2004 Postgraduate Course for Training in Medicine

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OBJECTIVES

- **Review basic issues in the field of substance use, including types of drugs used and the motivations for drug use**
- **Highlight the distinctions between the concepts of use, abuse and dependence**
- **Review the epidemiology of alcohol and drug use in the world as a whole and in different WHO regions**

OBJECTIVES

- **Present the problems associated with psychoactive substance use, including the health burden attributable to these substances**
- **Discuss treatment issues related to psychoactive substance use**
- **Familiarize participants with measurement issues and tools in the fields of alcohol and other drug research**

PSYCHOACTIVE SUBSTANCES
The Seven Drug Families

- Nicotine
- Sedative-hypnotics (alcohol & related drugs)
- Opioids
- Stimulants (caffeine, cocaine and amphetamines)
- Cannabis
- Hallucinogens

WHY SUBSTANCE USE?

- Are “addicts” born or made?

- Biological factors
- Social/environmental factors
- Psychological factors
  - “The addictive personality theory”

DEFINITIONS

- Substance vs. drug
- Substance use
- Substance abuse
- Substance dependence
- Licit and illicit substances
- Harmful use of alcohol
- Hazardous use of alcohol
- Problem drinking

Harmful & Hazardous Use

Harmful Use

- A pattern of psychoactive substance use that is causing damage to health. The damage may be physical or mental.

Hazardous use

- A pattern of psychoactive substance use that increases the risk of harmful consequences for the user.

Substance abuse

- Persistent or sporadic drug use inconsistent with or unrelated to acceptable medical practice. A maladaptive pattern of substance use leading to clinically significant impairment or distress, as manifested by one (or more) of the following: failure to fulfil major role obligations at home, school or work; substance use in situations in which it is physically hazardous; recurrent substance-related legal problems; continued substance use despite having persistent or recurrent social or interpersonal problems exacerbated by the effects of the substance.

CRITERIA FOR SUBSTANCE DEPENDENCE IN ICD-10

Three or more of the following must have been experienced or exhibited at some time during the previous year:

- Difficulties in controlling substance-taking behaviour in terms of its onset, termination, or levels of use
- A strong desire or sense of compulsion to take the substance
- Progressive neglect of alternative pleasures or interests because of psychoactive substance use, increased amount of time necessary to obtain or take the substance or to recover from its effects
- Persisting with substance use despite clear evidence of overtly **harmful consequences**, such as harm to the liver through excessive drinking, depressive mood states consequent to heavy substance use, or drug-related impairment of cognitive functioning. Efforts should be made to determine that the user was actually, or could be expected to be, aware of the nature and extent of the harm.
- Evidence of **tolerance**, such that increased doses of the psychoactive substance are required in order to achieve effects originally produced by lower doses
- A physiological **withdrawal** state when substance use has ceased or been reduced, as evidenced by: the characteristic withdrawal syndrome for the substance; or use of the same (or a closely related) substance with the intention of relieving or avoiding withdrawal

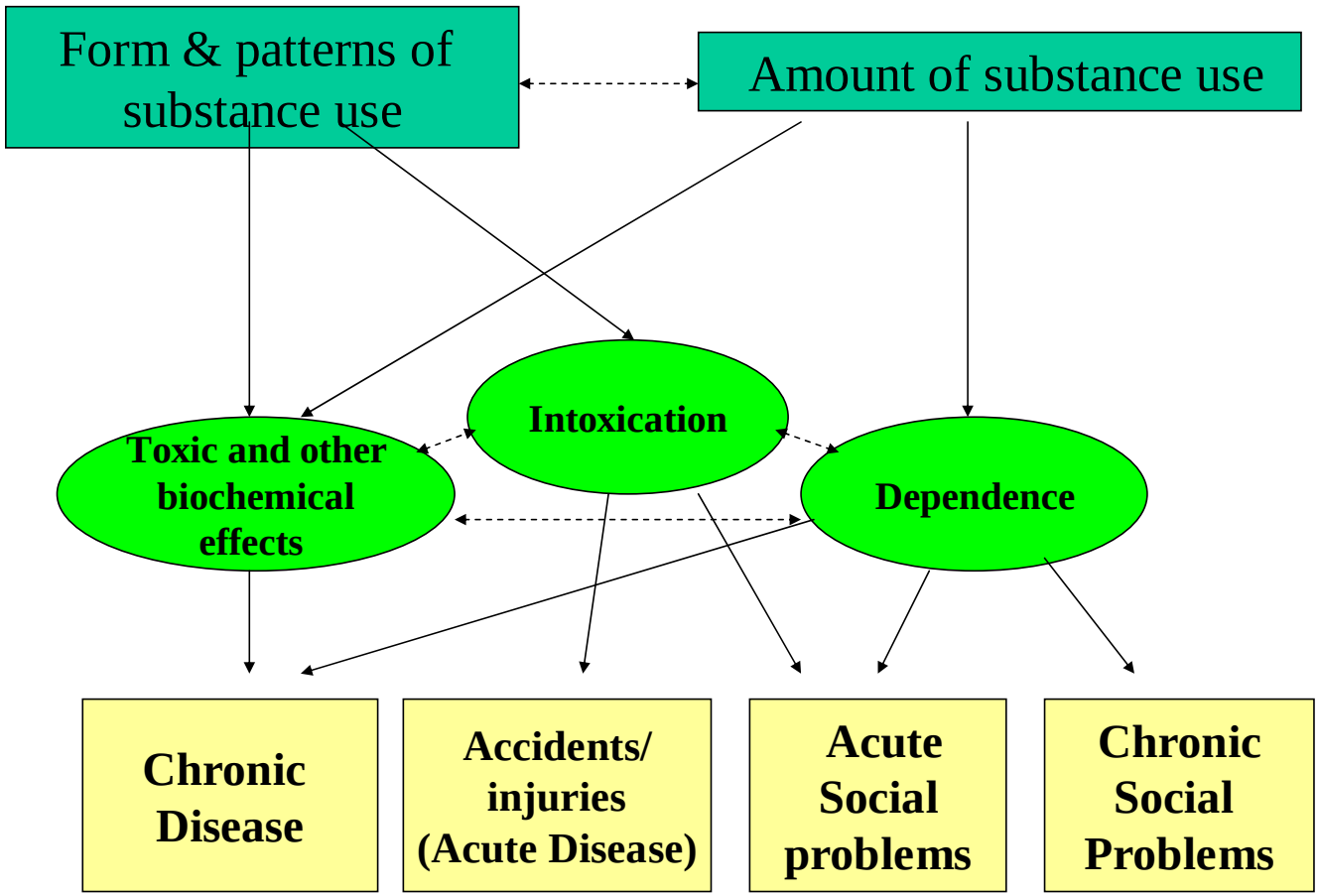
CRITERIA FOR SUBSTANCE DEPENDENCE IN DSM-IV

According to the DSM-IV, substance dependence is:

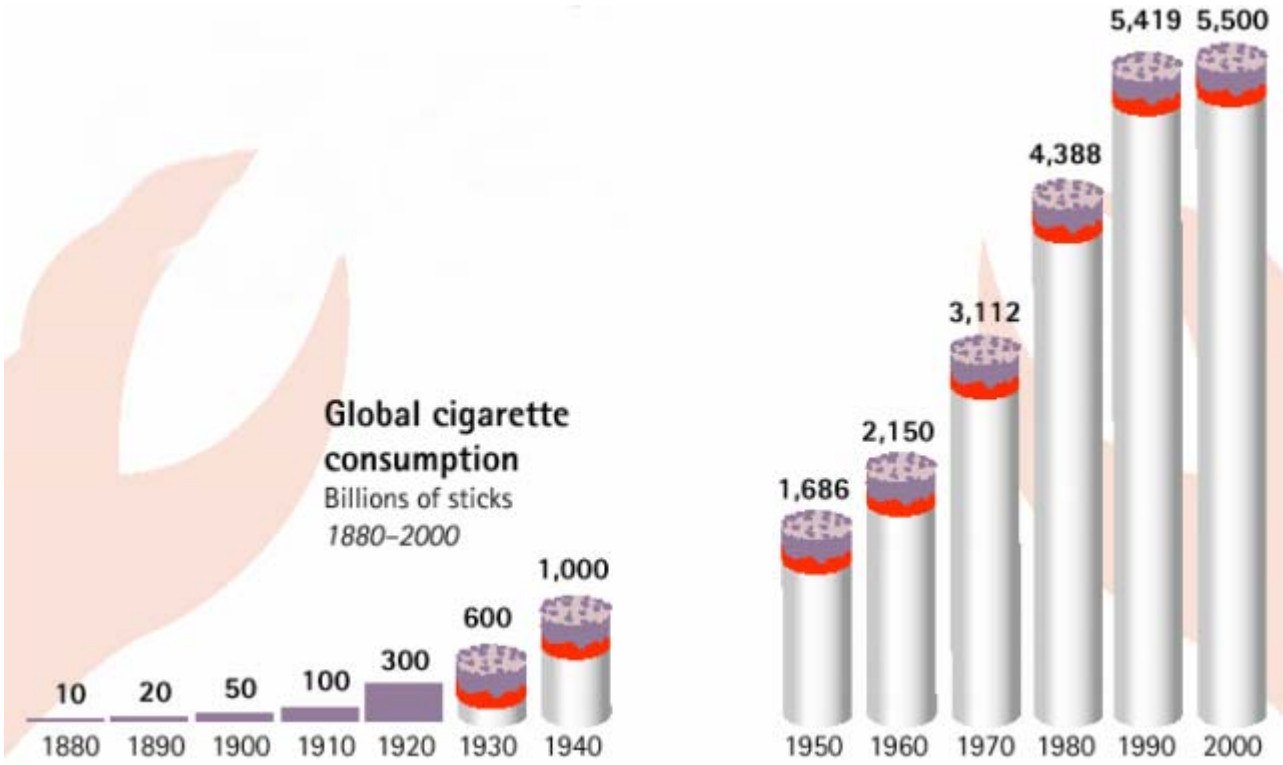
a maladaptive pattern of substance use, leading to clinically significant impairment or distress, as manifested by three (or more) of the following, occurring at any time in the same 12-month period:

- tolerance, as defined by either of the following: (a) a need for markedly increased amounts of the substance to achieve intoxication or desired effect, (b) markedly diminished effect with continued use of the same amount of the substance;
- withdrawal, as manifested by either of the following: (a) the characteristic withdrawal syndrome for the substance, (b) the same (or a closely related) substance is taken to relieve or avoid withdrawal symptoms;
- the substance is often taken in larger amounts or over a longer period than was intended;
- there is a persistent desire or unsuccessful efforts to cut down or control substance use;
- a great deal of time is spent in activities necessary to obtain the substance (e.g. visiting multiple doctors or driving long distances), use the substance (e.g. chain-smoking), or recover from its effects;
- important social, occupational, or recreational activities are given up or reduced because of substance use;
- the substance use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance (e.g. current cocaine use despite recognition of cocaine-induced depression, or continued drinking despite recognition that an ulcer was made worse by alcohol consumption)

Mechanisms relating psychoactive substance use to health and social problems

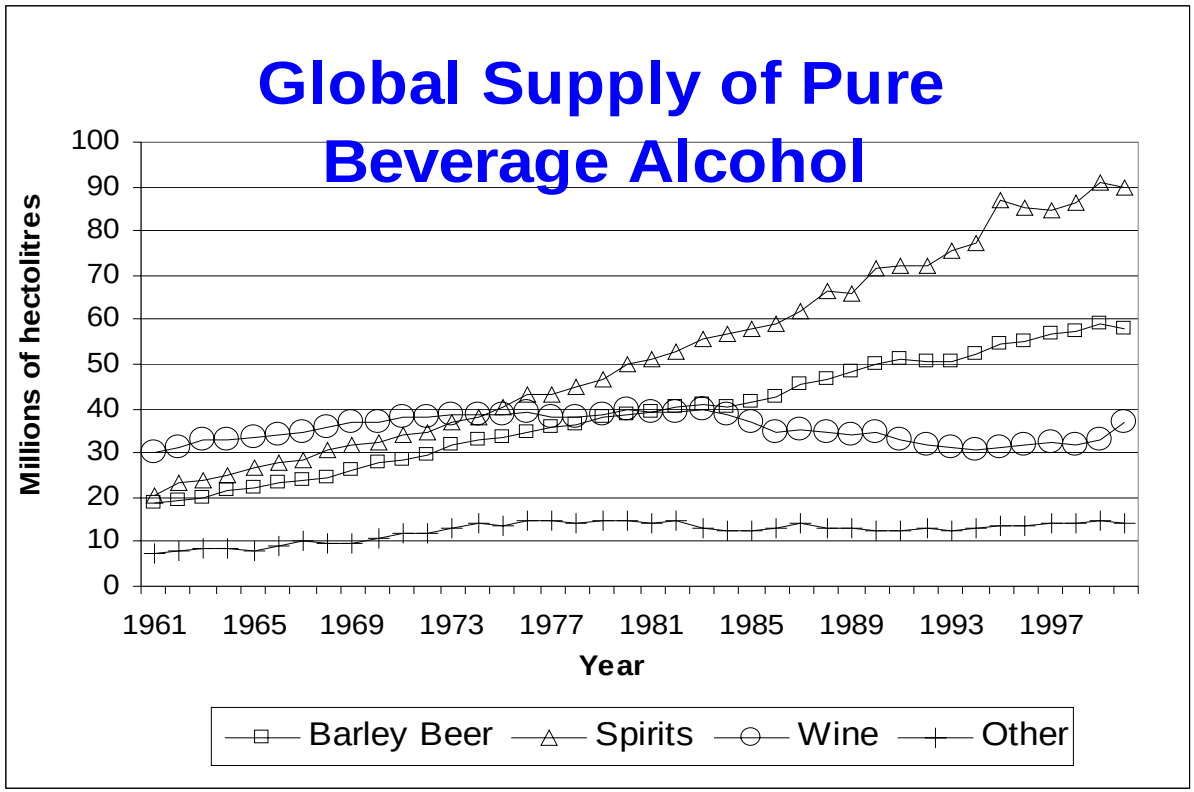


EPIDEMIOLOGY


Global cigarette consumption
Billions of sticks
1880–2000
10
20
50
100
300
600
1,000
1880
1890
1900
1910
1920
1930
1940
1,686
2,150
3,112
4,388
5,419
5,500
1950
1960
1970
1980
1990
2000

Prevalence of smoking among adults and youths in selected countries

Country	Annual per capita consumption of cigarettes	Prevalence of smoking (%)			
		Adults		Youths	
		Males	Females	Males	Females
Argentina	1495	46.8	34.4	25.7	30.0
Bolivia	274	42.7	18.1	31.0	22.0
Chile	1202	26.0	18.3	34.0	43.4
China	1791	66.9	4.2	14.0	7.0
Ghana	161	28.4	3.5	16.2	17.3
Indonesia	1742	59.0	3.7	38.0	5.3
Jordan	1832	48.0	10.0	27.0	13.4
Kenya	200	66.8	31.9	16.0	10.0
Malawi	123	20.0	9.0	18.0	15.0
Mexico	754	51.2	18.4	27.9	16.0
Nepal	619	48.0	29.0	12.0	6.0
Peru	1849	41.5	15.7	22.0	15.0
Poland	2061	44.0	25.0	29.0	20.0
Singapore	1230	26.9	3.1	10.5	7.5
Sri Lanka	374	25.7	1.7	13.7	5.8
USA	2255	25.7	21.5	27.5	24.2


Global Supply of Pure Beverage Alcohol
Millions of hectolitres
100
90
80
70
60
50
40
30
20
10
0
1961
1965
1969
1973
1977
1981
1985
1989
1993
1997
Year
Barley Beer
Spirits
Wine
Other

Proportion of alcohol consumers in WHO sub-regions

Region	% alcohol consumption
AFR-D	38
AFR-E	44
AMR-A	67
AMR-B	66
AMR-D	62
EMR-B	10
EMR-D	5
EUR-A	87
EUR-B	62
EUR-C	86
SEAR-B	21
SEAR-D	14
WPR-A	84
WPR-B	57

Patterns of Drinking

- Level 1: Least heavy drinking occasions, drinking with meals, no fiesta drinking, least drinking in public places, etc.
- Level 2
- Level 3
- Level 4: Many heavy drinking occasions, drinking outside meals, high level of fiesta drinking and drinking in public places, etc.

Drinking Pattern Values for Selected WHO Regions

Region	Pattern value
Afr D	2.48
Afr E	3.09
Amr A	2.00
Amr B	3.14
Amr D	3.10
Eur A	1.34
Sear B	2.50
Sear D	2.95

Per capita consumption of pure alcohol (litres) per adult, (15 years +) adjusted for unrecorded production

Country	Year	Recorded	Adjusted	Adjustment
Austria *(Uhl & Springer, 1994)*	1994	**11.91**	**12.62**	Adjusted for legal production of pear, apple and grape ciders.
Brazil (*Dunn & Laranjeira, 1996*)	1996	**5.07**	**14.01**	Adjusted for government estimate of 1 billion litres of unrecorded *pinga* production.
Chile (*PAHO, 1990*)	1990	**7.86**	**9.43**	Increased by 20 % to allow for clandestine production.
Denmark (*Nordic Alcohol Statistics, 1995*)	1994	**11.97**	**14.36**	Increased by 20 % to reflect unrecorded consumption.
Ecuador *(PAHO, 1990)*	1990	**2.10**	**8.40**	Adjusted for clandestine production estimated at three times official production.
Estonia (*Jernigan, 1997)*	1995	**8.07**	**10.74**	Adjusted for police estimates that the black market represents 25 % of the total market.
Finland (*Nordic Alcohol Statistics, 1995)*	1994	**8.16**	**9.79**	Increased by 20 % to account for unrecorded consumption.
Greece (*Gefou-Madianou, 1994*)	1990	**10.65**	**12.51**	Increased by 1.5 litres per capita to reflect unrecorded consumption.
Hungary (*Fekete, 1995*)	1995	**11.47**	**14.52**	Increased by 2.5 litres per capita to reflect unrecorded alcohol consumption.
Republic of Moldova (*Vasiliev, 1994*)	1993	**12.67**	**18.1**	Adjusted to reflect estimate that unregistered consumption accounts for 70% of total consumption.
Russian Federation (*Harkin, 1995*)	1993	**6.99**	**14.49**	Adjusted to reflect estimate that per capita unrecorded consumption was 7.5 litres.

ANNUAL PREVALENCE OF GLOBAL ILLICIT DRUG USE OVER THE PERIOD 1998–2001

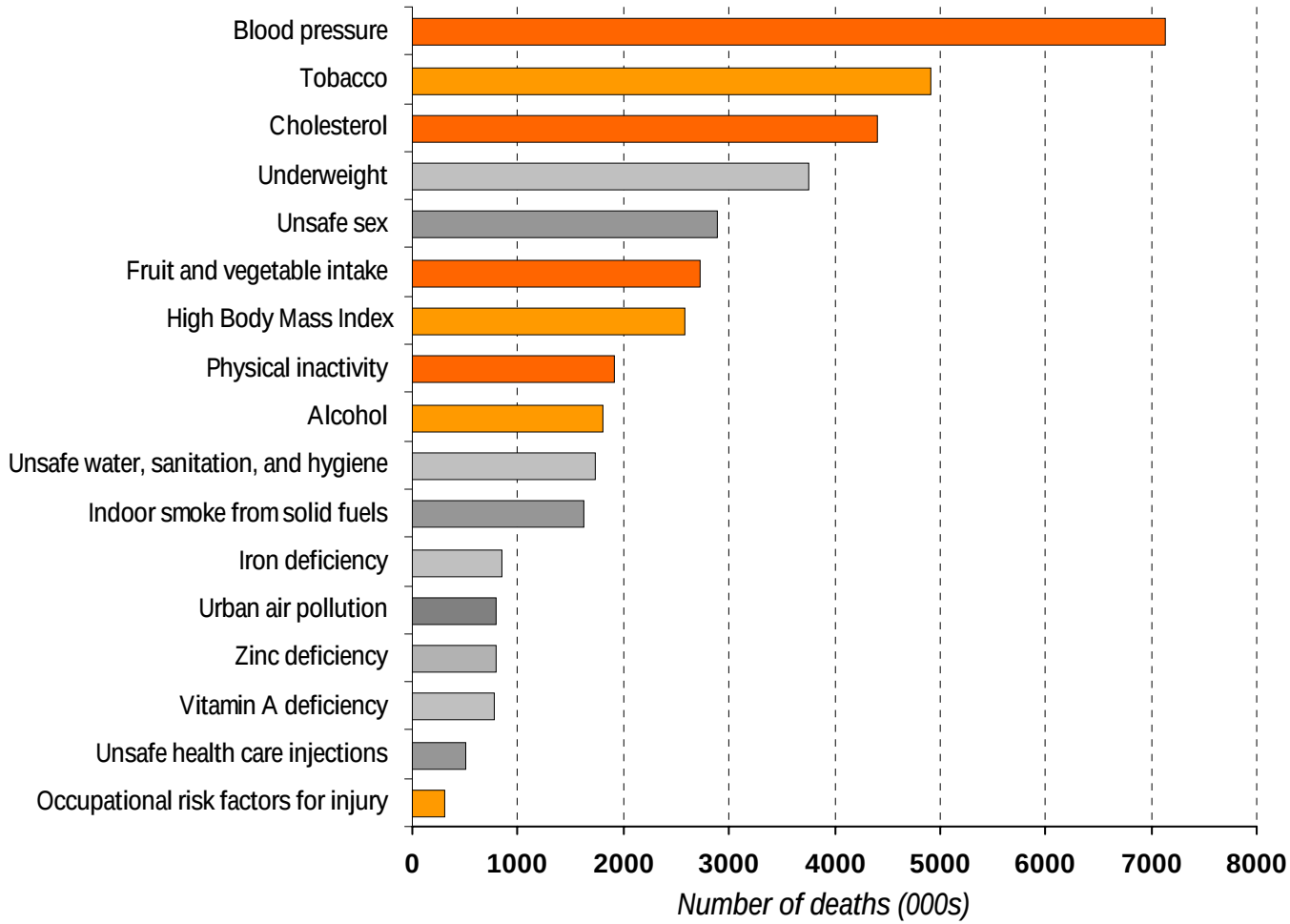
	All illicit drugs	Cannabis	Amphetamine-type stimulants		Cocaine	All opiates	Heroin
			Amphetamines	Ecstasy			
Number of users (in millions)	185	147.4	33.4	7.0	13.4	12.9	9.2
Proportion of global population (%)	3.1	2.5	0.6	0.1	0.2	0.2	0.15
Proportion of population 15 years and above (%)	4.3	3.5	0.8	0.2	0.3	0.3	0.22

Source: UNODCCP, 2002

BURDEN OF DISEASE AND DISABILITY

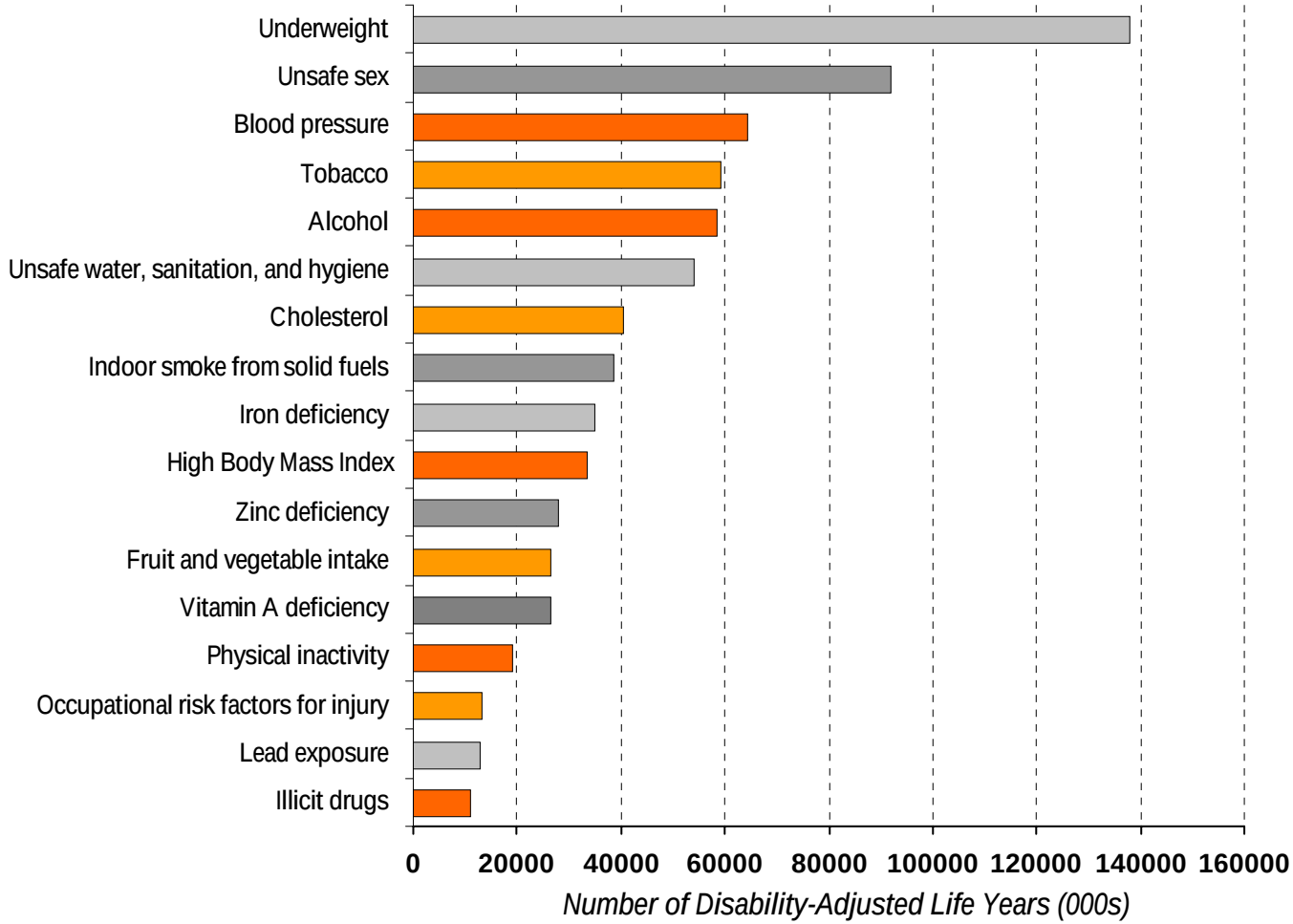
World

Deaths in 2000 attributable to selected leading risk factors



World

Disease burden (DALYs) in 2000 attributable to selected leading risk factors



12 leading selected risk factors as causes of disease burden measured in DALYs

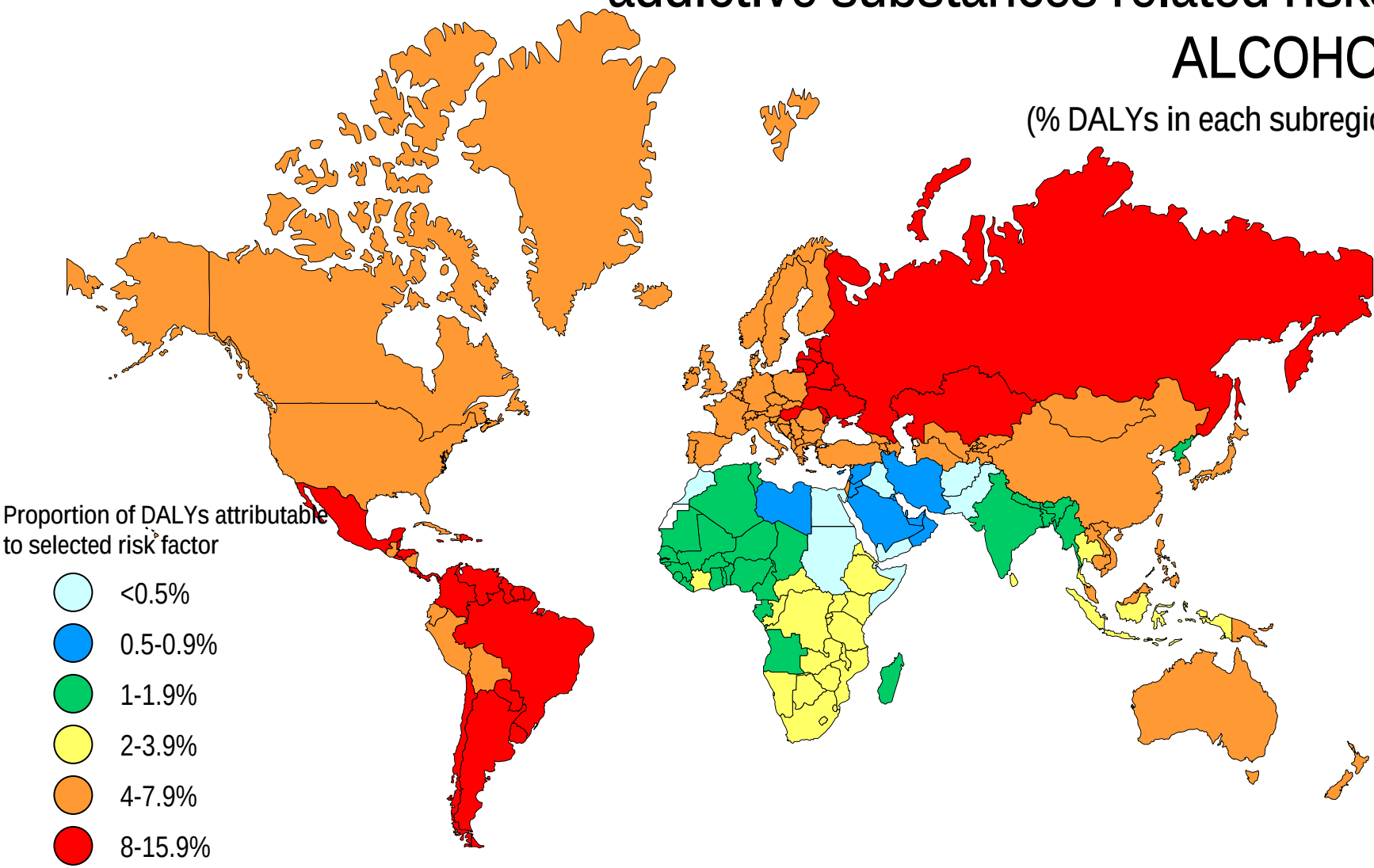
	Developing countries		Developed countries
	High Mortality	Low Mortality	
1	Underweight	Alcohol (6.2%)	Tobacco (12.2%)
2	Unsafe sex	Blood pressure	Blood pressure
3	Unsafe water	Tobacco (4.0%)	Alcohol (9.2%)
4	Indoor smoke	Underweight	Cholesterol
5	Zinc deficiency	Body mass index	Body mass index
6	Iron deficiency	Cholesterol	Low fruit & veg intake
7	Vitamin A deficiency	Low fruit & veg intake	Physical inactivity
8	Blood pressure	Indoor smoke - solid fuels	Illicit drugs (1.8%)
9	Tobacco (2.0%)	Iron deficiency	Unsafe sex
10	Cholesterol	Unsafe water	Iron deficiency
11	Alcohol	Unsafe sex	Lead exposure
12	Low fruit & veg intake	Lead exposure	Child sexual abuse

Percentage of total global mortality and DALYs attributable to tobacco, alcohol and illicit drugs

Risk factor	High mortality developing countries		Low mortality developing countries		Developed countries		Global
	Males	**Females**	**Males**	**Females**	**Males**	**Females**	
Mortality							
Tobacco	7.5	1.5	12.2	2.9	26.3	9.3	8.8
Alcohol	2.6	0.6	8.5	1.6	8.0	-0.3	3.2
Illicit drugs	0.5	0.1	0.6	0.1	0.6	0.3	0.4
DALYs							
Tobacco	3.4	0.6	6.2	1.3	17.1	6.2	4.1
Alcohol	2.6	0.5	9.8	2.0	14.0	3.3	4.0
Illicit drugs	0.8	0.2	1.2	0.3	2.3	1.2	0.8

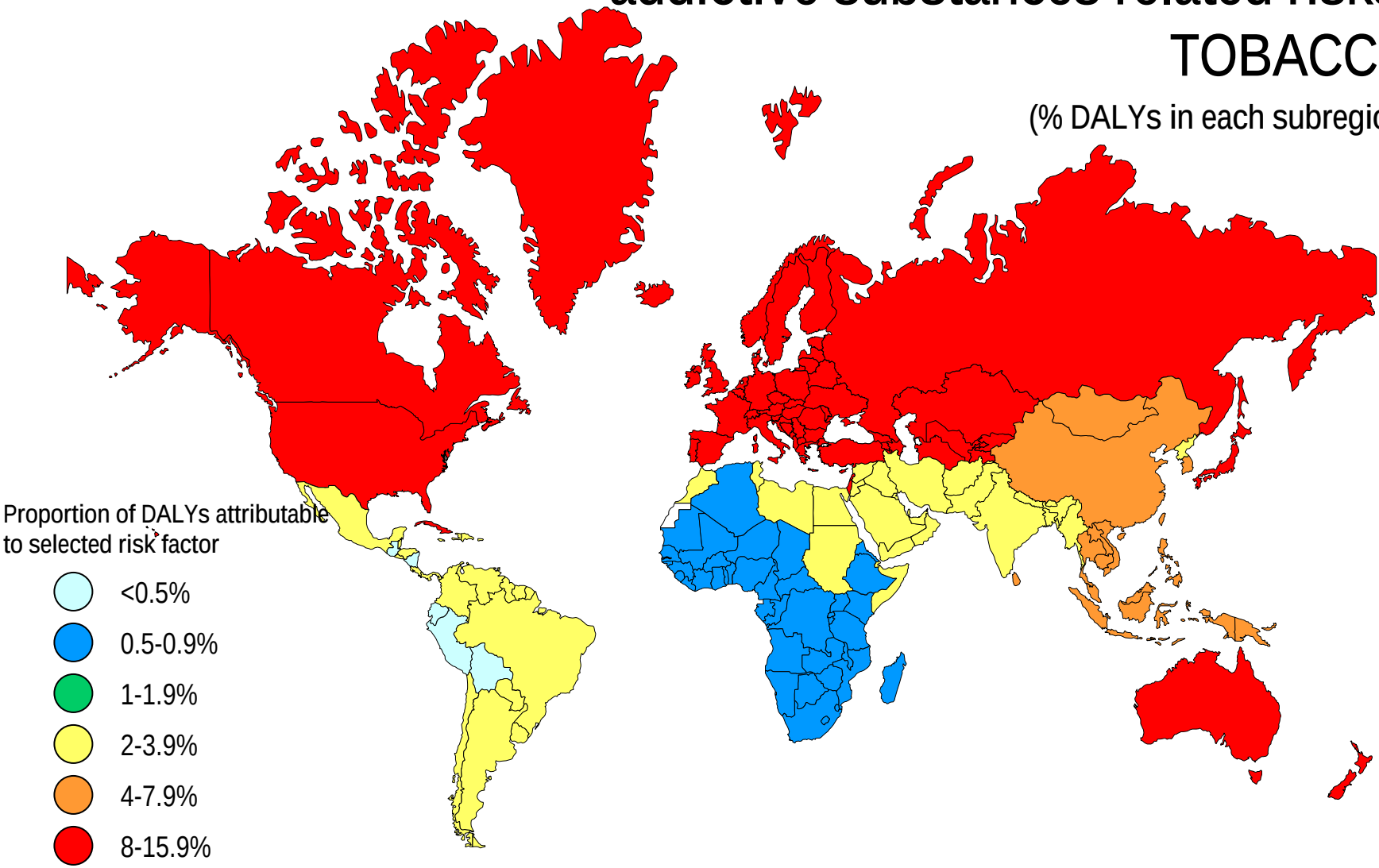
Burden of disease attributable to addictive substances related risks: ALCOHOL

(% DALYs in each subregion)



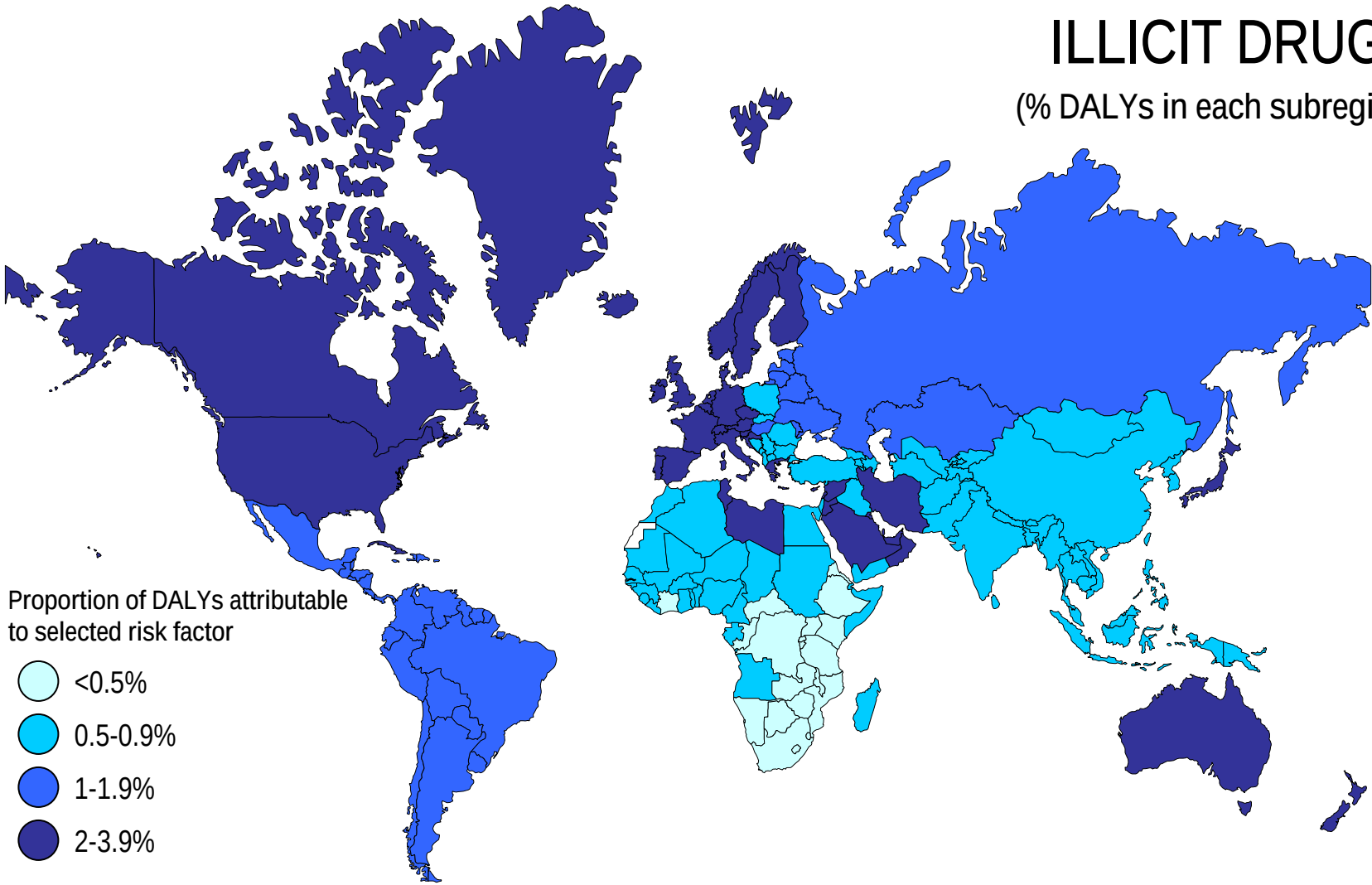
Burden of disease attributable to addictive substances related risks: TOBACCO

(% DALYs in each subregion)



Burden of disease attributable to addictive substances related risks: ILLICIT DRUGS

(% DALYs in each subregion)



IDU

- As of 1999, 136 countries in the world and 44 in Europe reported IDU
- 28 European reported IDU in 1996
- 68% report HIV among IDUs
- HIV problem in many countries driven by IDU
- In Eastern Europe, IDU has been accompanied by rapid escalation of HIV infection
- IDU is also associated with Hepatitis B and C with rates among injectors often higher than HIV

SOME KEY FINDINGS ON IDU AND SEXUAL RISK BEHAVIOUR

- Most IDUs have sex
- Most IDUs never use condoms with primary partners.
- Many IDUs never use condoms with casual partners.
- Disassortative sexual mixing is high.
- Many female IDUs work as sex workers.
- There is little or no sexual Behaviour change.

Source: Stimson, Des Jarlais & Ball, 199

Research, Intervention & Policy Issues

WHO Project on Identification and Management of Alcohol-related Problems

- Phase I: Development of an instrument for detecting hazardous and harmful drinking (AUDIT).
- Phase II: Demonstration of the effectiveness of brief interventions. Randomized controlled trial.
- Phase III: Assessment of the practices and perceptions of GPs. Conditions necessary for successful dissemination.
- Phase IV: Widespread implementation in PHC

Principles of Drug Addiction Treatment

1. No single treatment is appropriate for all individuals.
2. Treatment needs to be readily available.
3. Effective treatment attends to multiple needs of the individual, not just his or her drug use.
4. An individual's treatment and services plan must assessed continually and modified as necessary to ensure that the plan meets the person's changing needs.
5. Remaining in treatment for an adequate period of time is critical for treatment effectiveness.
6. Counseling (individual and/or group) and other behavioral therapies are critical components of effective treatment for addiction.
7. Medications are an important element of treatment for many patients, especially when combined with counseling and other behavioral therapies.

Principles of Drug Addiction Treatment

8. Addicted or drug-abusing individuals with coexisting mental disorders should have both disorders treated in an integrated way.
9. Medical detoxification is only the first stage of addiction treatment and by itself does little to change long-term drug use.
10. Treatment does not need to be voluntary to be effective.
11. Possible drug use during treatment must be monitored continuously.
12. Treatment programs should provide assessment for HIV/AIDS, hepatitis B and C, tuberculosis, and other infectious diseases, and counseling to help patients modify or change behaviors that place themselves or others at risk of infection.
13. Recovery from drug addiction can be a long-term process and frequently requires multiple episodes of treatment.

Prevention principles for children and adolescents

- Prevention programs should be designed to enhance protective factors.
- Should target all forms of drug use, including the use of tobacco, alcohol, marijuana, and inhalants.
- Should include skills to resist drugs when offered, strengthen personal commitments against drug use, and increase social competency, in conjunction with reinforcement of attitudes against drugs.
- Should include interactive methods, such as peer discussion groups, rather than didactic teaching alone.
- Etc.

From: *Preventing drug use among children and adolescents*. NIDA.

International Control of Illicit Drugs: The UN CONVENTIONS

Single Convention on Narcotic Drugs, 1961

This Convention recognizes that effective measures against abuse of narcotic drugs require coordinated and international action. There are two forms of intervention and control that work together. First, it seeks to limit the possession, use, trade in, distribution, import, export, manufacture and production of drugs exclusively to medical and scientific purposes. Second, it combats drug trafficking through international cooperation to deter and discourage drug traffickers

Convention on Psychotropic Substances, 1971

The Convention noted with concern the public health and social problems resulting from the abuse of certain psychotropic substances and was determined to prevent and combat abuse of such substances and the illicit traffic which it gives rise to. The Convention establishes an international control system for psychotropic substances by responding to the diversification and expansion of the spectrum of drugs of abuse, and introduced controls over a number of synthetic drugs according to their abuse potential on the one hand and their therapeutic value on the other.

United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988

This Convention sets out a comprehensive, effective and operative international treaty that was directed specifically against illicit traffic and that considered various aspects of the problem as a whole, in particular those aspects not envisaged in the existing treaties in the field of narcotic drugs and psychotropic substances. The Convention provides comprehensive measures against drug trafficking, including provisions against money laundering and the diversion of precursor chemicals. It provides for international cooperation through, for example, extradition of drug traffickers, controlled deliveries and transfer of proceedings.

Source: United Nations Office on Drugs and Crime (available on the Internet at http://www.odccp.org/odccp/un_treaties_and_resolutions.html).

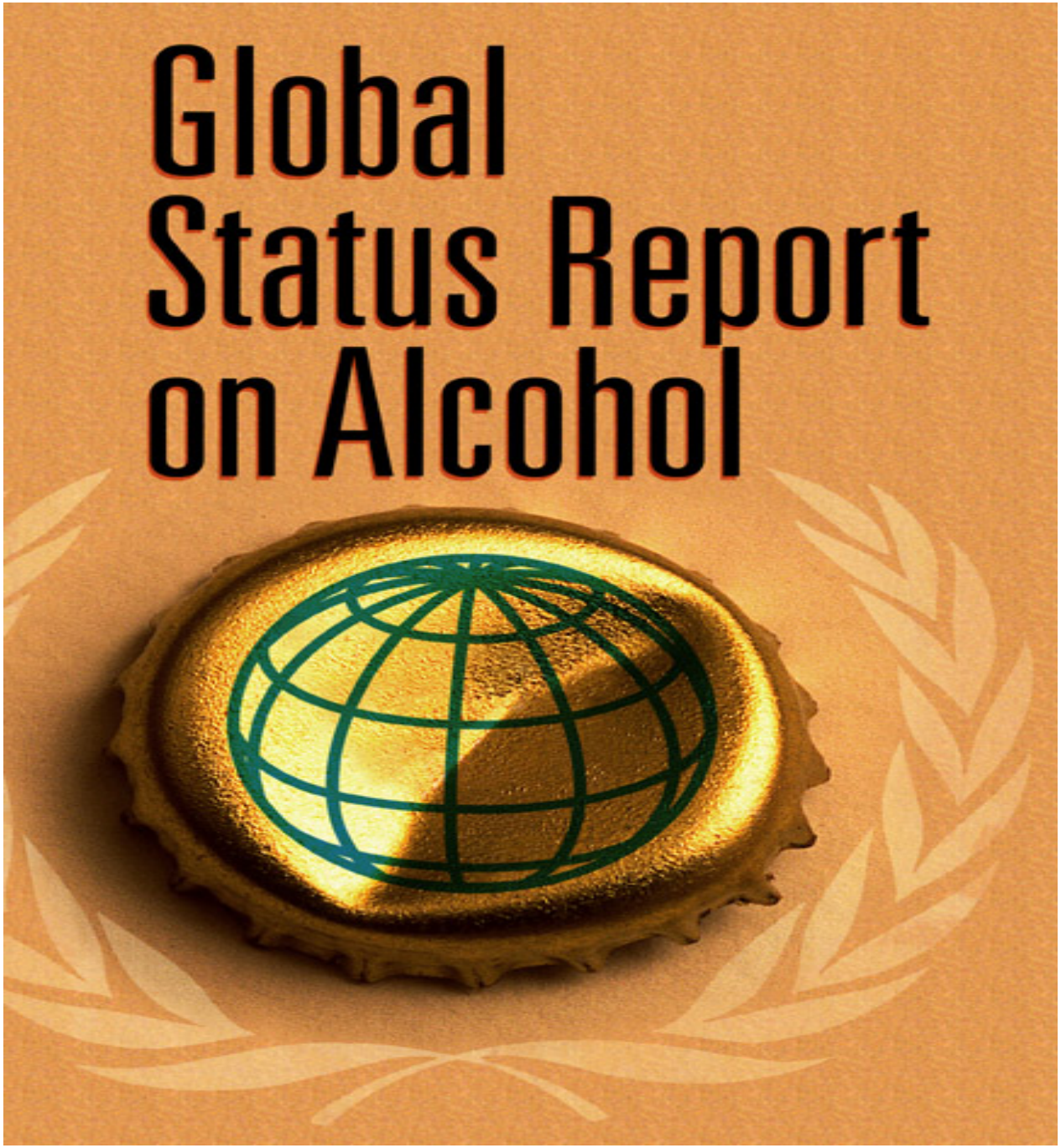
Conclusions

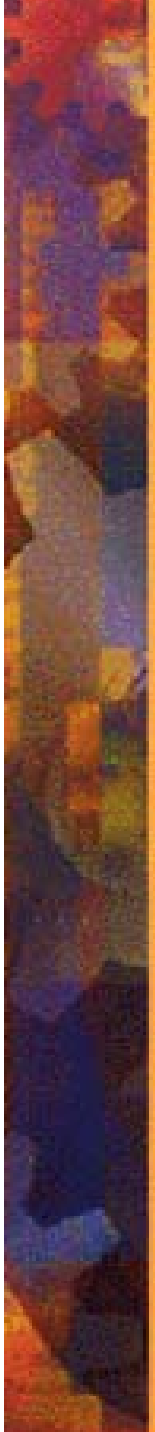
- The burden of licit and illicit drug problems is increasingly evident.
- From a public health perspective tobacco and alcohol use carry much higher burdens that illicit drug use.
- Alcohol and drug polices need to address the relative harms of these substances.
- In the management of psychoactive substance problems (prevention and treatment) more attention should be paid to epidemiologic evidence and developments in neuroscience.

WHO Resources and Projects

- Research/data collection projects
- Instruments
- Service: prevention and treatment
- How you can get involved

Global Status Report on Alcohol





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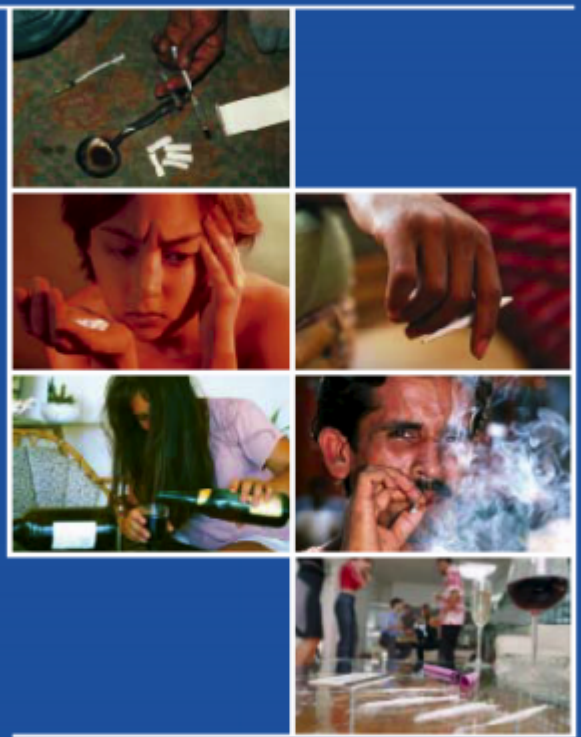
Original: English
Distribution: General

INTERNATIONAL GUIDE FOR MONITORING ALCOHOL CONSUMPTION AND RELATED HARM

Department of Mental Health and Substance Dependence
Noncommunicable Diseases and Mental Health Cluster
World Health Organization

Neuroscience of psychoactive substance use and dependence



World Health Organization