Public health implications of gambling, gaming and psychoactive substance use

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Content of presentation

- Psychoactive substance use and addictive behaviours in the world: prevalence and impact on population health

- Gambling, gaming and substance use disorders in classifications of diseases

- Public health dimensions of gaming, gambling and substance use disorders
  - Rationale for increasing public health concern
  - Policy and program responses and challenges in their implementation

- WHO activities and priorities for international research.
Psychoactive substance use and addictive behaviors in the world: prevalence and impact on population health
Psychoactive substance use and addictive behaviours in the world

- Alcohol: ~1.9 billion people aged 15+ (consumed alcoholic beverages in the last 12 months (~35% of the world population aged 15-64) (estimates for 2012; WHO, 2014)

- Tobacco: ~ 1.1 billion people are current tobacco smokers (estimates for 2012, WHO, 2014)

- Psychoactive drugs: ~ 255 million people (~5.3% of the world population aged 15-64), had used an illicit drug at least once in the previous year (estimates for 2015, UNODC, 2017)

- Gambling: ?, but in national samples past year prevalence varies among adult population (15-64) from 25.5% (Mravčik et al, 2014) to 80.6% (Lund and Nordlund, 2003; Jonsson, 2006), but usually higher than 50% (Calado & Griffiths, 2016).
Alcohol consumption globally in 2016 (WHO, 2017)


- Alcohol use disorders (alcohol dependence + harmful use of alcohol): ~250 million people worldwide (7.2% of men and 1.3% of women aged 15+ (~4% for both sexes)

- Drug use disorders: ~29.5 million people (~0.5% of the world population 15-64) with drug use disorders (UNODC, 2017)
  - Injecting drug users: 11.8 million (range: 8.6 to 17.4 million),
  - 0.25 per cent of the world population 15-64 years old (range: 0.18 to 0.36).
Prevalence (%) of alcohol use disorders (AUDs, ICD-10) by sex, WHO region and the world, 2010 (WHO, 2014)
Prevalence of disorders due to addictive behaviours in the world

- Estimates are not available at global and regional levels, and limited to several countries with significant variations.

- "Problem gambling": past 12-month prevalence varies from 0.1% to 5.8% of the world adult population (Calado & Griffiths, 2016) = 3~350 million people worldwide
  - 69 prevalence studies from 30 countries, including 3 LMIC - Brazil, China, South Africa.

- "Problem gaming" (most frequently using criteria of DSM-5 "Internet Gaming Disorder"): past 12-month prevalence varies from 1.3%-1.7% (Van Rooij, 2010; Haagsma, 2012; Rehbein et al, 2010, 2015) to 8.5%-9.9% (Gentile et al, 2009; Choo et al, 2010; Salguero, 2002).
# National prevalence studies on problem gambling


<table>
<thead>
<tr>
<th>Country</th>
<th>Prevalence (past year)</th>
<th>Ref.</th>
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<tbody>
<tr>
<td>Australia</td>
<td>0.4%-0.6%</td>
<td>Gainsbury et al, 2014; Dowling et al, 2015</td>
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<tr>
<td>Austria</td>
<td>1.1%</td>
<td>Kalke et al, 2011</td>
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<tr>
<td>Belgium</td>
<td>2%</td>
<td>Druine et al, 2006</td>
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<tr>
<td>Canada</td>
<td>2%</td>
<td>Cox, Yu, Afifi and Ladouceur, 2005</td>
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<tr>
<td>Germany</td>
<td>0.3%-0.6%</td>
<td>Bühringer et al, 2007; BZgA, 2008; Meyer et al, 2015</td>
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<td>Great Britain</td>
<td>0.5%-1%</td>
<td>Orford et al, 2010; Wardle et al, 2009, 2012</td>
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<tr>
<td>USA</td>
<td>3.5%-5%</td>
<td>Welte et al, 2002; Welte et al, 2015</td>
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Prevalence studies on problem gaming ("internet gaming disorder") (Kuss & Pontes, 2018)

- Germany: 3.6%-5.7% (adolescents) (Rosenkranz et al, 2017; Wartberg et al, 2017)
- Netherlands: 5.8% (general population) (Lemmens et al, 2016)
- Norway: 0.7%-1.4% (general population) (Brunborg et al, 2015; Wittek et al, 2015)
- South Korea: 4% (adults) (Park et al, 2017)
- Switzerland: 2.3% (young adults) (Baggio et al, 2015)
Limitations of prevalence studies on "problem gambling and gaming"

- Sampling limitations: non-representative convenience samples, often with narrow age limits and small sample sizes
- Lack of international consensus regarding diagnostic criteria
- Use of different screening and diagnostic instruments, thresholds
- Psychometric limitations of the instruments
- Cross-cultural limitations of the instruments
Impact on population health: metrics

- Global Burden of Disease: Disability Adjusted Life Year Lost (DALY): quantifying the Burden of Disease from mortality and morbidity

- One DALY can be thought of as one lost year of "healthy" life

- DALYs for a disease or health condition are calculated as the sum of the Years of Life Lost (YLL) due to premature mortality in the population and the Years Lost due to Disability (YLD) for people living with the health condition or its consequences.

- $\text{DALY} = \text{YLL} + \text{YLD}$
Global burden of disease attributable to alcohol in 2012 (WHO, 2014)

- 3.3 million deaths (5.9% of deaths in all age groups globally) are attributable to alcohol consumption
  - 7.6% for men
  - 4.0% for women

- 139 million DALYs lost or 5.1% of the global burden of disease expressed in DALYs is attributable to alcohol.
Distribution of alcohol-attributable deaths and DALYs in 2012

Inner circle: Deaths
- Cancers: 10.3%
- CVD and diabetes: 17.1%
- Neuropsychiatric disorders: 20.4%
- Gastrointestinal disorders: 8.0%
- Infectious diseases: 6.8%
- Unintentional injuries: 16.2%
- Intentional injuries: 4.0%
- Neonatal conditions: 13.6%

Outer circle: DALYs
- Cancers: 8.7%
- CVD and diabetes: 12.5%
- Neuropsychiatric disorders: 33.4%
- Gastrointestinal disorders: 24.6%
- Infectious diseases: 24.6%
- Unintentional injuries: 0.2%
- Intentional injuries: 0.1%
- Neonatal conditions: 8.6%

World Health Organization
Deaths caused by alcohol and drug use disorders by age and sex, 2015 (WHO, Global health estimates, 2017)
Conceptual causal model of alcohol consumption and health outcomes (WHO, 2014; based on Rehm et al, 2010; Blas et al, 2010)
For 2012 estimates selected causes if death and disability include:

- FAS (fetal alcohol syndrome)
- TB (tuberculosis)
- Lower respiratory infections
- HIV/AIDS.
Disease burden attributable to gambling disorder

- Global or regional estimates are not available

- Gambling-attributable fractions for causes of death, disease and injury (and disability) are not known

- Australian and New Zealand studies indicate potential harm due to gambling comparable with the harm due to depression and alcohol use disorders (Browne et al, 2016).
Conceptual framework of gambling-related harm and comparisons with other health conditions on YLDs (Browne et al, 2016)

Figure 3. Conceptual framework of gambling-related harm

Figure 20. YLDs in the Victorian adult population – gambling problems versus other health states
Gambling and other mental and behavioural disorders: bidirectional relationship

- 96% of individuals with lifetime gambling disorder meet also diagnostic criteria of at least one other mental or behavioural disorder (Petry N et al, 2005; Bischof A et al, 2013; Kessler R et al, 2008)
  - Mood disorders (49%-56%)
  - Anxiety disorders (41%-60%)
  - Alcohol use disorders (73%)
  - Drug Use Disorders (38%)

- Gambling disorder precedes mood, anxiety and alcohol use disorders in approximately 25% of cases

- Gambling disorder is associated with increased prevalence rates of suicidal thoughts and behaviour (Wong et al, 2014; Thon et al, 2014; Moghaddam et al, 2015).
Disease burden attributable to gaming disorder

- Global, regional or country-level estimates are not available and hardly can be produced in the nearest future.
- Case-control and longitudinal studies are needed for establishing relative risks associated with gaming behaviour for major risk factors, health conditions and health outcomes, particularly in children and adolescents.
Gambling, gaming and substance use disorders in Classifications of Diseases
Main objectives of the international classification

- Systematic recording, analysis and comparisons of mortality and morbidity data (initial focus on mortality)

- Facilitate provision of effective treatment and care
  - Clinical utility: predictive utility, usefulness for selecting interventions, easy to use, accuracy ("goodness of fit"), feasibility
  - Public health utility (health care systems, statistics, monitoring and evaluation)

- Facilitate international cooperation, communication and dialogue (e.g. by using WHO nomenclature)

- Facilitate education, training and research.
The History of International Classification of Diseases and Health Conditions
ICD and DSM

- ICD evolved from the first mortality classification (1853)
- Covers all health conditions with a significant focus on mortality and use by all health professionals and governments
- Developed by WHO since 1948 and "owned" by WHO Member States
- Countries report on health statistics using ICD codes
- Specialty adaptations (ICD-10 Blue and Green Books and PHC version)

- DSM developed in the US (DSM-1 appeared in 1952 and was based on the US army manual)
- Covers mental and behavioural disorders: focus on morbidity and use by mental health specialists
- Developed and "owned" by American Psychiatric Association
- US-based, but widely used in the world, particularly in research.
Evolution of the "core" terms in WHO nomenclature

ICD

- ICD-7 (1955): alcoholism, drug addiction

- ICD-8 (1965): alcoholic addiction, drug dependence

- ICD-9 (1975): alcohol dependence syndrome, drug dependence, tobacco use disorder


WHO Expert Committee on Addiction-Producing Drugs, 13th report, 1963/1964

The WHO Expert Committee on Addiction-Producing Drugs in 1952 attempted to formulate a definition of addiction applicable to drugs under international control, which it later (1957) revised. The Expert Committee sought also to differentiate addiction from habituation and wrote a definition of the latter which, however, failed in practice to make a clear distinction. The definition of addiction gained some acceptance, but confusion in the use of the terms addiction and habituation and misuse of the former continued. Further, the list of drugs abused increased in number and diversity. These difficulties have become increasingly apparent and various attempts have been made to find a term that could be applied to drug abuse generally. The component in common appears to be dependence, whether psychic or physical or both. Hence, use of the term “drug dependence”, with a modifying phrase linking it to a particular drug type in order to differentiate one class of drugs from another, has been given most careful consideration.

“Drug dependence” is defined as a state arising from repeated administration of a drug on a periodic or continuous basis. Its characteristics will vary with the agent involved and this must be made clear by designating the particular type of drug dependence in each specific case—for example, drug dependence of morphine type, of cocaine type, of cannabis type, of barbiturate type, of amphetamine type, etc. (See Annex I for descriptions of specific types of drug dependence.)

The Expert Committee recommends substitution of the term “drug dependence” for the terms “drug addiction” and “drug habituation.”
Pathological gambling in classifications of mental and behavioural disorders: ICD-9 (1975) and DSM-III (1980)

- ICD-9 (300-316) Neurotic disorders, personality disorders and other nonpsychotic mental disorders
  - 312.3 Disorders of impulse control, not elsewhere classified
    - 312.30 Impulse control disorder, unspecified
    - 312.31 Pathological gambling
    - 312.32 Kleptomania
    - 312.33 Pyromania
    - 312.34 Intermittent explosive disorder
    - 312.35 Isolated explosive disorder
    - 312.39 Other.

- ICD-10 F63 Habit and impulse disorders
  - F63.0 Pathological gambling
  - F63.1 Pathological fire-setting [pyromania]
  - F63.2 Pathological stealing [kleptomania]
  - F63.3 Trichotillomania
  - F63.8 Other habit and impulse disorders
  - F63.9 Habit and impulse disorder, unspecified

- DSM-IV-TR diagnostic criteria: five or more from 10 signs and symptoms modelled after substance dependence criteria.
### DSM-5 (2013) and ICD-11 (2018)

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<tr>
<th>DSM-5</th>
<th>ICD-11</th>
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<tr>
<td>&quot;Pathological gaming&quot; renamed &quot;Gaming disorder&quot;</td>
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<tr>
<td>Reclassified from impulse control disorders to section of addictions and related conditions (as only one recognized &quot;behavioural addiction&quot;)</td>
<td>Reclassified from habit and impulse disorders to section of &quot;Disorders due to substance use or addictive behaviors&quot;</td>
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<tr>
<td>Elimination of &quot;illegal acts&quot; criteria</td>
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<tr>
<td>Lowered diagnostic threshold (at least four from nine diagnostic criteria to be met)</td>
<td>Predominantly online and predominantly off-line subtypes.</td>
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Rationale for conceptual integration of gambling with disorders due to substance use

- Neurobiological commonalities (Grant et al, 2006; Potenza, 2008; Fauth-Bühler et al, 2016; Yücel et al, 2017)
- Clinical manifestations and natural course (El-Guebaly et al, 2012; Kapsits et al, 2016)
- Cognitive mechanisms (Clark, 2010; Goudriian et al, 2006)
- Treatment approaches (Grant et al, 2008; Hodgins et al, 2011).
Disorders due to addictive behaviours are recognizable and clinically significant syndromes associated with distress or interference with personal functions that develop as a result of repetitive rewarding behaviours other than the use of dependence-producing substances. Disorders due to addictive behaviors include gambling disorder and gaming disorder, which may involve both online and offline behaviour.
Disorders due to addictive behaviors in the draft ICD-11

- **Gambling disorder**
  - Gambling disorder, predominantly offline
  - Gambling disorder, predominantly online
  - Gambling disorder, unspecified

- **Gaming disorder**
  - Gaming disorder, predominantly offline
  - Gaming disorder, predominantly online
  - Gaming disorder, unspecified

- Other specified disorders due to addictive behaviours

- Disorders due to addictive behaviours, unspecified
Gambling disorder: definition

Gambling disorder is characterized by a pattern of persistent or recurrent gambling behaviour, which may be online (i.e., over the internet) or offline, manifested by: 1) impaired control over gambling (e.g., onset, frequency, intensity, duration, termination, context); 2) increasing priority given to gambling to the extent that gambling takes precedence over other life interests and daily activities; and 3) continuation or escalation of gambling despite the occurrence of negative consequences.
Gambling disorder (continued)

The behaviour pattern is of sufficient severity to result in significant impairment in personal, family, social, educational, occupational or other important areas of functioning. The pattern of gambling behaviour may be continuous or episodic and recurrent. The gambling behaviour and other features are normally evident over a period of at least 12 months in order for a diagnosis to be assigned, although the required duration may be shortened if all diagnostic requirements are met and symptoms are severe.
Factors associated with health behaviors:
- Hazardous substance use
  - Alcohol
  - Nicotine
  - Drugs
    - Opioids
    - Cannabis...
- Hazardous gambling or betting
- Hazardous gaming.
Draft ICD-11 definition of "Hazardous gambling"

- Hazardous gambling and betting refers to a pattern of gambling and betting that appreciably increases the risk of harmful physical or mental health consequences to the individual or to others around this individual. The increased risk may be from the frequency of gambling or betting, from the amount of time spent on these activities or the context of gambling and betting, from the neglect of other activities and priorities, from risky behaviours associated with gambling and betting or its context, from the adverse consequences of gambling and betting, or from the combination of these. Hazardous gambling and betting has not yet reached the level of having caused harm to physical or mental health of the user or others around the user. The pattern of gambling and betting often persists in spite of awareness of increased risk of harm to the individual or to others.

- **Exclusions:** Gambling disorder (6D70)
Taxonomy of disorders due to substance use and addictive behaviours in the draft ICD-11

Disorders due to substance use

- Classes of psychoactive substances
  - Harmful pattern of substance use
  - Substance dependence
  - Single episode of harmful substance use
  - Substance intoxication
  - Substance withdrawal
  - Substance-induced delirium

- Substances use disorders

Disorders due to addictive behaviours

- Harmful addictive behaviours (for field testing)
- Gambling disorder
- Gaming disorder
- Other disorders due to addictive behaviours
Gambling harms to the Victorian adult population by gender and PGSI category (Browne et al, 2016)
Public health dimensions of gaming, gambling and substance use disorders
Why on public health agenda?

- Increasing availability of gambling and gaming platforms and products to different segments of populations due to economic reasons and digital/online opportunities

- Improved understanding and acceptance of health and social consequences of "excessive" gambling and gaming
  - Increasing treatment demand for gaming and gambling disorders in many countries
  - Limited knowledge on the impact on physical health and psychosocial development

- Convergence of gambling and gaming platforms, networks and products

- Technological sophistication and increasing use of the internet-based technologies present new challenges for public health

- Conceptual integration with substance use disorders.
Science has a gambling problem
Researchers and government agencies pay too little attention to pathological gambling. This must change.

Problem gambling is a public health concern

Archaeological finds from China, Egypt, and Persia show that gambling has been a pastime for 5 millennia. Most readers will have gambled at some time, and 63% of people older than 16 years of age in Great Britain did so in the past year. But at what financial, social, and health cost is poorly understood. Gambling Behaviour in Great Britain in 2015, a report by NatCen for the Gambling Commission, published on Aug 24, provides a glimpse of who gambles, where, and how in England, Scotland, and Wales.

Fixed-odds betting terminals (fobtees). Fobtees are a particular concern because they allow bets of up to £100 every 20 seconds and 70-80% of those who use them will be net losers. In the past year, £1000 or more was lost on 233,071 occasions. Fobtees are a major source of revenue for bookmakers and contributed £1.8 billion of the £13.8 billion that gamblers lost across the UK in 2015-16. Less publicised is the growth of online gambling, with a potentially greater danger to health than other forms of gambling, particularly for those under the age of 18.
Convergence of gambling and gaming platforms, networks and products

- The *gacha* system in gaming (Japan). The player pays a sum of money (from USD 1 to USD 10) and draws the gacha to receive a game item with low chances of winning an expensive game item. Financial losses can be substantial.

- "Loot boxes" in the following games:
  - Call of Duty: WWII
  - Counter-Strike: Global Offensive
  - Mass Effect 3
  - Overwatch
  - Rocket League
  - Star Wars Battlefront II
  - Team Fortress 2

54% of games on Facebook have gambling elements and these games tend to be owned by gambling operators.
UN and WHO Policy Frameworks for dependence-producing substances
Critical public health elements of a comprehensive, balanced and inclusive drug policy (WHO, 2016)

1. Prevention of drug use and reduction of vulnerability and risks

2. Treatment and care of people with drug use disorders

3. Prevention and management of harms associated with drug use


5. Monitoring and evaluation.
What actions needed to reduce the harmful use of alcohol (WHO, 2010)

Global, regional and national actions on:
- levels of alcohol consumption
- patterns of alcohol consumption
- contexts of alcohol consumption
- wider social determinants of health

Special attention needs to be given to reducing harm to people other than the drinker and to populations that are at particular risk from harmful use of alcohol.
Recommended 10 target areas for policy measures and interventions (WHO, 2010)

1. Leadership, awareness and commitment
2. Health services' response
3. Community action
4. Drink-driving policies and countermeasures
5. Availability of alcohol
6. Marketing of alcoholic beverages
7. Pricing policies
8. Reducing the negative consequences of drinking and alcohol intoxication
9. Reducing the public health impact of illicit alcohol and informally produced alcohol
10. Monitoring and surveillance
Update of the list of effective measures on alcohol for the Global NCD Action Plan
(endorsed by World Health Assembly70 in 2017)

- Increase excise taxes on alcoholic beverages
- Enact and enforce bans or comprehensive restrictions on exposure to alcohol advertising (across multiple types of media)
- Enact and enforce restrictions on the physical availability of retailed alcohol (via reduced density of retail outlets and reduced hours of sale)
- Enact and enforce drink-driving laws and blood alcohol concentration limits via sobriety checkpoints
- Provide brief psychosocial intervention for persons with hazardous and harmful alcohol use
- Carry out regular reviews of prices in relation to level of inflation and income
- Establish minimum prices for alcohol where applicable
- Enact and enforce an appropriate minimum age for purchase or consumption of alcoholic beverages
- Restrict or ban promotions of alcoholic beverages in connection with sponsorships and activities targeting young people
- Provide prevention, treatment and care for alcohol use disorders and comorbid conditions in health and social services
- Provide consumer information about, and label, alcoholic beverages to indicate, the harm related to alcohol.
3.5 Strengthen the prevention and treatment of substance abuse, including narcotic drugs and harmful use of alcohol
3.3 Ending the AIDS epidemic and combating hepatitis,
3.4 Prevention and treatment of noncommunicable diseases and promotion of mental health
3.8 Universal health coverage
3.6 Access to essential medicines

- Limiting availability and access (age, time, location)

- Reducing risks and harm
  - Information and awareness campaigns
    - On-site information/counselling
  - Self-exclusion programs
  - Setting gambling/gaming limits
  - Warning messages
  - Training of venue employees

- Providing health services for affected individuals

- Pricing policies (increasing retail prices, or cost of monthly subscriptions)

- Advertisement/marketing restrictions.
Case examples of prevention policies and strategies in selected countries for gaming disorder (D. King, 2016)

<table>
<thead>
<tr>
<th>Case examples of prevention policies and strategies for hazardous gaming or Internet use and gaming disorder or IA across regions</th>
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<tbody>
<tr>
<td><strong>Legislation/enforcement</strong></td>
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<tr>
<td>South Korea</td>
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<tr>
<td>Shutdown Law (2011); Game Industry Promotion Act (2006)</td>
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<tr>
<td><strong>Awareness: Education: Guidelines</strong></td>
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<tr>
<td>Korea Internet Addiction Prevention Centers (IAPC); KOCCA; Wee Center; I Will Center;</td>
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<td><strong>Population screening</strong></td>
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<td>Korea Internet Addiction Prevention Centers; Korea Youth Counselling and Welfare Institute</td>
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<td><strong>Early/Targeted prevention</strong></td>
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<td>Korea Internet Addiction Prevention Center (IAPC); Korea Youth Counselling and Welfare Institute</td>
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<td><strong>Mental health services</strong></td>
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<tr>
<td>Korea Youth Counselling and Welfare Institute; I Will Center; Wee Center;</td>
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Implementing the Global strategy to reduce the harmful use of alcohol

- Successful implementation of the strategy will require concerted action by Member States, effective global governance and appropriate engagement of all relevant stakeholders.

- All involved parties have the responsibility to act in ways that do not undermine the implementation of public policies and interventions to prevent and reduce harmful use of alcohol.
Role of "economic operators" in implementation of the Global strategy

- (45d) Economic operators in alcohol production and trade are important players in their role as developers, producers, distributors, marketers and sellers of alcoholic beverages. They are especially encouraged to consider effective ways to prevent and reduce harmful use of alcohol within their core roles mentioned above, including self-regulatory actions and initiatives. They could also contribute by making available data on sales and consumption of alcohol beverages.
The Framework of Engagement with non-State Actors (FENSA) has been approved by resolution WHA 69.10 (2016).

FENSA regulates WHO’s engagement with non-State actors i.e. NGOs, private sector entities, philanthropic foundations and academic institutions.

FENSA replaces the Principles governing relations between the WHO and non-governmental organizations and Guidelines on interaction with commercial enterprises to achieve health outcomes.
Overall objective of FENSA

Strengthen WHO’s engagement with non-State actors for clear benefit of public health while protecting WHO from any undue influence, in particular on the processes in setting and applying policies, norms and standards, in order to preserve WHO's integrity, independence, credibility and reputation.
Categories of interaction in which WHO engages with non-State actors

- **Participation**
  - Meetings of the governing bodies
  - Consultation
  - Hearings
  - Other meetings

- **Resources**: financial or in-kind contribution (e.g. medicines)

- **Evidence**

- **Advocacy**

- **Technical collaboration** (e.g. capacity building, contributing to the implementation of WHO's policies).
Conflict of interest

- Arises in circumstances where there is potential for a secondary interest (a vested interest in the outcome of WHO's work in a given area) to unduly influence, or where it may be reasonably perceived to unduly influence, either by the independence or objectivity of professional judgement or actions regarding a primary interest (WHO's work).

- An institutional conflict of interest is a situation where WHO's primary interest as reflected in its Constitution may be unduly influenced by the conflicting interest of a non-State actor in a way that affects, or may reasonably be perceived to affect, the independence and objectivity of WHO's work.
WHO activities and opportunities for international research and collaboration
Four WHO meetings on public health implications of addictive behaviours

- On public health implications of excessive use of the Internet, smartphones and similar electronic devices (Tokyo, Japan, 2014)
- On clinical descriptions, diagnostic guidelines and priorities for international research (Seoul, Republic of Korea, 2015)
- On policy and program responses (Hong Kong SAR, 2016)
- On convergence of gaming and gambling and clinical case studies of gaming disorder (Istanbul, Turkey, 2017)
1st WHO Forum on Alcohol, Drugs and Addictive Behaviours, Geneva, 26-28 June 2017
Priorities for international research

- Conducting/analysing data from nationally representative datasets to yield information on prevalence, risk factors and incidence rates
- Explore public health implications of monetisation of gaming and e-sports
- Undertaking in-depth, qualitative studies about lived experiences
- Exploring further validity and clinical and public health utility of diagnostic categories and their diagnostic criteria for disorders due to addictive behaviors, including validity and clinical and public health utility of "harmful gambling" and "harmful gaming"
Priorities for international research (continued)

- Developing scientific basis for guidance on healthy patterns of digital technology usage

- Develop international screening instruments for gambling and gaming disorders and explore effectiveness of screening-linked prevention interventions

- Implementation and evaluation research on prevention strategies and options to identify empirically validated effective policy options

- Evaluation of effectiveness of treatment options.
Conclusions

- Increasing and well-justified concern around public health implications of addictive behaviours, also in view of rapid technological developments and emerging convergence of gaming and gambling platforms, networks and products.

- Data on prevalence of addictive behaviours and associated disorders is patchy and does not allow to produce reliable global or regional estimates.

- Impact of addictive behaviours on population health is poorly documented.

- Conceptual integration of disorders due to addictive behaviours with substance use disorders provide new opportunities to development of prevention and treatment strategies and interventions.

- Massive international research efforts are needed to inform policy and program development in rapidly changing "digital world".
Thank you for your attention

Further information at:

http://www.who.int/substance_abuse/
http://www.who.int/mental_health/en/
http://apps.who.int/classifications/icd11/