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The non-medical use of prescription drugs: Policy direction issues

Background Paper

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The nonmedical use of prescription drugs: policy direction issues

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Section 1: Introduction

This paper provides background to support productive discussion in the meeting on the nonmedical use of prescription drugs on 21-25 June 2010, focusing on policy issues to address the problem. Section 1 introduces the issue of nonmedical use of prescription drugs and provides basic information on the kinds of controlled prescription drugs being diverted and used in nonmedical contexts, while section 2 exposes the available data about epidemiology and prevalence. Section 3 highlights some of the groups particularly vulnerable to nonmedical use of controlled prescription drugs, such as young people, older adults, healthcare professionals and women and some factors that lead to an increased use of Prescription Drugs. Section 4 exposes the consequences of the nonmedical use of Prescription Drugs in health, behaviour and society, and 5 discuss the conventions and regulations to avoid diversion. This paper also includes information about the role of the physicians and pharmaceutical companies in section 6. Section 7 contains information about the need of advocacy and prevention and section 8 some policies on treatment. The paper concludes with some key issues for discussion and some key definitions of the concepts used in Annex 1 and the list of substances in the schedules in Annex 2.

The nonmedical use of prescription drugs is a complex and unique issue and the aim of this background paper is not to be comprehensive in covering such a vast subject, but to provide a brief summary of some of the research that has been collected thus far and to highlight the need further research and the development of policies so that prevention and treatment programmes can be successfully designed.

Overview of the controlled prescription drugs being used in a nonmedical context

The most common classes of prescription medications used in a nonmedical context include *opioids* (for pain), *central nervous system depressants* (for anxiety and sleep disorders), and *stimulants* (for ADHD and narcolepsy). Opioids include hydrocodone (Vicodin®), oxycodone (OxyContin®), propoxyphene (Darvon®), hydromorphone (Dilaudid®), meperidine (Demerol®), and diphenoxylate. Central nervous system depressants include barbiturates such as pentobarbital sodium (Nembutal®), and benzodiazepines such as diazepam (Valium®) and alprazolam (Xanax®). Stimulants include dextroamphetamine (Dexedrine®), methylphenidate (Ritalin® and Concerta®), and amphetamines (Adderall®).

See Annex 2 for list of Substances in the Schedules

Section 2: Epidemiology/Alarm

Nonmedical use of psychotropic medication

The nonmedical use¹ of prescription drugs² is a global health concern. Although terms such as “use”, “misuse” and “abuse” are commonly used to describe the consumption of a drug for different purposes than intended, there is some scientific and legal ambiguity about the distinction among the three of them. Therefore, this document will refer to this with the term “nonmedical use”, which is currently used in the literature and by the international drug control conventions.

Advances in the pharmaceutical industry have led to the production of powerful psychoactive medicines which can greatly improve quality of life for those with access to safe, controlled psychotropic medication. However, when used inappropriately, controlled prescribed medication can have serious health consequences, and lead to dependence and addiction. Increased nonmedical use creates a greater demand for prescription medication. This leads to new sources of diversion from the medical use to the nonmedical use and abuse of these drugs and also leads to an increase in the demand for counterfeit drugs, which criminals will in turn supply (United States, Office of National Drug Control Policy, 2008). In its 2006 report, the International Narcotics Control Board (INCB)³ noted that medications containing narcotic or psychotropic drugs are becoming the drugs of choice for many abusers, and that drug traffickers are responding to the demand through increased diversion and the production of counterfeit drugs.

A global problem

Although existing available information about the nonmedical use of prescription drugs is not enough to know the dimension of the problem with accuracy, a systematic review showed alarming evidence in countries where the data is well collected.

Particularly in the USA, cannabis is the only illicit drug that is more widely abused than prescription drugs, including analgesics, stimulants, sedatives, and tranquilizers, according to the most recent INCB (2006) report. Between 1992 and 2003, for example, the number of US individuals abusing

¹ U.S government describes prescription drug abuse as “*using a drug that was not prescribed for you or that was taken only for the experience or feeling it caused.*” This primarily includes individuals who take a medication that was not prescribed for them solely for the purpose of getting high; however, it also may include individuals who take a friend’s or family member’s medication for an actual physical or mental problem. However, since there is some scientific and legal ambiguity about the distinctions between drug ‘use’, ‘misuse’ and ‘abuse’, this paper uses the term nonmedical use, which is the term currently used in the literature.

² A prescription drug is a licensed medicine that is regulated by legislation to require a prescription before it can be obtained. The term is used to distinguish it from over-the-counter drugs which can be obtained without a prescription.

³ The International Narcotics Control Board (INCB) is the independent and quasi-judicial control body for the implementation of the UN drug conventions. The INCB identifies and helps to correct weaknesses in drug control systems, determines which chemicals used to illicitly manufacture drugs should be under international control and issues annual reports on the worldwide drug situation.

prescription drugs increased from 7.8 million to 15.1 million. The 2002 National Survey on Drug Use and Health in the USA reported that 6.2 million Americans age 12 and older were users prescription drugs for nonmedical purposes. An estimated 4.4 million used pain relievers, 1.8 million used tranquilizers, 1.2 million used stimulants, and 0.4 million used sedatives. The burden on the U.S health system is significant. According to the U.S Drug Abuse Warning Network (DAWN)⁴, national estimates of drug-related emergency department visits from 2000-2002 data show that rates per 100,000 of emergency room mentions of narcotic analgesics/combinations (category consists of drugs containing narcotic analgesics alone as well as narcotics in combination with other drugs) increased 138.7% from 1995 to 2002 and 18.5% from 2001 to 2002 (The National Center on Addiction and Substance Abuse at Columbia University, 2005).

The demand of the illicit market in North America for OxyContin® has lead to distribution of counterfeit products containing illicitly manufactured fentanyl. The introduction of prescription drugs to Africa drastically increased the availability and use of psychoactive substances (Odejide, 2006). Countries and regions where distribution controls are weak and habit-forming drugs are purchased abroad or diverted from licit channels of distribution may be at increased risk.

Parts of Africa, South Asia and Europe are also facing this problem.

In Nigeria, for instance, pentazocine, an analgesic, is the second most common drug injected and the use of sedatives is higher in this country than the use cannabis. In South Africa, OTC and prescription medicine misuse places a burden on health and social services. This is evidenced through the constant demand for treatment for OTC/prescription medicine misuse. Benzodiazepines are the class of medicines for which users most often receive treatment, followed by analgesics. Analgesic misuse is most often accounted for by the use of codeine-containing medicines, many of which are available over the counter.

Patients using OTC/prescription medicines as their primary drug of abuse are significantly more likely to be female, and aged over 40 years, with benzodiazepines as main drug of abuse. In a study made in Cape Town, of the 111 patients reporting benzodiazepines as their primary substance of abuse, 74 (66.7%) were female. In contrast, patients using OTC/prescription medicine as an additional drug of abuse tend to be male and over 40 years of age.

OTC/prescription medicines were cited as secondary substances of abuse by 471 (5.2%) of the 9 063 cases and 62.1% of these cases were male. Benzodiazepines were the most frequently reported licit medicines misused, followed by analgesics. Some 62 (13.2%) of the 471 patients reported the additional misuse of other medicines that included slimming preparations,

⁴ The Drug Abuse Warning Network (DAWN) is a public health surveillance system that monitors drug-related visits to hospital emergency departments and drug-related deaths investigated by medical examiners and coroners (ME/Cs).

antidepressants (e.g. fluoxetine), stimulants (e.g. methylphenidate), and anaesthetics (e.g. ketamine) and 25.5% reported the misuse of other opioid analgesics, of which 100% were prescribed.

According to the INCB Annual Report 2006, in France, between 20 and 25 per cent of buprenorphine (Subutex®) might be diverted to the illicit market. Strong demand on the illicit markets of Scandinavia for flunitrazepam (Rohypnol®), a sedative, is increasingly met by illicitly manufactured counterfeit preparations.

In some countries of Latin America, such as Argentina, the use of medication under prescription is 27.5% and without prescription, 60% (27.5% OTC and 31.9% automedication). The drugs more used in automedications were the psychotropics 59.8% (anxiolytics 88.8%) y antibiotics 9.4%.

The rate of BZD use in Wuhan, China, middle school students was 4.0% with the rate of dependence as 4.1 per thousand. More commonly used drugs would include Diazepam (59%) and Surazepam (29.7%). In India, Buprenorphine, an analgesic and a drug prescribed for substitution treatment of drug dependency, is the main drug of injection in most areas of the country.

Most people who admit abusing prescription opioids, central nervous system depressant and stimulants are polysubstance abusers; they also admit excessive drinking or use of illicit drugs. Although most individuals who use prescription drugs nonmedically are poly-substance abusers, recent studies have reported that individuals aged 18 and over who abuse controlled prescription drugs *only* are likelier than poly-substance abusers to be female (60.9 percent vs. 45.1 percent), ages 35 or older (63.7 percent vs. 31.9 percent), married (59.3percent vs. 25.8 percent), better educated (24.7 percent vs. 15.8 percent are college graduates) and have higher incomes (81.7percent vs. 72.8 percent have family incomes of \$20,000 or more). Because the characteristics of prescription drug only abusers are different from those commonly associated with substance abusers, the abuse and addiction problems of these individuals may be overlooked by family, friends and healthcare professionals. Research is needed to further understand this type of user (The National Center on Addiction and Substance Abuse at Columbia University, 2005).

Section 3: Factors contributing to an increased Prescription Drugs use

In some countries, such as the US, the evidence has shown a decrease in the use of illicit drugs, while the use of prescription drugs has increased. This fact leads us to the question: are populations switching from the use of illicit drugs to Prescription Drugs abuse or new risk populations are emerging?

Increased availability and acceptance of nonmedical use of prescription drugs

Several factors have contributed to the severity of prescription drug abuse, including

- changes in the mentality of the doctors, who feel less 'afraid' of prescribing
- increased availability of prescription drugs
- need of an immediate solution (short-cuts)
- patient "doctor-shopping",
- greater amount of online pharmacies where a prescription is often not required
- greater social acceptance of using medications
- lack of proper screening tools
- lack of physician and pharmacist education on the issue of nonmedical use
- aggressive marketing by pharmaceutical companies

These and other factors have helped create the broad "environmental availability" of prescription drugs. The United States is becoming known for its "pill-popping culture" and there are concerns that the nonmedical use of prescription drugs will become a cultural norm in certain countries. In the 2008 INCB report, it was noted that

"Widespread recourse to so-called "lifestyle drugs", relating to obesity, sexual performance and stress related conditions, has also caused health problems in many regions. Individuals in all walks of life are increasingly looking to drugs, whether prescribed or illicitly acquired, as a palliative for the problems of the "modern world."

Risk populations

There are, however, certain groups that may be at a higher risk of using controlled medication in this way. This section of the paper focuses on four such groups- youth (children, adolescents and young adults), women, older adults and healthcare professionals. However other groups are also vulnerable and risk being overlooked due to a lack of epidemiological data. Incarcerated criminal offenders, for example, are likelier than the general, non-institutionalized population to have abused controlled prescription drugs⁵. Patients with acute or chronic pain are at a higher risk of abusing opiate medication and this will be discussed later in this paper. A higher than average level of prescription drug abuse compared to the general population can be found among those who are mentally ill, due in part to the greater reliance of these individuals on psychotropic medications to address their ailments. While some individuals with a mental illness abuse prescription drugs to self-medicate their problems, others may have legitimate

⁵ The National Center on Addiction and Substance Abuse at Columbia University (CASA). *Under the Counter: The Diversion and Abuse of Controlled Prescription Drugs in the U.S.* New York, NY: The National Center on Addiction and Substance Abuse at Columbia University; 2005.

prescriptions for these medications but begin to abuse them over time⁶. Individuals who are current abusers of alcohol or illicit drugs or have a history of such abuse are at increased risk for prescription drug abuse.

Youth

Prescription Drugs abuse and misuse is affecting mostly young people. Many adolescents and young adults misuse prescription drugs because they mistakenly believe that prescription drugs are safer than "street drugs" for a variety of reasons (DEA: Get Smart About Drugs, 2008)

- These are medicines;
- They can be obtained from doctors, pharmacies, friends or family members;
- It's not necessary to buy them from traditional "drug dealers"; and
- Information on the effects of these drugs is widely available in package inserts, advertisements and on the internet.

In the United States, the nonmedical use of prescription drugs ranks fourth among the most abused class of drugs by adolescents after alcohol, tobacco, and marijuana, respectively. Adolescents who abuse controlled prescription drugs are twice as likely to use alcohol, five times likelier to use marijuana, 12 times likelier to use heroin, 15 times likelier to use Ecstasy, and 21 times likelier to use cocaine, compared to those adolescents who do not abuse such drugs. Particularly dangerous (and common) is when young people indiscriminately mix and share prescription drugs, also combining them with alcohol or other drugs. (The National Center on Addiction and Substance Abuse at Columbia University, 2005.)

Nonmedical Use of Psychotherapeutics Among 12- to 17-Year-Olds

	Lifetime		Past Year		Past Month	
	1999	2000	1999	2000	1999	2000
Any Psychotherapeutic*	10.9	10.9	7.1	7.1	2.9	3.0
Pain Relievers	8.2	8.4	5.5	5.4	2.1	2.3
Tranquilizers	2.5	2.5	1.6	1.6	0.5	0.5
Sedatives	0.8	0.8	0.5	0.5	0.2	0.2
Stimulants**	3.9	4.0	2.1	2.4	0.7	0.8

⁶ The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2005) *Under the Counter: The Diversion and Abuse of Controlled Prescription Drugs in the U.S.*

Source: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, NHSDA.
*Denotes the nonmedical use of any prescription-type pain reliever, tranquilizer, stimulant, or sedative; does not include over-the-counter drugs.
**Includes methamphetamine.

A whole array of psychosocial factors can lead to the nonmedical use of prescription drugs in adolescents. One study of correlates of past-year nonmedical use of prescription stimulants and methamphetamine among adolescents aged 12 to 17 years using data from the 2002 U. S National Survey of Drug Use and Health (NSDUH) found that adolescents who reported high family conflict and sensation-seeking were more likely than their counterparts to use prescription stimulants nonmedically. Analyses also revealed that mental health treatment utilization and use of marijuana and other illegal drugs were correlated with nonmedical use of prescription stimulants and methamphetamine among adolescents (Hermann-Stahl et al, 2006).

Why are Adolescents and Young Adults Misusing Prescription Drugs?

There are several reasons why adolescents and young adults turn to prescription drugs and further research is needed into the correlates of nonmedical prescription drug use among youth (DEA, 2008).

- Young people may use to escape and boredom,
- In the preservation of friendships, romantic relationships, and family life,
- Competing for college admission, including competition for advanced placement and honors courses in high school;
- The balance between schoolwork, grades, and extracurricular activities like sports
- The desire to have the "ideal" physical appearance.

The nonmedical use of prescription drugs to enhance academic performance

Why are prescription drugs being used on university campuses?

Prescription drugs are put to a number of different purposes in the collegiate setting, including self-medication, socio-recreation, and academic functioning. University settings are often highly competitive and a person's academic performance influences students' career opportunities. University is also for many young people a time for experimentation. Quintero and colleagues (2006) conducted an exploratory study of socio-cultural factors contributing to prescription drug misuse among U. S college students found that the vast amount of personal and professional knowledge available regarding prescription drugs, along with their widespread availability, make these substances comparatively safe choices for college students. The known

composition and effects of pharmaceuticals make them attractive alternatives to other drugs and likely candidates for drug use experimentation and polydrug use. In a cultural environment where experimentation with drug use is often expected, prescription drugs provide a relatively risk free alternative to the use of "harder" drug (Quintero et al., 2006). The results of another study by Ford & Schroeder (2009) indicate a potential association between nonmedical use of prescription drugs and academic strain. Ford and Schroeder found that students who experience academic strain report higher levels of depression while students who report higher levels of depression are more likely to report the non-medical use of prescription stimulants.

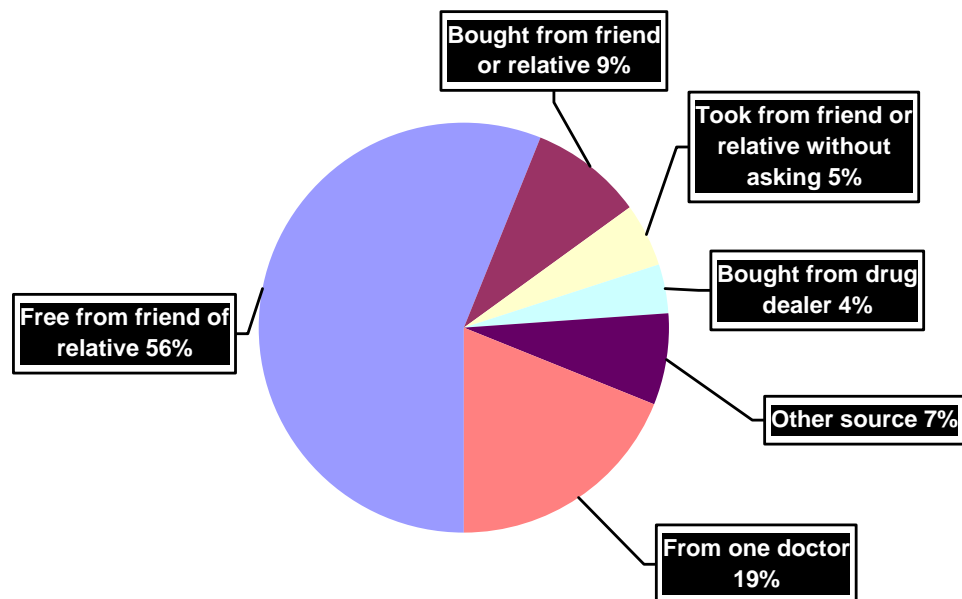
College students are taking stimulants without a medical need or prescription with the intent of enhancing their concentration, staying awake for long periods or improving their academic performance, therefore giving them an edge over their peers. According to one U.S student drug research survey conducted by Maryland Drug Early Warning System (DEWS), Adderall, a prescription stimulant used to treat attention-deficit hyperactivity disorder (ADHD) was thought by American college students to be misused more often than other prescription stimulants because it was prescribed more often and was easily accessible around campuses (DEWS, 2005). Drugs normally used for conditions such as Alzheimer's disease and attention deficit hyperactivity disorder (ADHD) are being used by students, these include donepezil (Aricept), galantamine (Reminyl) and rivastigmine (Exelon) for use in Alzheimer's, methylphenidate (Ritalin) for use in ADHD, the stimulant modafinil for narcolepsy and the amphetamine Dexedrine.

However doping can also prove detrimental to academic outcomes. Arria and colleagues, (2008) found nonmedical use of prescription drugs to be associated with poor academic outcomes. Nonmedical users of both stimulants and analgesics skipped 21% of their college classes whereas nonusers skipped 9%. "pharming" parties are also becoming popular on college campuses, where students use their social network to trade their prescription/OTC medications with a friend. They get high by ingesting a mix of pills, often with alcohol. These "cocktails" can be extremely dangerous and the consequences of drug-drug interactions can be fatal. University campuses should assess their drug policies to include nonmedical use of prescription drugs and this vulnerable group should not be overlooked in prevention efforts.

In addition to increased risk for other drug use, adolescents who report nonmedical use of prescription drugs are also more likely to engage in further risk behaviours such as skipping school, bringing drugs to school, getting high at parties, having friends who use marijuana and driving after binge drinking (The National Centre on Addiction and Substance Abuse at Columbia University, 2005.). Although one study conducted by Ford (2008) found illicit drug use to be more strongly associated with self-reported delinquency and arrest than the nonmedical use of prescription drug use, results still indicated nonmedical use of prescription drugs to be significantly associated with self-reported delinquency and arrest.

Patterns of use

Young people rarely obtain prescription drugs using methods commonly associated with pharmaceutical diversion such as pharmacy theft, prescription fraud, or doctor shopping--visiting numerous doctors to obtain multiple prescriptions. Instead, adolescents typically obtain prescription drugs from peers, friends, or family members. Law enforcement officers report that in some cases, particularly with regard to the stimulant Ritalin, teenagers who have legitimate prescriptions sell or give away the drug. Young people also acquire prescription drugs by stealing them from relatives and other individuals with legitimate prescriptions or from school medicine dispensaries.



Source of pain relievers for most recent nonmedical use among past year users 12 and over. Source: SAMHSA, 2006 National Survey on Drug Use and Health (September 2007).

Increased Vulnerability

The trends in adolescents are particularly problematic because adolescence is the period of greatest risk not only for drug experimentation but also for developing addiction. Also at this stage the brain is still developing and exposure to drugs could interfere with these developmental changes. The last part of the brain to fully mature is the prefrontal cortex, a region that governs

judgment and decision-making functions. This may help explain why adolescents are prone to risk-taking and why high rates of risky behaviours, including abuse of alcohol and other drugs, have been reported among those who abuse prescription drugs (Volkow, 2006).

According to the latest figures from “Monitoring The Future” -an ongoing study in the United States of the behaviours, attitudes, and values of American secondary school students, college students, and young adults- there are young people abusing prescription steroids for purposes of body sculpting and athletic performance, following the examples of professional and elite athletes. Rates of lifetime steroid abuse among high school students in the United States have increased 126 percent between 1991 and 2003, and the problem is particularly prominent among boys.

Therefore, drug control strategies at the national and international levels consistently emphasize initiatives aimed at reducing drug abuse among this risk population. This is reflected in the resolutions of the Commission on Narcotic Drugs and in the demand reduction programmes of the United Nations International Drug Control Programme. According to the most recent (2009) World Drug Report,

“analysing drug use among young people matters for several key reasons. First, most people start to use drugs during their youth and it is among young people that drug prevention activities are best targeted. Secondly, trends in the use of drugs among young people may indicate shifts in drug markets, since young people usually react to changes in drug availability or social perceptions about drug use more quickly than older people; such use is likely to be occasional drug use. Thirdly, starting drug use at an early age has been linked to negative health and social outcomes in later years.”

The vulnerability of young people raises a particular problem and specific measures are needed since prescription drugs are readily available and more socially acceptable than illicit drugs. These two factors may even lead to prescription drugs “replacing” certain illicit drugs for young people (Johnston et al., 2009). As stated in the 2009 World Drug Report “The overall decline in illicit drug use among young people in the United States and in some European countries is an encouraging sign. However, there are a number of published reports, particularly in the US indicating that the abuse of prescription drugs is on the rise among young people. This needs more research, but these reports suggest that young people may be shifting from illicit drugs to pharmaceutical drugs, which may be more easily accessible and socially acceptable”.

Women

Resolution on Women and drug abuse Resolution 3 (XXXVIII)

At its thirty-eighth session held in March 1995, the Commission on Narcotic Drugs discussed the issue of women and drug abuse and subsequently adopted resolution 3 (XXXVIII). As part of the resolution it was noted that “the particularly dangerous effects of dependence-producing substances during pregnancy, as well as the harmful behavioural and social consequences of drug abuse for the family and the need for Member States to include accordingly in their national policies and programmes drug abuse prevention programmes that specifically concern women”. States are also urged as part of the resolution “to recognize, assess and take into account in their national policies and programmes the problems that drug abuse poses for women and in collaboration with non-governmental organizations, to develop and test activities to respond in an innovative way to the problems that drug abuse poses for women”.

In her statement before The Subcommittee on Criminal Justice, Drug Policy, and Human Resources Committee on Government Reform U.S. House of Representatives, Nora Volkow, director of NIDA, advised that “Prescription drug abuse must be carefully tracked among women because of their combined vulnerabilities. First, women are more likely than men to suffer from depression, anxiety, trauma, and victimization, all of which frequently appear with substance abuse in the form of co-morbidities. Second, girls and women report using drugs to cope with stressful situations in their lives. Third, studies suggest that women are significantly more likely than men to be prescribed an abusable drug, particularly in the form of narcotics and anti-anxiety medications”⁷.

Women and nonmedical prescription drug use

Overall, men and women have roughly similar rates of nonmedical use of prescription drugs⁸. However studies suggest that women are more likely than men to be prescribed an abusable prescription drug, particularly narcotics and antianxiety drugs—in some cases, 55 percent more likely (CASA, 2005). Research suggests that women are also at increased risk for nonmedical use of narcotic analgesics and tranquilizers (e.g., benzodiazepines). According to one study assessing prescription and OTC drug abuse using data from specialist treatment centres in South Africa, Myers and colleagues (2003), found that patients prescription medicines as their primary drug of use were significantly more likely to be female, and aged over 40 years whereas

8. An exception is found among 12- to 17-year-olds. In this age group, young women are more likely than young men to use psychotherapeutic drugs nonmedically.

patients using prescription medicine as an additional drug of abuse tend to be male and over 40 years of age. Such findings highlight the need for further research investigating this specific and new kind of female user.

Research identifying the predictors of nonmedical use in women is sparse. One study found Lifetime Posttraumatic Stress Disorder, other forms of substance use/abuse, and a history of drug or alcohol facilitated rape to be significantly associated with increased likelihood of nonmedical use of prescription drugs (McCauley, 2009). Risk reduction efforts targeting non-medical prescription drug use among women who have experienced traumatic events and/or abuse substances are warranted. Trauma-focused interventions for drug or alcohol facilitated rape victims should include treatment or prevention modules that specifically address nonmedical use of prescription drugs (McCauley, 2009).

In addition to the risk to women is the potential for harm to the developing foetus. Therefore, more research is needed on the extent and patterns of prescription drug abuse during pregnancy. National projections from U. S survey data collected between 2002 and 2004 suggest that 109,000 pregnant women in the U.S abused pain relievers in the past year. There is overall less non-medical abuse of prescription psychotherapeutics among pregnant than among non-pregnant women (6% and 9.3%, respectively), although this is not the case in pregnant adolescent girls (15-17 years), in whom the rate of prescription drug abuse is higher than in those who are not pregnant (Volkow, 2006).

Research investigating predictors of nonmedical use which are specific to women is needed to better understand the role of gender in nonmedical use of prescription drugs. Preventing nonmedical use of prescription drugs is particularly important during pregnancy. Although actual nonmedical use rates are overall similar to those of men, women are a high risk group because of their extra vulnerabilities. Research is needed to tailor future prevention and treatment programmes to the needs of women. In addition, women abusing Prescription Drugs may not consider themselves drug dependents and, for that reason, they may be less likely to seek for treatment. In this case, health care professionals and authorities should look for new treatment and prevention programmes, maybe including workplace prevention or municipality prevention and treatment programmes.

Older Adults

An ageing global population

The United Nations report World Population Ageing 1950-2050 revealed that population ageing is unprecedented and without parallel in the history of humanity. Increases in the proportions of older persons (60 years or older) are being accompanied by declines in the proportions of the young (under age 15), and by 2050, the number of older persons in the world will exceed the number of young for the first time in history. Older adults represent an area of

particular concern regarding nonmedical use of prescription drugs, but this group is frequently overlooked. Considering the ageing global population, the nonmedical use of prescription medication among older persons could present a significant economic and social burden in the future. In the United States, for example, older persons represent less than 15 percent of the population, but they receive 25 per cent percent of the prescription medications (NSDUH, 2008).

Because of their high rates of comorbid illnesses, changes in drug metabolism with age, and the potential for drug interactions, the nonmedical use of medication can have more adverse health consequences among the elderly than are likely to be seen in a younger population (NIDA, 2008) A dose of valium which clears the system in 24 hours in a younger adult may take three times as long in an older adult. Elderly persons who take benzodiazepines such as Valium®, Librium®, and Xanax® are at increased risk for cognitive impairment, leading to possible falls as well as vehicular accidents. Cognitive impairment may be reversible once the drug is discontinued. Benzodiazepines (Valium) and narcotics (Librium) are two of the most commonly prescribed drugs of abuse by the elderly. Not all physicians know that prescribing benzodiazepines to elderly people is contradicted for these reasons. Therefore, physician education is a necessary part of any effort to curb the abuse of prescription medications.

Similar to most prescription drug abusers ages 18 and over, older persons using drugs nonmedically tend to be poly-substance users (CASA, 2005). Although the rates of illicit drug use in older adults is very low, research suggests that older persons frequently mix their medication or consume it with alcohol, which can lead to adverse side-effects. Elderly women in particular self-medicate with alcohol and/or prescription drugs to relieve chronic pain and insomnia. Alcohol interacts with many medications commonly prescribed for the elderly, including anti-hypertensives (Simoni-Wastila, 2004). Older patients are also more likely to be prescribed long-term and multiple prescriptions, which could lead to unintentional misuse.

Prescription drugs and abuse of the elderly

In nursing homes, prescription medications may be extensively used to control behaviour. Some studies have indicated that elderly in-patients and even those residing in intermediate care facilities may be receiving drugs that are either not recommended at all for elderly persons or inappropriately high doses of drugs such as benzodiazepines. Thus, elders may be being over-medicated by their caregivers. Over-medication is a form of elder abuse which requires urgent attention (Collopy & Jennings, 1991).

Older patients

Determining whether or not an elderly patient is abusing his/her medications takes a bio-medical approach by the physician. It has to be determined whether the patient has a biological disease, such as depression that is producing the abuse or whether the abuse has produced a biochemical brain disorder such as dementia or delirium. There must be an examination of the medical complications caused by the abuse as well as medical problems that may have been made worse due to the abuse. Psychological distress amongst the elderly can cause addictive behaviours but to fix the medical condition that is causing the distress the physician will need to prescribe the same types of medications that the patient has been abusing (Simoni-Wastila, 2003).

Healthcare professionals

Part of the problem?

Physicians, dentists, veterinarians and other healthcare workers who have access to controlled prescription drugs can contribute to the problem of nonmedical use in a number of ways. Although they have a professional responsibility to learn and abide by the relevant requirements their country's laws governing controlled substances and are professionally responsible for using controlled substances appropriately, guarding against abuse while assuring that patients receive needed medications is not an always an easy task. Healthcare providers may become involved in diversion, whether they intend to or not. They may be deceived by patients, ill informed, careless or dishonest, suffer from addiction themselves, or succumb to patient pressure to prescribe inappropriately (CASA, 2005) Placing the "blame" on healthcare professionals may not be justified, but prevention efforts should take into account the role of health professionals in the diversion and nonmedical use of prescription drugs.

Furthermore, while some health professionals may contribute to the misuse and abuse of prescription drugs because of inappropriate prescribing behaviors, others may provide inadequate pharmacotherapy for pain and other conditions because of fear that their patients will become addicted or that they will incur regulatory scrutiny (NIDA, 2008). Concerns about this within the medical profession are sufficiently high that some doctors prefer not to even work with patients who have ongoing pain issues. They also sometimes fear criticism from other doctors if they have high numbers of pain-related cases or prescribe significant amounts of pain medications (Hahn, 2009). Distinguishing between real cases and patients pressurizing for a prescription is a difficult task and professionals often receive very little training in this area. In CASA's 2005 survey of medical education and training, those physicians who had received instruction in dispensing controlled drugs, identifying prescription drug addiction and/or preventing diversion were significantly more likely than those without such instruction to be confident of their ability to detect diversion and abuse. However, physicians and

pharmacists often receive little or no instruction in identifying nonmedical use/diversion in medical school, and even less in continuing medical education (CASA, 2005).

Non-medical use of prescription drugs among healthcare professionals

Not only do health professionals contribute to the nonmedical use of prescription drugs, they may fall prey to the problem themselves. They tend to be at risk of nonmedical use because of their ready access to prescription drugs with abuse liability. Members of certain medical specialties, including anaesthesiologists, emergency medicine physicians family/ general practitioners and psychiatrists are at particularly high risk of prescription drug abuse. They can get controlled substances through legitimate venues. While easy access to prescription drugs is the best predictor of nonmedical use, other factors such as frequency of administering drugs are important indicators of nonmedical use among nurses, for example (CASA, 2005). The authors of a study of 50 pharmacists recovering from prescription drug abuse (Dabner & Hollinger, 1999) suggest that being and becoming a pharmacist presents a paradox of familiarity wherein technical knowledge and opportunity, in the absence of proper appreciation of the risks of substance abuse, can delude pharmacists into believing that they are immune to prescription drug abuse.

Storr, Trinkoff and Anthony (1998) found nurses more likely to be a recent non-medical drug user if they had a high strain job as compared to nurses in low strain jobs. In general, rates of illicit drug use are lower among physicians than the general public, but rates of prescription misuse are often higher among physicians (Merlo, 2008). Nonmedical use often commences almost "by accident" as the stressed, distressed, tired, and sometimes depressed clinician takes a dose of pain medicine or a tranquillizer to relieve a temporary physical discomfort and discovers that there is an unexpected "bonus effect" in the relief of mental and emotional tension, the soothing of depression, and the augmentation of energy and drive. This effect is then actively pursued by taking the no-longer-needed medication for a non-medical purpose, often with gradual increase in frequency of use and quantity of consumption until the full behavioural syndrome of addiction has set in and the person has become preoccupied with obtaining and using the medication in amounts far exceeding the normal dose and for reasons not related to the proper therapeutic usage of the drug (Garrett, 2009).

Section 4: Damage/Consequences

Physical consequences

Taking psychoactive prescription drugs for a long term can develop tolerance, needing larger doses to achieve the same initial effects. Continued use can lead to physical dependence and, when use is reduced or stopped, withdrawal.

A large single dose of an opioid could cause severe respiratory depression that can lead to death.

During the first few days of taking a prescribed CNS depressant, a person usually feels sleepy and uncoordinated, but as the body becomes accustomed to the effects of the drug, these feelings begin to disappear and the brain's activity can rebound and race out of control, potentially leading to seizures and other harmful consequences, when an individual stops taking them.

Repeated use of some stimulants over a short period can lead to feelings of hostility or paranoia. With long-term meth abuse, confusion, paranoia, hallucinations, paranoid psychosis, depression, memory loss cardiomyopathy, dermatologic lesions, poor dentition and weight loss may increase. Further, taking high doses of a stimulant may result in dangerously high body temperature and an irregular heartbeat. Besides, there is also the potential for cardiovascular failure or lethal seizures (NIDA, 2005).

Abuse of controlled prescription drugs is implicated in at least 23 percent of drug-related emergency department admissions and 20.4 percent of all single drug-related emergency department deaths. Prescription opioids accounted for more drug mentions involved in multiple drug-related deaths (18.9 percent) than cocaine (15.2 percent), heroin (12.6 percent) and marijuana (2.6 percent). Between 1994 and 2002, there was a 78.9 percent increase in the total number of controlled prescription drug-related mentions in emergency department visits, with prescription opioids demonstrating the sharpest increase (168 percent) over this period. Seven percent of all controlled prescription drug abusers report experiencing emotional or mental health problems caused or worsened by their abuse of the drugs

Dependence and addiction

When discussing prescription drugs, it is important to distinguish between physical dependence and addiction. One can become dependent on a drug--tolerant to its effects and suffer withdrawal when use is discontinued--without becoming addicted. Addiction is a chronic, relapsing disease characterized by compulsive drug seeking and use, craving and continued use despite harm.

As the manufacture and use of methamphetamine has increased, its impact has been felt beyond individuals, involving families and communities as well. In many communities, an increase in child neglect, violence and lack of resources for health care and social services has been reported.

Persons who begin using prescription drugs non-medically at an early age are more likely to be diagnosed with lifetime prescription drug abuse and dependence, according to an analysis of data from a national household survey conducted in the United States (McCabe et al., 2007). The study

revealed that an estimated 42% of those who reported that their first non-medical use of prescription drugs was at age 13 or younger also had a lifetime diagnosis of prescription drug abuse, compared to 17% of those who first used prescription drugs non-medically at age 21 or older.

Switching from one form of prescription medication to other forms is an interesting phenomenon among young users that warrants further attention and highlights the fact that the issue of nonmedical use of prescription drugs among children and adolescents is a complex one. Studies such as those of McCabe and colleagues highlight the importance of including children as a significant risk population when developing screening tools. For example, the surveillance of youth risk behaviour regarding prescription drugs could be expanded by including survey items assessing the nonmedical use of prescription drugs in national surveys of youth risk behaviour (Howard, 2009).

Crime associated with the nonmedical use of prescription drugs⁹

Crime and misuse of prescription drugs can be associated in two ways: crime under the influence of prescription drugs and crime to obtain drugs. The first kind of crime could be reflected in the rate of car accidents, due to disinhibited behaviour and the impairment of motor skills. The impaired cognitive performance can also lead to a state of fugue, which can cause amnesia and the “Rambo syndrome”, described as an uncharacteristic behaviour, engagement in assaults or shoplifting.

Section 5: Conventions and regulations

International Law

Since 1912, international treaties have required governments to control the production, trade and consumption of psychoactive drugs. The principal treaties in force today are:

- The Single Convention on Narcotic Drugs of 1954 (amended in 1972) aimed at combating drug abuse by coordinated international action.

- The Convention on Psychotropic Substances of 1971 which establishes an international control system for psychotropic substances.

- The United Nations (UN) Convention Against Illicit Traffic in Narcotic Drugs and psychotropic Substances (adopted in 1988) which presents legislative and administrative measures against drug trafficking, including provisions against money laundering and diversion of precursor chemicals.

The provisions of these treaties are binding only to the extent that they do not conflict with an individual signatory’s constitutional principles and the basic

⁹ Dobbin, M. (2009). Misuse of Pharmaceutical Drugs in Australia. Ministerial Council on Drug Strategy.

concepts of its legal system. While these treaties obligate governments to create stringent control mechanisms, they contain provisions to ensure that the restrictions are not so rigid as to adversely affect patients' access to needed medications.

Section 6: Medical and pharmaceutical role *Health care professionals*

Another reason that leads to the misuse of prescription drugs could be the lack of training of health care professional. Only 19.1 percent of physicians report to receive training in identifying prescription drug diversion in medical school; 39.2 percent receive such training in residency and 34.2 percent through continuing medical education. In medical school, 39.6 percent receive training in identifying prescription drug abuse and addiction; 61.4 percent receive such training in residency and 45.6 percent through continuing medical education. About half of pharmacists have received training in identifying prescription drug abuse and addiction (49.6 percent) and in preventing diversion (48.1 percent) since pharmacy school. Only about one-third of physicians and half of pharmacists rated the training they received in preventing the abuse or diversion of controlled prescription drugs as good or excellent. While most physicians (80.0 percent) feel qualified to diagnose prescription drug abuse and addiction and confident in their ability to know when a person is attempting to obtain controlled drugs for purposes of diversion or abuse (81.9 percent), other research calls this confidence into question. A survey of physicians conducted by CASA in 2000 found that 94 percent of physicians failed to identify the symptoms of alcohol abuse or addiction, even when given five diagnostic opportunities. An earlier CASA survey, in which physicians were presented with a hypothetical case of an older female patient with symptoms consistent with alcohol or prescription drug abuse, found that only one percent offered substance abuse as one of five possible diagnoses. Almost half of physicians find it difficult to discuss prescription drug abuse with their patients, only about half (53.8 percent) ask about prescription drug abuse when taking a patient's health history and only about half (54.5 percent) either always or most of the time call or obtain records from the patient's previous (or other treating) physician before prescribing controlled drugs on a long-term basis.

Pharmacists

A significant proportion of pharmacists (28.4 percent) do not regularly validate the prescribing physician's DEA number when dispensing controlled drugs. Others admit to dispensing a controlled drug without a written prescription order (but in response to a phone order) or based on a prescription order that is missing information. Steps that might help prevent controlled prescription drug diversion and abuse by patients include contacting a patient's prior physicians to identify those with an abuse/diversion history; medication contracts to help ensure adherence to a prescribed regimen; drug testing to monitor whether a patient has taken a prescribed drug; pill counts to ensure

that the patient has not used (or diverted) more than the indicated amount of a drug; prescribing limited doses of the drug at a time; and educating patients about the dangers of controlled prescription drug abuse. CASA's survey of physicians found that when suspecting a patient of diversion or abuse, only 27.8 percent usually require urine tests, 23.1 percent usually conduct pill counts and 36.9 percent usually create a medication contract.

Role of internet

The accessibility of prescription drugs on the internet means that almost anybody can turn to nonmedical use as internet now plays a central role in people's lives. Purchasing pharmaceuticals online can be beneficial, especially in areas where hospitals and pharmaceutical services are widely dispersed, it is alarmed that "rogue" pharmacies are encouraging drug abuse among vulnerable groups. In the United States, where the abuse of prescription drugs by young adults has risen sharply since 2002, it was reported that 34 illegal Internet pharmacies had dispensed more than 98 million dosage units of hydrocodone products during 2006. Given that in 84 per cent of cases a valid prescription was not required for purchase, the risks for youth and other vulnerable groups is clearly high (INCB, 2008).

Challenges for treatment providers

The nonmedical use of prescription drugs presents a major challenge for those involved in treatment. People who engage in nonmedical use of prescription medication may also potentially benefit from the appropriate use of the medication to treat an illness, which makes treating the nonmedical use itself a challenge for the treatment provider. Since most nonmedical users are also poly-substance users, this also complicates treatment (National Center on Addiction and Substance Abuse, 2005). Research also suggests that certain risk populations such as women may require different treatment approaches compared to men (Simoni-Wastila, 2003). The National Center on Addiction and Substance Abuse (2005) report highlighted the need for access to appropriate treatment for teenagers for whom prescription drug abuse often is part of a larger drug problem; adults for whom prescription drugs is their main drug problem and who may have become addicted to these drugs inadvertently as a result of using or misusing prescribed medications; and adult poly-substance abusers who more closely resemble the larger drug-abusing population and who need treatment options that address their abuse of prescription drugs in addition to their abuse of other substances, while not compounding their addiction. Those with a co morbid mental health illness or a history of previous substance abuse also need to be taken into careful consideration in the design of appropriate treatments for nonmedical use of prescription drugs.

Types of treatment

Years of research have shown us that addiction to any drug (illicit or prescribed) is a brain disease that, like other chronic diseases, can be treated effectively. No single type of treatment is appropriate for all individuals addicted to prescription drugs. Treatment must take into account the type of drug used and the needs of the individual. Successful treatment may need to incorporate several components, including detoxification, counselling, and in some cases, the use of pharmacological therapies. Multiple courses of treatment may be needed for the patient to make a full recovery (NIDA, 2009). No data exist that document how many of those who need treatment for prescription drug addiction receive it. In the U.S it is estimated that roughly 16 percent of those in need receive any kind of substance abuse treatment and only 11 percent of underage youth in need receive such treatment (U.S National Center on Addiction and Substance Abuse (2005). The likelihood is that this percentage is even lower in developing countries.

It is also important to remark that the attention of physicians and health care providers is usually focused in preventing and treating the dependence to illicit drugs, which leads to the undertreatment of prescription drugs abuse and dependence.

Behavioural treatments

Behavioural treatments include individual and group counselling and cognitive behavioural therapy (CBT¹). Cognitive behavioural therapy, which focuses on modifying the patient's thinking, expectations, and behaviours, while at the same time increasing skills for coping with various life stressors, also has been used successfully to help individuals adapt to the discontinuation of benzodiazepines. Inpatient programs tend to cater to middle-class patients and those with a co-occurring psychiatric problem. Typically, inpatient programs last up to 12 weeks, beginning with detoxification followed by various types of group or individual therapy. Research examining effective detoxification strategies for various classes of prescribed drugs with abuse liability is needed. Self-help (typically twelve-step) programs require total abstinence from drugs. Patients work through the 12 steps of these programs to reach and maintain sobriety. Some opioid abusers--including those who abuse prescription opioids--receive longer-term treatment in residential therapeutic communities. (The National Center on Addiction and Substance Abuse at Columbia University, 2005). Treatment of addiction to prescription stimulants, such as Ritalin, is often based on behavioural therapies that have proven effective in treating cocaine and methamphetamine addiction. Contingency management, for example, uses a system that enables patients to earn vouchers for drug-free urine tests. (These vouchers can be exchanged for items that promote healthy living.) recovery support groups may be helpful in conjunction with behavioural therapy (NIDA, 2009). No consistently effective pharmacological treatment has been developed to treat amphetamine abuse, so that psychosocial and behavioral approaches constitute the primary treatments available for MAdependent individuals.

However, even in the scope of psychosocial treatments, little research has been conducted to determine an effective treatment or distinguish between what actually works and what is delivered by default simply because it is part of standard community treatment’.

Pharmacological Treatments

Several options are available for effectively treating prescription opioid addiction. Little to no progress has been made in treating addictions to prescription CNS depressants or stimulants via pharmacological therapies. The options for treating opioid addiction are drawn from research regarding the treatment of heroin addiction, and include medications such as naltrexone¹, methadone¹, buprenorphine¹, and levo-alpha-acetyl-methadol (LAAM)¹. A useful precursor to long-term treatment of opioid addiction is detoxification. Detoxification in itself is not a treatment. Rather, its primary objective is to relieve withdrawal symptoms while the patient adjusts to being drug free. To be effective, detoxification must precede long-term treatment that either requires complete abstinence or incorporates a medication, such as methadone or buprenorphine, into the treatment program (NIDA, 2009)

Concerning adolescent prescription drug users, there are few studies comparing pharmacological detoxification with psychosocial intervention alone, which is the most used approach to treat opioid dependent adolescents. There is a debate on whether adolescents with opioid dependence should be treated with pharmacological therapies or whether they are to be considered “too young” for that, as well there is a debate regarding the choice between detoxification or maintenance treatments for this population.

Nonmedical use of prescription drugs and the treatment of pain

In 2007, 2.1 percent of persons aged 12 or older in the U. S (an estimated 5.2 million persons) reported using prescription pain relievers nonmedically in the past month. Trends in past month nonmedical use of pain relievers varied by age with declines among youths aged 12 to 17 (from 3.2 percent in 2002 to 2.7 percent in 2007), but increases among young adults aged 18 to 25 (from 4.1 to 4.6 percent) and adults aged 26 or older (from 1.3 to 1.6 percent) (NSDUH, 2009). The Treatment Episode Data Set (TEDS), administered by SAMHSA¹, collects data on admissions to Federally funded drug and alcohol addiction treatment programs in the United States. Between 1999 and 2003, treatment admissions for primary abuse of opioids other than heroin increased from 1 percent of all admissions (22,637 admissions) in 1999 to 3 percent in 2004 (63,243 admissions). According to data from the The National Center on Addiction and Substance Abuse at Columbia University’s report (2005), lifetime nonmedical pain reliever prevalence among youths aged 12 to 17 increased from 2001 (9.6%) to 2002 (11.2%), continuing an increasing trend from 1989 (1.2%). Among young adults aged 18 to 25, the rate increased from 19.4% in 2001 to 22.1% in 2002. The number of new initiates to nonmedical pain reliever use increased from 628,000 in 1990 to 2.7 million in 2000. About half (52%) of the new users in 2001 were females.

While some physicians may underestimate the prevalence of nonmedical use, other physicians may be at risk of under-prescribing those in serious need of pain medication (Novak et al., 2009). This leaves many pain patients needlessly suffering. Research is needed into educating physicians to nonmedical use of prescription drugs, and to ensure that those in pain are treated. However, increasing the use of opioids in the treatment of chronic non malignant pain could result in higher rates of nonmedical use.

- ☆ **Mechanisms of supervision of dosing (supervision of dispensing, increased frequency of dispensing) to limit the nonmedical use in the setting of medical need.**

Section 7: Need of advocacy/Awareness/Prevention

Prevention programmes

The most recent report (2008) published by the INCB (International Narcotics Control Board)-the independent and quasi-judicial control organ monitoring the implementation of the United Nations drug control conventions - suggested that governments use their drug abuse prevention programmes to draw attention to the high risks associated with the abuse of pharmaceutical preparations containing narcotic drugs. According to the report, evidence indicates that drug abuse prevention programmes are most effective when:

- (a) They are linked to the prevention of other problem behaviours such as alcohol and tobacco abuse
- (b) They are based on reliable information on the nature and extent of the drug abuse situation and on the risk and protective factors that prevail in the community
- (c) Programmes are tailored to age, gender and ethnicity, pay attention to the norms, values, aspirations and language of youth culture and involve the target group in planning, testing and evaluation
- (d) The approach extends beyond the focus on drugs: life-skills education approaches are those with the most solid evidence of effectiveness, while parent- and family-based interventions can be useful in reinforcing family bonding and relationships.
- (e) More vulnerable youth and families can be identified by health, education and social services and should be offered appropriate psychosocial support.
- (f) Media prevention campaigns are coordinated with corresponding activities at the grassroots level. It has been shown that media campaigns alone are unlikely to change attitudes or behaviour, despite effectively changing levels of information and awareness.

However, should prevention programmes be adapted to deal with the new, specific problem of prescription drug misuse? Does simply adding prescription drugs to a list of substances to avoid fail to address the complexity of this ever-increasing problem? Indeed, most children will go on to encounter prescription drugs throughout their lives- prescription drugs are not substances to be “avoided” like illicit drugs- they are a part of everyday life and can improve quality of life for many people when they are used correctly for their medical purpose. School and community programs designed to prevent prescription drug abuse are few and far between those that do exist have been launched primarily by pharmaceutical companies that manufacture drugs susceptible to diversion and abuse (CASA, 2005). If prevention programmes are to be tailored to the problem of prescription drugs, then reliable data on the nonmedical use of prescription drugs worldwide is urgently needed to assess the exact extent of the problem.

In some countries, like the US, the evidence has shown that the consume of illicit drugs, tobacco and alcohol can be addressed through prevention and lifeskills training, but the outcome of the prevention programmes aiming to reduce the abuse of prescription drugs do not demonstrate a significant change in consume patterns.

There is also a dearth of research investigating risk and protective factors. Without reliable epidemiological data and extensive scientific research, the criteria b), c), e) and f) of the above list, for example, would remain unfulfilled. However, is it really necessary to modify drug prevention programmes to cater for nonmedical users of prescription drugs?

The evidence has shown that universal substance use preventive interventions can be used to prevent the nonmedical use of prescription drugs. Interestingly, none of the interventions which were evaluated by Spoth and colleagues in their evaluation of long-term findings for preventive evaluations (2008) had content specific to the prevention of prescription drug misuse; the observed intervention effects probably were obtained by addressing general factors predictive of substance abuse targeted by the family and school preventive interventions. This was, however, the first study of its kind that evaluated long-term findings from preventive interventions for general populations. The interventions tested were the Iowa Strengthening Families Program (ISFP)¹, Preparing for the Drug- Free Years¹ (PDFY) and a control condition. The study revealed that both students taking part in the ISFP and those taking part in the PDFY reported significantly less past year and lifetime nonmedical opioid use than control condition participants, with the ISFP programme proving most effective. The results of the study also suggested that combining a school-based and a family-focused intervention is advantageous, though more studies like that of Spoth and colleagues are needed to investigate such interventions further and to examine whether programmes need to be adapted to the specific issue of prescription drugs.

The results of another recent U.S, NIDA-funded study also show that beginning prevention programs early can yield great rewards. The Positive Action program was a trial that took place in 20 public elementary schools (Kindergarten through fifth grade, or Kindergarten through sixth grade) on

three Hawaiian islands (Beetman, in press). The study followed two cohorts of students and who received up to four years of the intervention. In the fifth grade, students were asked to complete a questionnaire. Results showed a 58 percent reduction in self-reported substance use. The study's authors note there were four key factors that were most likely responsible for the large effect sizes:

- (1) interactive presentation formats;
- (2) a comprehensive approach that involved students, teachers and parents;
- (3) a comprehensive approach to social and emotional development; and
- (4) the intensive nature of the program. This study highlighted the fact that when initiated early, prevention programs can have dramatic and lasting effects.

Much of the research to date has focused on prevention programmes which seek to minimize the nonmedical use with children and young people. Research is also needed to focus on the adult population in general, and high-risk populations such as older adults and healthcare professionals. Further research which investigates the factors in the workplace related to substance abuse problems such workplace culture, social control, alienation, occupational stress, and availability of drugs. Studies are needed to improve the recognition and referral for intervention of employee prescription drug misuse and abuse in the workplace to ensure timely and appropriate referral for treatment. Research is needed on educational approaches to increase workforce awareness of prescription drug misuse and abuse.

Information campaigns

People tend to view prescription medication as safer than illicit drugs (CASA, 2005) should perhaps influence how information campaigns, for example, are conducted. In the U.S the National Institute on Drug Abuse (NIDA) distributed 400,000 postcards containing messages about the dangers of prescription drug abuse to restaurants, bookstores, clubs, record stores, coffee shops, gyms and other locations in several major cities. The 1995 World Programme of Action for Youth on Drug Abuse stated that for programmes and policies to be effective and credible in preventing drug abuse, particularly long-term and high risk drug-taking, they must take into account and address the underlying factors that cause young people to initiate drug abuse. There is a need for the information campaigns implemented thus far to be independently evaluated.

Prevention through technological advances

Pharmacists have much more patient information at their disposal, thanks to pharmacy computer systems and a proliferation of state online prescription-tracking databases. The availability of patient information is only expected to increase as electronic health records are adopted by more and more doctors. As a result, consumers, government officials and pharmacies themselves are increasingly asking what a pharmacy is legally and ethically obligated to do with this newly available information (Merrick, 2009). Hospitals are also beginning to introduce medication dispensers with integrated monitoring

systems to prevent diversion among patients and hospital workers. A consideration is also needed to establish the length of the treatment and how this period of opioid use will end, in order to avoid an indefinitely continued intake.

Clinical prevention methods

A number of other tactics can be employed to address diversion and abuse such as asking for a second opinion from another clinician, calling other physicians that the patient visits, providing the patient with educational materials about abuse and addiction, and paying close attention to easing patients off the drug. While much medical attention is paid to prescribing drugs to treat health problems and reduce symptoms, physicians may be less likely to attend to the process of helping patients recognize signs that they may be becoming addicted to a drug or helping them to taper off a medication as conditions improve. Clinicians can also use Medication contracts/agreements (There is some controversy and a lack of research on the usefulness of these contracts), urine drug testing and pill counts.

There are also various actions a physician can take to prevent drug seekers from altering prescriptions. One such method is using tamper free prescription pads that are designed to help prevent forgery. Physicians can write prescriptions so that it is difficult to change or alter the prescribed drug dosage (e.g., write out the dose in words instead of numbers--for example it is easier to add a zero to the number "10" to make it "100" than to modify the word "ten" into the word "hundred") and to keep their prescription pads in a safe place where patients do not have access (National Center on Addiction and Substance Abuse, 2005).

- ☆ **Review of people receiving long term prescriptions of opioids who might be selling them as a preventive mechanism.**
- ☆ **Financial incentives given by pharmaceutical companies for practitioners to prescribe rather than try to use other approaches.**

Section 8: Policy on Treatment

As said in a previous section, a specific treatment for prescription drug use has not been established yet. However, it is known that more than one approach is needed for a full recovery, such as detoxification, counseling and pharmacological therapies. Behavioral treatments include cognitive behavioral therapy. Regarding pharmacological therapies, several options are available only to treat prescription opioid dependence, but not for treatment of stimulants and depressants dependence.

Detoxification is not a treatment itself, it is better consider as a primary step to address withdrawal symptoms.

- ☆ **Detoxification, supervised prescription, gradual reduction of doses to be completed.**

Treatment Recommendations

The U.S National Center on Addiction and Substance Abuse suggested that state mandated benefit laws should require managed care and private health insurance companies to reimburse physicians and dentists for time spent screening patients for substance abuse and addiction, referring them to treatment if needed and costs of treatment, and collaborating with pharmacists to prevent diversion and abuse. They also recommended that treatment programs should make medical assessment a standard part of treatment for prescription drug abusers so that any underlying medical condition (e.g., pain, ADHD, insomnia) that might compromise treatment for abuse can be addressed. Treatment programs should address co-occurring disorders and, where appropriate, combine evidence-based behavioural therapy with available pharmacological interventions. Research has been undertaken into the possibility of identifying medication to block cravings for specific drugs other than opioids such as benzodiazepines (NIDA, 2009) without creating secondary dependency, but much remains to be done in this area. The need for medical and social research in the treatment of substance abuse as well as rehabilitation, has become more urgent, particularly with the world-wide increase in abuse and addiction among young people (Youth and the United Nations, 2009).

Improved screening tools and better education of physicians concerning the issue of nonmedical use of prescription drugs in general are needed. Many tools used to screen for substance abuse do not include items on nonmedical use of prescription drug use (Savage, 2009) Studies which utilize e-health tools such as computers and portable digital and wireless devices are also needed to improve access to treatment for prescription drug abuse and/or augment provision of treatment by health care providers. Research is needed to determine the factors that may affect access to treatment for prescription drug abuse and addiction, including treatment entry, readiness for treatment, retention in treatment, compliance with treatment, and treatment outcomes among prescription drug abusing women, adolescents, older adults, and racial/ethnic minorities (NIDA, 2009).

According to the guidelines produced by the U. S Substance Abuse and Mental health Services Administration (SAMHSA, 1998) and Schonfeld & Dupree(1997)

- Age-specific, group treatment - supportive, not confrontive
- Attend to negative emotions: depression, loneliness, overcoming losses
- Teach skills to rebuild social support network
- Employ staff experienced in working with elders
- Link with aging, medical, and institutional settings

- Slower pace & age-appropriate content
- Create a “culture of respect” for older clients
- Broad, holistic approach to treatment recognizing age-specific psychological, social & health aspects
- Adapt treatment to address gender issues, or the particular risk population one is catering to, for example young people. With older adults, for example, fewer relapses occur in elder-specific treatment programs than those in mixed-age treatment and when relapses do occur there tends to be longer periods between them

How to adapt treatment to the needs of those who engage in nonmedical use of prescription drugs only, those who are poly-substance users, or those with a co morbid illness (especially mental illness), remains a challenge for treatment providers worldwide and without the necessary research into treating the nonmedical use of prescription drugs, governments may be facing larger burdens on their health systems in the years ahead.

Key issues

The nonmedical use of prescription drugs is a unique and complex issue and due to a lack of epidemiological data, the exact extent of the problem worldwide remains unknown. What complicates the issue further is that governments cannot simply make these substances illicit as they are, for many worldwide, a necessary part of daily life. Since the data from the United States show that prescription drugs are rapidly becoming the drug of choice for many segments of society, other governments in both developed and developing countries should begin to take action to prevent nonmedical use of controlled prescription drugs. This could be achieved in a number of ways.

- Awareness-raising among clinicians, researchers, policy makers
 - Awareness-raising among teachers, parents and youth
 - Further research exploring the risk and protective factors for nonmedical use of prescription drugs
 - Research on how to improve prevention and treatment efforts
 - Research examining whether tailoring prevention and treatment efforts is necessary for this particular kind of substance misuse
 - Research into the specific risk populations affected
 - Reliable epidemiological data is urgently needed to assess the extent of the problem
 - How to treat poly-substance users and those with a co morbid illness.
 - Sources of diversion from the production setting, to the storage setting, to the healthcare setting, patient setting and internet setting need to be constantly monitored by governments.
 - Further research is needed examining over-the-counter medicines, and new “legal highs” such as the stimulant mephedrone (4-methylmethcathinone) and how these substances are misused (combined with alcohol, prescription drugs etc.) and obtained via the internet.
 - Urgent need to educate healthcare professionals about the issue and train them in screening tools.
 - Governments need to take an official stance on the issue of nonmedical use by directly addressing the issue of nonmedical use of controlled prescription drugs in drugs legislation etc.
- ☆ **Registers in countries for people taking strong psychoactive medication for more than a period of time, permit systems, etc.**

Recommendations

The most successful prevention strategy is effective communication between the healthcare provider and the patient and/or caregiver. Due to complicated treatment regimens and potential side effects; it is important that health care providers discuss these issues with the patient. It also important to note, that the patient be forthcoming with their over-the-counter medications, herbs and vitamins; while taking prescription drugs, and that patients realize that often detrimental effects of mixing their medication, and mixing alcohol with prescription drugs.

Research is needed to identify the components of effective prevention and treatment approaches targeted toward health professionals. Best practices and training protocols for health care workers require research not only on approaches, but also on methods to transfer science into the field. There is a need to develop and evaluate innovative science based education approaches for health professionals (NIDA, 2008). Other predictors of nonmedical use in healthcare professionals also warrant investigation.

Annex 1

Some key definitions

Prevalence

Prevalence is the number of all new and old cases of a disease or occurrences of an event during a particular period. Prevalence is expressed as a ratio in which the number of events is the numerator and the population at risk is the denominator¹.

Prescription drug

A prescription drug is a licensed medicine that is regulated by legislation to require a prescription before it can be obtained. The term is used to distinguish it from over-the-counter drugs which can be obtained without a prescription. Different jurisdictions have different definitions of what constitutes a prescription drug.

Healthcare practitioner

Healthcare practitioners work in either inpatient or outpatient facilities. Inpatient facilities include hospitals, nursing homes, and psychiatric care facilities. Outpatient healthcare settings include doctors' offices, ambulatory surgery centers, outpatient care facilities, home health agencies, medical laboratories, dental offices, and other types of patient care offices. Examples of jobs classified as healthcare practitioner positions include: doctors, nurses, nursing assistants, physical therapists, chiropractors, dentists, respiratory therapists, surgical technicians, radiologists, ultrasound technicians, dentists, and many other occupations¹.

Over-the-counter drug

Over-the-counter (OTC) drugs are medicines that may be sold directly to a consumer without a prescription from a health care professional, as compared to prescription drugs, which may only be sold to consumers possessing a valid prescription. In many countries, OTC drugs are selected by a regulatory agency to ensure that they are ingredients that are safe and effective when used without a physician's care. It is important to note that OTC drugs are regulated as ingredients, not final products. By doing so governments allow manufacturers freedom to formulate ingredients, or combinations of ingredients, into proprietary mixtures.

The term over-the-counter may be somewhat counter-intuitive, since, in many countries, these drugs are often located on the shelves of stores like any

other packaged product. In contrast, prescription drugs are almost always literally passed over a counter from the pharmacist to the customer. Some drugs may be legally classified as over-the-counter (i.e. no prescription is required), but may only be dispensed by a pharmacy employee after an assessment of the patient's needs and/or the provision of patient education. In many countries, a number of OTC drugs are available in establishments without a pharmacy, such as general stores, supermarkets, gas stations, etc. Regulations detailing the establishments where drugs may be sold, who is authorized to dispense them, and whether a prescription is required vary considerably from country to country.

Non-medical use

Non-medical use means the use of a substance for an improper purpose other than intended by the manufacture.

Controlled substance

A controlled substance is generally a drug or chemical whose manufacture, possession, and use are regulated by a government. This may include illegal drugs and prescription medications.

Licit drug

A licit drug is a drug that is used legally, for examples over-the-counter drugs used as directed or prescription medicines used by intended person for prescribed usage.

Substance abuse

Substance abuse refers to the overindulgence in and dependence of a drug or other chemical substance leading to effects that are detrimental to the individual's physical and mental health, or the welfare of others.

Painkillers

Painkillers are any members of the group of drugs used to relieve pain (achieve analgesia).

Central Nervous System (CNS) stimulants

Central Nervous System stimulants, also sometimes called psychostimulants, are psychoactive drugs which induce temporary improvements in either mental or physical function or both. Examples of these kinds of effects may include enhanced alertness, wakefulness, and locomotion, among others. Due to their effects typically having an "up" quality to them, stimulants are also occasionally referred to as "uppers".

Central Nervous System (CNS) depressants

Central Nervous System depressants are psychoactive drugs which temporarily diminish the function or activity of a specific part of the body or mind.[1] Examples of these kinds of effects may include anxiolysis, sedation, and hypotension. Due to their effects typically having a "down" quality to them, depressants are also occasionally referred to as "downers".

Tranquiliser

A Tranquiliser is a substance that induces sedation by reducing irritability or excitement. At higher doses it may result in slurred speech, staggering gait, poor judgment, and slow, uncertain reflexes. Doses of sedatives such as benzodiazepines when used as a hypnotic to induce sleep tend to be higher than those used to relieve anxiety where as only low doses are needed to provide calming sedative effects. Tranquiliser is often referred to as Sedative.

Sedative

See Tranquilizer

Benzodiazepine

A benzodiazepine is a psychoactive drug whose core chemical structure is the fusion of a benzene ring and a diazepine ring. Benzodiazepines enhance the effect of the neurotransmitter gamma-aminobutyric acid, which results in sedative, hypnotic (sleep-inducing), anxiolytic (anti-anxiety), anticonvulsant, muscle relaxant and amnesic action. These properties make benzodiazepines useful in treating anxiety, insomnia, agitation, seizures, muscle spasms, alcohol withdrawal and as a premedication for medical or dental procedures. Benzodiazepines are categorized as either short-, intermediate- or long-acting. Short- and intermediate-acting benzodiazepines are preferred for the treatment of insomnia; longer-acting benzodiazepines are recommended for the treatment of anxiety.

Opioid

An opioid is a chemical that works by binding to opioid receptors, which are found principally in the central nervous system and the gastrointestinal tract. The receptors in these two organ systems mediate both the beneficial effects and the side effects of opioids. The analgesic effects of opioids are due to decreased perception of pain, decreased reaction to pain as well as increased pain tolerance. The side effects of opioids include sedation, respiratory depression, and constipation. Opioids can cause cough suppression, which can be both an indication for opioid administration or an unintended side effect. Physical dependence can develop with ongoing administration of opioids, leading to a withdrawal syndrome with abrupt discontinuation. Opioids can produce a feeling of euphoria, and this effect, coupled with physical dependence, can lead to recreational use of opioids by some individuals.

Narcotic

A narcotic is a member of a class of drugs that produce narcosis or at least drowsiness, stupor and numbness and are sometimes prescribed medicinally as analgesics, anaesthetics or hypnotics and sometimes taken as street drugs, high dosages leading to depressed respiration, convulsions, coma and death. Prolonged use often results in addiction and dependence. The word is often misapplied, even by government agencies, to addictive drugs in general even without the effects described above¹.

Analgesic

See Painkiller

Young people

Between childhood and adulthood, described as the period of physical and psychological development from the onset of puberty to maturity and early adulthood. Definitions of the specific age range that constitutes youth vary. An individual's actual maturity may not correspond to their chronological age, as immature individuals exist at all ages.

Older adults

Most developed world countries have accepted the chronological age of 65 years as a definition of 'elderly' or older person, but like many westernized concepts, this does not adapt well to the situation in Africa. While this definition is somewhat arbitrary, it is many times associated with the age at which one can begin to receive pension benefits. At the moment, there is no United Nations standard numerical criterion, but the UN agreed cutoff is 60+ years to refer to the older population.

Diversion

Diversion is the use of prescription drugs for recreational purposes. The term comes from the "diverting" of the drugs from their original purposes. (United States Drug Enforcement Administration)

Addiction

A state of dependency on a chemical substance, especially on a drug such as alcohol, nicotine or caffeine or a narcotic such as morphine or heroin, characterized by a strong physiological and/or psychological need and a compulsive inability to resist taking the drug despite anticipation of probable adverse consequences, withdrawal if there is an abrupt deprivation of the substance and in some cases drug tolerance. See also dependence¹.

Dependence

A psychological and sometimes physical state of reliance on a substance, especially on a narcotic drug such as cocaine and heroin, but also on everyday drugs such as nicotine, caffeine, or alcohol, characterized by a compulsion to take the drug in order to experience its effects and generally also withdrawal and tolerance A psychological and sometimes physical state of reliance on a substance, especially on a narcotic drug such as cocaine and heroin, but also on everyday drugs such as nicotine, caffeine, or alcohol, characterized by a compulsion to take the drug in order to experience its effects and generally also withdrawal and tolerance¹

Drug-Drug Interactions

Drug-drug interactions occur when two or more drugs react with each other. This may cause you to experience an unexpected side effect. For example, mixing a drug you take to help you sleep (a sedative) and a drug you take for allergies (an antihistamine) can slow your reactions and make driving a car or operating machinery dangerous.

Drug-Condition Interactions

Drug-condition interactions may occur when an existing medical condition makes certain drugs potentially harmful. For example, if you have high blood pressure, you could experience an unwanted reaction if you take a nasal decongestant.

Annex 2

List of Substances in the Schedules

Substances in Schedule I

- Brolamfetamine
- Cathinone
- Eticyclidine
- Atryptamine
- (+)-Lysergide
- Psilocybine
- Rolicyclidine
- Tenamfetamine
- Tenocyclidine

Substances in Schedule II

- Amfetamine
- Dexamfetamine
- Fenetylline
- Levamfetamine
- Mecloqualone
- Metamfetamine
- Metamfetamine Racemate
- Methaqualone
- Methylphenidate
- Phencyclidine
- Phenmetrazine
- Secobarbital
- Dronabinol
- Zipeprol

Substances in Schedule III

- Amobarbital
- Buprenorphine
- Butalbital
- Cathine
- Cyclobarbital
- Flunitrazepam
- Glutethimide
- Pentazocine
- Pentobarbital

Substances in Schedule IV

- Allobarbital
- Alprazolam
- Amfepramone
- Aminorex
- Barbital
- Benzfetamine
- Bromazepam
- Brotizolam
- Camazepam
- Chlordiazepoxide
- Clobazam
- Clonazepam
- Clorazepate
- Clotiazepam
- Cloxazolam
- Delorazepam
- Diazepam
- Estazolam
- Ethchlorvynol
- Ethinamate
- Ethyl Loflazepate
- Etil Amfetamine
- Fencamfamin
- Fenproporex
- Fludiazepam
- Flurazepam
- Halazepam
- Haloxazolam
- Ketazolam
- Lefetamine
- Loprazolam
- Lorazepam
- Lormetazepam
- Mazindol
- Medazepam
- Mefenorex
- Meprobamate
- Mesocarb
- Methylphenobarbital
- Methyprylon
- Midazolam
- Nimetazepam
- Nitrazepam
- Nordazepam
- Oxazepam
- Oxazolam
- Pemoline
- Phendimetrazine
- Phenobarbital
- Phertemine
- Pinazepam
- Pipradrol
- Prazepam
- Pyrovalerone
- Secbutabarbital
- Temazepam
- Tetrazepam
- Triazolam
- vinylbital

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(according to the section/topic in which they appear)

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