	-----	✓	<10	X	X	X	<10	X	-----	✓	-----
Barbados	X	✓	✓	---	---	---	---	✓	---	---	X	X	---	X	---	X	---
Belize	✓	✓	✓	✓	25-49	25-49	25-49	✓	25-49	X	X	X	---	X	---	X	---
Bahamas	✓	✓	X	✓	75-100	75-100	75-100	✓	75-100	X	X	X	---	X	---	X	---
Brazil	✓	✓	✓	---	---	---	---	✓	10%	✓	✓	✓	-----	✓	---	✓	---
Bolivia	✓	✓	✓	---	---	---	---	✓	50-74	✓	✓	✓	<25	X	---	✓	---
Canada	✓	✓	✓	✓	-----	-----	-----	✓	80-100	✓	✓	✓	---	---	---	✓	---
Chile	✓	✓	✓	---	---	---	---	✓	80	✓	✓	✓	80	X	---	✓	---
Colombia	✓	✓	✓	✓	75-100	50-74	50-74	✓	10	✓	✓	X	---	---	---	✓	---
Costa Rica	✓	✓	✓	✓	25-49	<25	<25	✓	75-100	✓	✓	✓	<10	---	---	✓	---
Cuba																	
Dominican Republic	X	✓	X	✓	25-49	50-74	50-74	✓	10-60	✓	X	X	10-60	X	---	✓	---
Ecuador	✓	✓	✓	X	---	---	---	X	<25	✓	✓	✓	---	---	---	X	---
El Salvador	X	✓	X	✓	<25	<25	<25	✓	30	✓	X	X	30	X	---	X	---
USA	✓	✓	✓	✓	-----	-----	-----	✓	---	✓	✓	✓	-----	---	---	✓	---
Guatemala	✓	X	X	X	---	---	---	X	75-100	✓	X	✓	75-100	X	75-100	✓	---
Guyana	✓	✓	X	---	---	---	---	---	---	X	X	X	---	---	---	X	---
Granada	X	✓	✓	✓	---	---	---	---	75-100	✓	X	✓	75-100	X	---	X	---
Haiti	X	✓	X	---	---	---	---	---	---	X	X	✓	---	---	---	✓	---
Honduras	X	✓	X	X	---	---	---	X	---	X	X	✓	---	---	---	X	---
Jamaica	✓	X	X	✓	25-49	<25	<25	✓	50-74	✓	X	✓	<10	X	---	✓	---
México	✓	✓	✓	✓	50----	50----	50----	✓	50-	✓	✓	✓	50-	---	---	✓	---

Nicaragua	X			74	✓	<25		74	✓	<25		74	✓	50-74	X	74	✓	50-74	X				X
Panamá	✓			25-49	✓	25-49		25-49	✓	<25		25-49	✓	25-49	✓		X						X
Paraguay	X			25-49	✓	<25		<25	✓	<25		<10	✓	<10	✓		X				X		✓
Peru	✓			25-49	✓	25-49		<25	✓	<25		25-49	✓	25-49	✓		X			-----	X		✓
St. Kitts and Nevis	✓			---	✓				---			75-100	✓	75-100	✓		X						X
St. Vicente and the Grenadines	X			---	✓				---				✓		✓		X						X
St. Lucia	✓			25-49	✓	25-49			✓			---	✓	---	✓		X				-----	X	✓
Surinam	✓			50-74	✓	50-74		<25	✓			50-74	✓	50-74	✓		X						X
Trinidad y Tobago	✓			<10	✓	<10			✓			<10	✓	<10	✓		X						X
Uruguay	✓			50-74	✓	50-74		50-74	✓			50-74	✓	50-74	✓		X					-----	X
Venezuela	✓			75-100	✓	75-100		75-100	✓			<25	✓	<25	✓		X					<25	✓

X Absent; [] Present; ---- No Information

COUNTRY	Screening and brief intervention in primary care	Programs for harm reduction in injecting drug users																						
		Needle exchange			Supervised administration			Means of distribution of antiseptics			Distribution of Methadone			Mobile units for care of IDU										
		%	Evaluation		%	Evaluation		%	Evaluation		%	Evaluation		%	Evaluation									
Antigua and Barbuda	-----	X		X				X				X				X								
Argentina	-----	✓											✓											
Barbados	X		X		X			X				X										X		
Belize	✓ (limited)	X		X				✓ *														X		
Bahamas	✓	X		X				X				X										X		

Annex 5

Quantity, distribution and availability of human resources for prevention, treatment and rehabilitation of substance use disorders.

Table 1. Human resources working in mental health sector per 1,000 inhabitants.

The Americas and the world.

Type of worker	Americas	World Total
Psychiatrists	1.57	1.27
Other doctors	0.72	0.34
Nurses	3.92	5.8
Psychologists	1.29	0.3
Social Workers	0.39	0.23
Occupational Therapists	0.12	0.05
Other health workers	6.37	2.65

Source: Mental Health Atlas 2011, WHO.

Table 2. Human resources: rates of mental health professionals per 100,000 inhabitants.

Countries of the Americas.

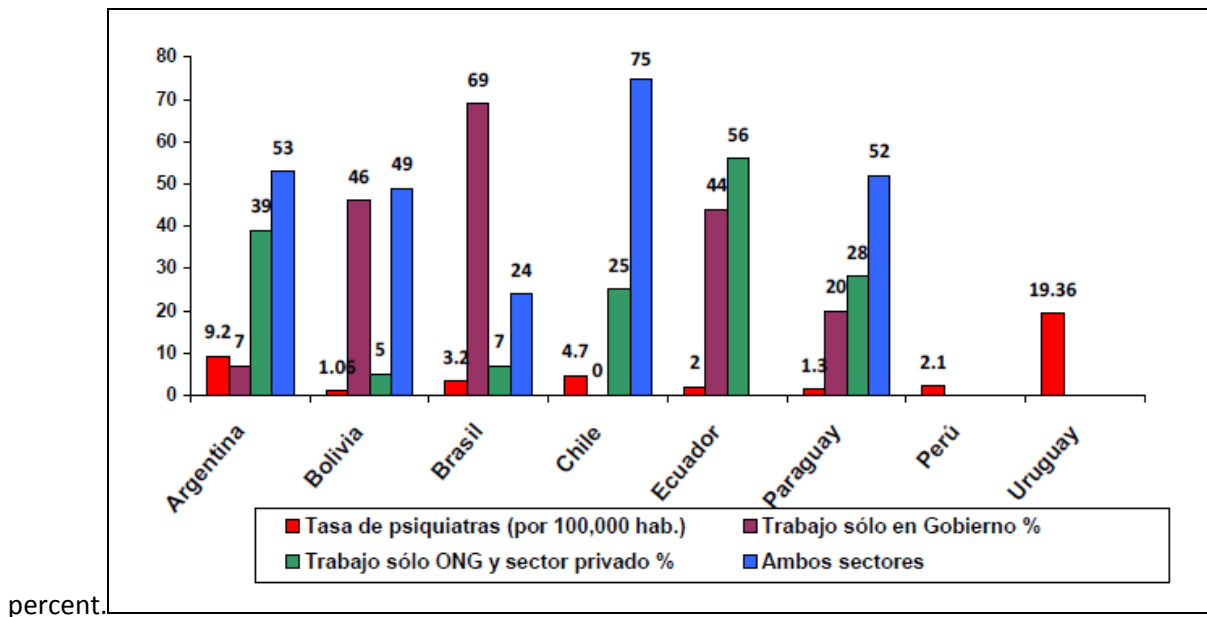
Country	Psychiatrists	Psychologists	Nurses
Anguilla	7.3	0	14.6
Antigua and Barbuda	1.1	1.2	9.3
Argentina	9,20	106	n/d
Barbados	4	8.9	39.8
Belize	0.6	0.3	8
Bolivia	1,06	0,46	0,34
Brazil	3,2	10,19	1,69
Chile	4,7	12,30	1,70
Costa Rica	3,06	1,88	4,13
Dominica	2.8	0	11.2
Ecuador	2,0	1,34	0,94
El Salvador	1,39	1,68	2,11
Granada	1.8	0	15
Guatemala	0,57	0,35	1,28
Guyana	0.5	0	0.4

Honduras	0,81	0,77	2,58
Jamaica	1.1	0.3	7.6
Montserrat	20.8	0	145.3
Nicaragua	0,90	2,11	1,7
Panamá	3,46	2,99	4,38
Paraguay	1,31	28,94	1,58
Peru	2,1	1,78	1,94
Dominican Republic	2,07	3,17	1,61
Saint Kitts and Nevis	2	4	19.8
Saint Vincent and the Grenadines	2	0	11
Saint Lucia	1.8	3.6	18
Suriname	1.5	0.63	14
Trinidad and Tobago	1.7	0.3	32.7
Uruguay	19,36	3,19	0,69

Source: Reports IESM-World Health Organization: South America, Caribbean and Central America and the Dominican Republic.

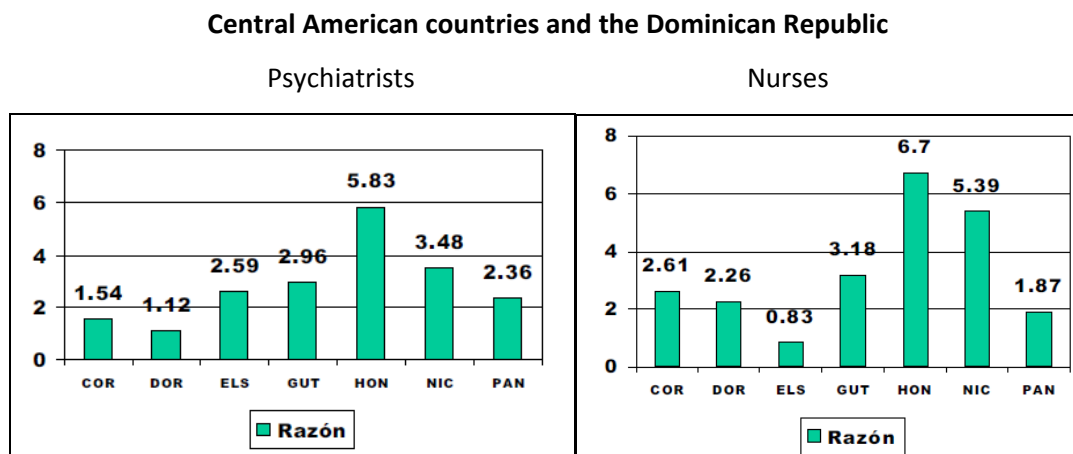
Figure 1. Institutional sector provision of psychiatrists.

South America. Values in



Source: IESM-World Health Organization: South America: page 26.

Figure 2. The ratio of the rate of psychiatrists and nurses who work in or near the largest city per 100,000 population compared to the whole country.



Source: IESM-World Health Organization: Central America and the Dominican Republic: pages 24 and 25.

Table 3. Mental health facilities in Central America.

Country	Psychiatric Hospital	Mental health outpatient facilities	Day hospitals	Psychiatric services in general hospitals	Residential Facilities
Costa Rica	2	38	2	26	35
Dominican Republic	1	56	1	9	1
El Salvador	2	49	0	0	0
Guatemala	2	32	2	2	0
Honduras	2	31	1	0	0
Nicaragua	1	34	5	3	31
Panama	1	103	3	8	0
TOTAL	11	343	14	48	67

Source: IESM-World Health Organization: Central America

Table 4. Number of beds per 100,000 inhabitants and places for people with substance abuse. South America.

Country	Beds per 100,000 Inhabitants	Places for people with substance abuse
Argentina	17	450 (1)
Bolivia	9,6	1276
Brazil	27,2	n/d
Chile	9,1	1226
Ecuador	1,2	n/d
Paraguay	7,8	n/d
Peru	4,0	n/d
Uruguay	34,9	6 (2)

Source: IESM-World Health Organization: South America. *Notas:*

(1) Incorporates places for people with substance abuse and for people with mental disabilities

(2) Applies to 6 residencies

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