New Drugs 2014

Scientific and technical update on New Psychoactive Substances

May 14th-15th, 2014

Universita' Cattolica del Sacro Cuore
Centro Congressi Europa - Auditorium

Rome

NSP project Alert 2013
Negli ultimi anni si è assistito ad un fenomeno del tutto nuovo che ha rivoluzionato le tendenze giovanili, e non solo, rispetto all’uso di droghe. Alle sostanze tradizionali (cannabis, cocaina, eroina, ecc.) si sono aggiunte Nuove Sostanze Psicoattive di origine sintetica di cui ancora molto poco si conosce in relazione alle loro caratteristiche e ai rischi che queste comportano per la salute di chi ne fa uso. Oltre a questo, risultano sconosciute anche le modalità analitiche necessarie per riconoscerle in laboratorio e per prevenirne e contrastarne il traffico e lo spazio sia su territorio italiano, ma anche su quello europeo ed internazionale. Il Sistema Nazionale di Allerta Precoce, istituito nel 2009 presso il Dipartimento Politiche Antidroga della Presidenza del Consiglio dei Ministri, in conformità a disposizioni Europee in materia, monitora la comparsa di tali sostanze sul territorio italiano con lo scopo di individuare precocemente i fenomeni potenzialmente pericolosi per la salute pubblica correlati alla comparsa di nuove sostanze e di nuove modalità di consumo, e di attivare segnalazioni di allerta che tempestivamente coinvolgano le strutture deputate alla tutela della salute e responsabili della eventuale attivazione di misure in risposta alle emergenze.

In recent years we have witnessed a new phenomenon that has revolutionized youth trends, and not just with respect to the use of drugs. To traditional substances (cannabis, cocaine, heroin, etc.) New Psychoactive Substances of synthetic origin have been added, that are still little known with regard to their characteristics and to the risks that they pose to human health. In addition to this, even the analytical methods needed to recognize them in laboratory and to prevent and combat trafficking and smuggling are unknown both on the Italian territory, but also at the European and international level.

The National Early Warning System, established in 2009 at the Department of Antidrug Policies of the Presidency of the Council of Ministers, in accordance with European regulations on the subject, monitors the occurrence of these substances on the Italian territory with the aim to early detect potentially dangerous phenomena for public health related to the appearance of new substances and new methods of consumption, and to enable early warnings that involve the departments responsible for the protection of health and responsible for the eventual implementation of measures in response to emergencies.

In considerazione delle sempre più frequenti segnalazioni di Nuove Sostanze Psicoattive che raggiungono il Sistema di Allerta europeo e quello italiano, il Dipartimento Politiche Antidroga ha anche sviluppato un nuovo Piano di Azione Nazionale per la prevenzione, l’identificazione precoce e il contrasto delle Nuove Sostanze Psicoattive.

Questo congresso internazionale, organizzato per la prima volta in Italia, è finalizzato a presentare e a divulgare le informazioni disponibili sul fenomeno delle Nuove Sostanze Psicoattive prendendo in considerazione tutti i diversi aspetti che lo costituiscono e che lo caratterizzano a livello nazionale ed internazionale. L’evento intende fornire evidenze tecnico-scientifiche di alto livello necessarie per affrontare il fenomeno a tutti i livelli e per ampliare la conoscenza di coloro che quotidianamente hanno a che fare con questa problematica.

Per tale ragione, al congresso sono invitati a partecipare operatori dell’ambito analitico, clinico, farmacologico, delle Forze dell’Ordine e della Magistratura.

Tutto ciò affinché si possa costruire una risposta integrata e coordinata tra tutte le amministrazioni ed organizzazioni coinvolte, e poter quindi fronteggiare questa problematica emergente nella salvaguardia della salute dei cittadini.

In view of the increasingly frequent reports of New Psychoactive Substances that reach the European and Italian Early Warning System, the Department of Antidrug Policies has also developed a new National Action Plan for the prevention, early detection and contrast of New Psychoactive Substances. This international conference, organized for the first time in Italy, is designed to present and disseminate available information on the phenomenon of New Psychoactive Substances taking into account all the different aspects that characterize it at national and international level. The event aims to provide evidence of high scientific and technical level necessary to deal with the phenomenon at all levels and to expand the knowledge of those who daily have to deal with this issue.

For this reason, at the conference are invited to participate professionals working in the following fields: analytical, clinical, pharmacological, Law Enforcement and Judiciary.

The aim is to build an integrated and coordinated action across all administrations and organizations involved, and therefore to be able to deal with this emerging public health challenge.

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Ministro della Salute
Minister of Health

Beatrice Lorenzin

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Speakers

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Ministero della Salute Italia

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Psychoactive Substances Regulatory Authority - Nuova Zelanda

Ruri Kikura-Hanajiri  
National Institute of Health Sciences - Giappone

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Punto Focale Reitox - Polonia

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National Institute on Drug Abuse - USA

Matteo Marti  
Università di Ferrara - Italia

Michael Baumann  
Intramural Research Program, National Institute on Drug Abuse - USA

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Chairman

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Department for Antidrug Policies, Presidency of the Council Ministers

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Giordano Biserni
Associazione Sostenitori ed Amici della Polizia Stradale
Association of Supporters and Friends of Traffic Police Corps - ASAPS
Programma
Programme

14 Maggio 2014
8.30 - 9.30 Registrazione dei partecipanti
9.30 - 10.00 Saluti delle autorità
Ministro Beatrice Lorenzin

Sessione plenaria
Moderatore: Giovanni Serpelloni ed Elisabetta Simeoni
10.00 - 11.00 Il Dipartimento Politiche Antidroga e il Piano d’Azione Nazionale sulle Nuove Sostanze Psicoattive
Giovanni Serpelloni
11.00 - 11.30 Nuove Sostanze Psicoattive: un’importante sfida per il sistema sanitario
Gilberto Gerra
11.30 - 12.00 Nuove forme di crimine emergente riguardo le NSP e la risposta internazionale
Jonathan Lucas
12.00 - 12.30 La responsabilità internazionale nella riduzione del traffico globale di NSP
Raymond Yans
12.30 - 13.00 Il ruolo dell’EMCDDA del monitoraggio delle droghe in Europa e il Sistema di Allerta europeo
Paul Griffith e Roumen Sedefov
13.00 - 13.30 Community Epidemiology Work Group (CEWG) and Network-Based Models for Monitoring Drug Abuse Trends: le Nuove Sostanze Psicoattive negli Stati Uniti
Moira O’Brien
13.30 - 14.30 Pranzo

Sessione I: Aspetti bio-tossicologici: NSP e tecniche analitiche
Moderatore: Elisabetta Bertol
14.30 - 14.50 Problematiche analitiche e soluzioni: l’esempio italiano
Teodora Macchia
14.50 - 15.10 Agonisti sintetici dei recettori cannabinoidi: metodi di identificazione e conoscenze attuali sulla loro tossicità
Bjoern Moosmann
15.10 - 15.30 Potenzialità della spettrometria di massa ad elevata risoluzione ed elevata accuratezza nella caratterizzazione strutturale delle nuove sostanze psicoattive ad azione amfetamino-simile
Giampietro Frison
15.30 - 15.50 Delucidazione strutturale delle nuove fenetilamine e triptamine allucinogene identificate sul mercato delle droghe
Dariusz Zuba

May 14th, 2014
8.30 - 9.30 a.m. Registration
9.30 - 10.00 a.m. Opening remarks
Ministro Beatrice Lorenzin

Plenary Session
Chairmen: Giovanni Serpelloni and Elisabetta Simeoni
10.00 - 11.00 a.m. The Department of Antidrug Policies and the Action Plan on New Psychoactive Substances
Giovanni Serpelloni
11.00 - 11.30 a.m. New psychoactive substances: severe challenges to public health systems
Gilberto Gerra
11.30 - 12.00 a.m. New forms of emerging crime regarding NPS and international responses
Jonathan Lucas
12.00 - 12.30 p.m. Shared international responsibility in reducing NPS global trafficking
Raymond Yans
12.30 - 1.00 p.m. The role of EMCDDA in drug monitoring and the European EWS
Paul Griffith e Roumen Sedefov
1.00 - 1.30 p.m. Community Epidemiology Work Group (CEWG) and Network-Based Models for Monitoring Drug Abuse Trends: NPS in USA
Moira O’Brien
1.30 - 2.30 pm Lunch

Session I: Bio-toxicological aspects: NPS and analytical techniques
Chairman: Elisabetta Bertol
2.30 - 2.50 p.m. Analytical problems and solutions: the Italian example
Teodora Macchia
2.50 - 3.10 p.m. Synthetic cannabinoids receptors agonists: methods of detection and current knowledge on toxicity
Bjoern Moosmann
3.10 - 3.30 p.m. Capabilities of high resolution/high accuracy mass spectrometry in structural characterization of new psychoactive substances with amphetamine-like properties
Giampietro Frison
3.30 - 3.50 p.m. Structural elucidation of new hallucinogenic phenethylamines and tryptamines identified on the drug market
Dariusz Zuba
15.50 - 16.10 L’identificazione delle Nuove Sostanze Psicoattive nelle acque reflue: nuove metodiche e tecnologie
Ettore Zuccato

Sessione II: Aspetti clinico-tossicologici

16.20 - 16.40 Problemmatiche cliniche e soluzioni: l’esempio italiano
Carlo Locatelli

16.40 - 17.00 Aspetti clinici e farmacologici dell’uso dei “sali da bagno”
Karen Miotto

17.00 - 17.20 La tossicità clinica delle fenetilamine PMA/PMMA e NBOMe
Simon L. Hill

17.20 - 17.40 Nuove Sostanze Psicoattive e le implicazioni per la psichiatria
Fabrizio Schifano

17.40 Chiusura lavori della prima giornata

15 maggio 2014

8.30 - 9.30 Registrazione dei partecipanti

Sessione plenaria: L’organizzazione degli EWS e le nuove modalità di prevenzione dell’offerta online delle NSP

Moderatore: Pietro Soggiu

9.30 - 9.50 Introduzione dei lavori
Giovanni Serpelloni

9.50 - 10.10 Il modello organizzativo dell’EWS
Claudia Rimondo

10.10 - 10.30 Ruolo dell’Europol nel contrasto al traffico internazionale di droghe
Klaidas Kuchalskis

10.30 - 10.50 Operazione “Profumo di droga” e altre azioni per il controllo degli smart shop in Italia
Vito Antonio Diomeda

10.50 - 11.10 Identificazione e segnalazione delle sostanze sequestrate sul territorio nei laboratori dei RIS/LASS
Enrico Cataldi

Parallelo session 1-A: Aspetti normativi

Moderatori: Franco Tagliaro

11.20 - 11.40 Aggiornamento delle tabelle delle sostanze soggette a controllo in Italia
Germana Apuzzo

11.40 - 12.00 Le Nuove Sostanze Psicoattive in Nuova Zelanda: un differente approccio di regolamentazione
Donald Hannah (videoconferenza)

12.00 - 12.20 Variazioni nella prevalenza delle Nuove Sostanze Psicoattive prima e dopo l’introduzione della tabellazione generica dei cannabinoidi sintetici in Giappone
Ruri Kikura-Hanajiri

15 maggio 2014

8.30 - 9.30 a.m. Registration of participants

Plenary Session: The organization of the EWS and new ways of prevention against the NPS online offer

Chairman: Pietro Soggiu

9.30 - 9.50 a.m. Introduction
Giovanni Serpelloni

9.50 - 10.10 a.m. The EWS organizational model
Claudia Rimondo

10.10 - 10.30 a.m. Europol role in counteracting international drug trafficking
Klaidas Kuchalskis

10.30 - 10.50 a.m. Operation “Scent of a drug” and other measures for the control of smart shops in Italy
Vito Antonio Diomeda

10.50 - 11.10 a.m. Identification and reporting of drugs seized on the territory in RIS/LASS laboratories
Enrico Cataldi

Parallel Session 1-A: Regulatory aspects

Chairman: Franco Tagliaro

11.20 - 11.40 a.m. Update of the substances under control in Italy
Germana Apuzzo

11.40 - 12.00 a.m. The new psychoactive substances regime in New Zealand: a different approach to regulation
Donald Hannah (live streaming)

12.00 - 12.20 p.m. Changes in the prevalence of new psychoactive substances before and after the introduction of the generic scheduling of synthetic cannabinoids in Japan
Ruri Kikura-Hanajiri

May 15th, 2014

8.30 - 9.30 a.m. Registration of participants

Plenary Session: The organization of the EWS and new ways of prevention against the NPS online offer

Chairman: Pietro Soggiu

9.30 - 9.50 a.m. Introduction
Giovanni Serpelloni

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Claudia Rimondo

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12.00 - 12.20 p.m. Changes in the prevalence of new psychoactive substances before and after the introduction of the generic scheduling of synthetic cannabinoids in Japan
Ruri Kikura-Hanajiri
12.20 - 12.40 p.m. The Polish Legislation on Smart Shops  
Michal Kidawa

12.40 - 1.00 p.m. New drugs and risk assessment: the Italian proposal  
Giovanni Serpelloni

Paralell Session 1-B: Pharmacological aspects  
Chairman: Silvio Garattini and Daniela Parolaro

11.20 - 11.40 a.m. Pharmacological, toxicological and pathophysiological effects of new synthetic psychoactive molecules  
Matteo Marti

11.40 - 12.00 a.m. Pharmacological, toxicological and pathophysiological effects of new synthetic psychoactive molecules  
Matteo Marti

12.00 - 12.20 p.m. Pharmacology of "Bath Salts" and analogues  
Michael Baumann

12.20 - 12.40 p.m. Pharmacology of "Bath Salts" and analogues  
Michael Baumann

13.00 - 14.00 p.m. Lunch  

Paralell Session 2-A: Reduction of NPS internet demand and supply  
Chairmen: Claudia Rimondo and Catia Seri

2.00 - 2.20 p.m. NPS web monitoring and online marketing: results of N.E.W.S. activity  
Michele Brunetto and Giuseppe Valvo

2.20 - 2.40 p.m. From N.E.W.S. to Law Enforcement: the darkening of websites  
Francesco Saggio

2.40 - 3.00 p.m. Deep web: the virtual drug marketplace  
Joe Van Buskirk

3.00 - 3.20 p.m. Accessing NPS and other drugs online: motivations, experiences, drug market implications and policy challenges  
Simon Lenton

Paralell Session 2-B: NPS related road accidents: the new frontiers of the survey  
Chairman: Giordano Biserni

2.00 - 2.20 p.m. A strategy to pass toxicological tests on the road and for the acquisition of driving licence  
Franco Tagliaro

2.20 - 2.40 p.m. Prevalence and blood concentrations of desoxypipradrol (2-DPMP) in drivers suspected of driving under the influence of drugs and in post-mortem cases  
Pirkko Kriikku

2.40 - 3.00 p.m. Analytical critical aspects for the rapid identification of NPS on the road  
Maria Augusta Raggi

Plenary Session: discussion and conclusion  
Giovanni Serpelloni
Universita' Cattolica del Sacro Cuore
University of the Sacred Heart
I momenti del congresso

Moments from the congress

New Drugs - Piano d’Azione Nazionale / National Action Plan

La libreria espositiva / The expositive bookshelf

Report di attività del Sistema Nazionale di Allerta Precoce / National Early Warning System activity report

Eugenio Valenzi promuove l’Italian Scientific Community on Addiction (ISCA) / Eugenio Valenzi promoting the ISCA

Materiali di prevenzione / Prevention materials
I momenti del congresso
Moments from the congress

I poster delle attività e dei progetti del DPA / Posters of activities and projects by the Department of Antidrug Policies

Distribuzione delle cuffie per la traduzione / Distribution of headphones for translation

Raymond Yans e lo staff del Dipartimento / Raymond Yans and the Staff from the Department

Registrazione dei partecipanti / Registration desk
I poster delle attività e dei progetti del DPA / Posters of activities and projects by the Department of Antidrug Policies
I momenti del congresso
Moments from the congress

La platea (di fronte) / The audience (front view)

Da sinistra / From the left: Paul Griffith, Raymond Yans, Gilberto Gerra

Da sinistra / From the left: Klaidas Kuchalskis, Giovanni Serpelloni, Pietro Soggiu, Enrico Cataldi, Claudia Rimondo

Sala Italia - Sessioni parallele / Parallel Session

Gilberto Gerra

Moira O'Brien
Scientific update and National Action Plan on New Psychoactive Substances

Congress Chairman

In recent years, a new phenomenon has revolutionized the youth trends, and not just that, with regard to drug use. To traditional substances, new psychoactive substances (NPS) of synthetic origin were added. Still little is known about NPS with regarding their characteristics and risks for their consumers. Even analytical methods needed to recognize them in the laboratory and to prevent and combat trafficking and smuggling are also unknown. The National Early Warning System, of the Department of Antidrug Policies, monitors the occurrence of these substances on the Italian territory with the aim of early detecting phenomena potentially dangerous to public and health related to the appearance of new substances, and at activating alerts promptly involving organizations responsible for the protection of the health and responsible for the activation of measures in response to emergencies. The Department of Antidrug Policies has developed a National Action Plan for the prevention, early detection and contrast of the NPS. It is based on a balanced and integrated approach, which operates simultaneously on both reduction demand and supply reduction. It also support the promotion of diagnosis, treatment and rehabilitation of consumers, but also a new strategy for combating NPS smuggling and traffic, which has taken on new forms of criminal organization and dissemination via the Internet. It is therefore important to provide technical and scientific evidences to address the phenomenon at all levels and to build an integrated and coordinated response across all administrations and organizations involved in protecting the health of citizens.

Download at http://allerta.dronet.org/video.html

The role of the EMCDDA and the EU Early Warning System in the monitoring of new psychoactive substances in Europe

Paul Griffiths and Roumen Sedefov, EMCDDA

The EU Early Warning System on new psychoactive substances (EWS) has been operating for more than fifteen years. The EWS is a near real time vehicle for the exchange of information on new psychoactive substances that may pose public health and social threats.
Now, more than ever, the EWS provides added value to the Member States and the EU Institutions by playing an essential role in ensuring that they have access to the most up-to-date information on new psychoactive substances both from across Europe and beyond. Over the past few years Europe has seen an unprecedented growth in the number, type and availability of new psychoactive substances. In 2013, for the fifth consecutive year, a record number of 81 substances were detected and reported for the first time via the EWS. This represents the largest number of substances ever reported in a single year – more than two thirds of the total number of substances monitored through the system has been identified in the last four years.

Further, where necessary, the system allows for the progression through the scientific risk assessment phase to control measures across the EU. Recently, the EMCDDA has assessed the risks posed by AH-7921 (a synthetic opioid), 25I-NBOMe (a potent hallucinogenic phenethylamine sold as LSD), methoxetamine (an arylcyclohexylamine advertised as a ‘bladder friendly’ alternative to, and sold as ketamine) and MDPV (a ring-substituted synthetic cathinone).

Download at http://allerta.dronet.org/video.html

Bjoern Moosmann
Institute of Forensic Medicine - University Medical Center Freiburg

Synthetic cannabinoid receptor agonists: Methods of detection and current knowledge on toxicity

Bjoern Moosmann and Volker Auwärter, Institute of Forensic Medicine, University Medical Center Freiburg, Germany

Products containing synthetic cannabinoids receptor agonists continue to be widely abused as substitutes for cannabis and almost weekly new substances were identified in the last years. Most of the drugs can be detected in blood or serum as soon as reference standards are available. However, for abstinence control in many environments urine is the preferred test material. For effective urine screening methods the main metabolites of the drugs are the analytical targets, because only very low concentrations of the parent compounds are usually present in urine samples due to extensive metabolism. From a clinical point of view it is evident that these products can cause intoxications much more severe than typical intoxications caused by cannabis use, which is in part due to the high potency and efficacy of the drugs but could also be a consequence of metabolism with a number of metabolites retaining both strong binding affinity and intrinsic activity at the CB1 receptor. Furthermore, as the plant material is either sprayed with or soaked in a drug solution, one main problem arises from inhomogeneities of the ‘herbal mixtures’ regarding the amount of active ingredient per packet and the distribution within the mixtures. As a consequence, it is not possible for the consumer to safely dose these drugs, and even two joints prepared from the same mixture could contain significantly different amounts of the active substance. Additionally, the compositions of these ‘herbal mixtures’ change rapidly over time and as a result, a certain product name does not guarantee the same composition of compounds between batches. This poses an additional risk on drug users due to the variability of potency and efficacy of the different compounds. Given the high frequency of appearance of new compounds and the huge variety of chemical substructures, keeping up with identifying and sensitively detecting these analytes or their metabolites presents a continuous challenge for clinical and forensic toxicologists. It is of great importance to meet this challenge, because applying comprehensive drug testing procedures seems to be more effective with regard to demand reduction than enforcement of narcotics law.

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Giampietro Frison  
Lab. of Environmental Hygiene and Forensic Toxicology (LIATF), Department of Prevention ULSS 12 Veneziana, Mestre

Capabilities of high resolution/high accuracy mass spectrometry in structural characterization of new psychoactive substances with amphetamine-like properties

Giampietro Frison - Laboratory of Environmental Hygiene and Forensic Toxicology (LIATF), Department of Prevention, Azienda ULSS 12 Veneziana, Mestre - Venezia

Many clinical and forensic toxicology laboratories had to face, in these last years, the analytical challenge represented by the appearance in the illicit market of many new psychoactive substances, with amphetamine-like (cathinones, phenethylamines, piperazines, tryptamines) or cannabis-like properties. To this end several analytical techniques, based on chromatography - mass spectrometry, are currently employed in our laboratory, in particular ultra-high-pressure liquid chromatography coupled to high resolution/high accuracy Orbitrap® mass spectrometry (UHPLC-HRMS). The capabilities of UHPLC-HRMS in elucidating elemental composition and structural characteristics of new psychoactive drugs with amphetamine-like properties are described. The UHPLC-HRMS analytical strategy is based on: 1) efficient chromatographic resolution of analytes; 2) study of MH+ collision-induced product ions obtained in MS/MS experiments; 3) accurate mass measurements of MH+ ionic species in full scan conditions; 4) comparison of experimental and calculated MH+ isotopic clusters; 5) examination of the isotopic fine structure of the M+1, M+2, M+3, M+4 isotopic peaks relative to the monoisotopic (M+0) peaks.

The UHPLC-HRMS analytical approach has allowed our laboratory to identify so far, even without availability of reference standards, about 25 new psychoactive substances with amphetamine-like properties found in seized materials, and in some cases even in biological samples.

Download at http://allerta.dronet.org/video.html

Darius Zuba  
Institute of Forensic Research, Westerplatte 9, 31033 Krakow, Poland

Structural elucidation of new hallucinogenic phenethylamines and tryptamines identified on the drug market

Dariusz Zuba - Institute of Forensic Research, Westerplatte 9, 31033 Krakow, Poland

Phenethylamines and tryptamines are two broad groups of psychoactive substances that produce a range of hallucinogenic effects. These compounds have a long history of licit use for spiritual and medicinal purposes (e.g., dimethyltryptamine (DMT) is an active ingredient of Banisteriopsis caapi used to make Ayahuasca decoctions, while MDMA was a medicine in psychotherapy). Phenethylamines and tryptamines have also been used for recreational purposes by young people in club and rave environments. The Internet has facilitated the illicit use in recent years, as these substances can be purchased from internet stores selling them as research chemicals, bath crystals or plant food. Unequivocal identification of phenethylamines and tryptamines is a big challenge. The main reason is a rapid growth in the number of substances detected on the drug market. According to reports of the European Monitoring Centre for Drug and
Drug Addiction (EMCDDA), 70 phenethylamines and 28 tryptamines were notified through the early warning system. The similarity in chemical structures between different representatives causes that common analytical techniques used in forensic laboratories often fail and the use of sophisticated hyphenated methods is required. Gas chromatography – mass spectrometry (GC-MS) has become the standard screening tool with a growing number of records in the mass spectral databases. But the findings have to be interpreted with care and supported by other experiments, including derivatisation, e.g. with trifluoroacetic anhydride (TFAA), the use of chemical ionization or high-resolution mass spectrometric techniques, e.g. liquid chromatography – quadruple time-of-flight mass spectrometry (LC-QTOFMS). Application of Fourier-transform infrared spectroscopy (FTIR) is recommended when different positional isomers are considered. A new substance is usually characterized by nuclear magnetic resonance (NMR) spectrum, but this technique has the limitations concerning amount and purity of the sample. Schemes used for identification of new psychoactive substances in elementary and advanced laboratories will be presented. Benefits and pitfalls of different analytical methods will also be discussed in the lecture.

Download at http://allerta.dronet.org/video.html

**Ettore Zuccato**
*Istituto di Ricerche Farmacologiche “Mario Negri” Milano*

**Detection of New Psychoactive Substances in wastewater: new methods and technologies**

Ettore Zuccato, Sara Castiglioni - IRCCS “Mario Negri” Pharmacologic Research Institute, Via Giuseppe La Masa 15, 20156 Milan

A new estimation method on NPS consumption in the general population has been recently set. It is based on wastewater analysis (Zuccato et al., 2005). The principle on which this method is based is that when a consumer takes a substance, this is absorbed, metabolized and eventually excreted through urines and faeces. Wastewater therefore keeps track of all the substances that have been collectively consumed by the population. So far, the wastewater analysis has allowed to estimate consumption of the so called “classic” psychotropic substances such as cocaine, amphetamine, heroine and cannabis (Zuccato et al, 2008). This method could be easily adapted for the evaluation of NPS consumption. If some of these substances became of common use by a sufficiently numerous group of subjects, it would be possible to measure their traces (metabolites or residuals of parental substances) in wastewater. The method would be then suitable for estimating which, amid all the new identified substances that are marketed (also online), seized or cause of admission in Emergency Departments are actually consumed by the population not just occasionally but on a regular basis and in a remarkable level. That means to be able to identify which, among hundreds of potential substances, have in fact become “of common use”. To achieve this research goal, we are testing a specific software called “Trace finder”, which applies hi-tech solutions for the identification of unknown substances in environmental samples (e.g. urban wastewater). The chemical characteristics either of parental substances or of known or presumed metabolites (exact mass, mass/charge ratio, isotopic fragments, isotopic patterns, retention times) of Psychoactive Substances concur to build a dataset which is then used to identify these substances in wastewater by means of mass spectrometry techniques. Analytical standards, when available, allow to build mass/mass spectra libraries that are then applied so as to identify these substances in wastewater. The software has been used for the analysis of ketamine and mephedrone and there are ongoing studies for the analysis of other NPSs in wastewater of some Italian cities.

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New Psychoactive Substances (NPS) clinical problems and solutions: the Italian example

Carlo Alessandro Locatelli - Centro Antiveleni di Pavia - Centro Nazionale di Informazione Tossicologica, IRCCS Fondazione Maugeri, Pavia

The management of a patient intoxicated by NPS neurotoxic effects presents some critical issues, both in the pre-hospital and in the hospitalization phase, such as (a) the management priorities in the early stages, (b) the specific toxicological (clinical and analytical) diagnosis (c) the choice of the most suitable (clinical and / or instrumental) monitoring, (d) the type of treatment in emergency (short observation, emergency medicine, SPDC, other departments), and (e) the criteria to be assumed for the discharge or the admission to at lower-intensity wards. The process of diagnosis is often complex. Patients entering the emergency departments for NPS acute intoxication not usually have a history of abuse. From the clinical toxicology standpoint, the could be classified into two main types, each characterized by different levels of severity: patients with prevalent neurodepression (e.g., psychomotor decline, coma) and patients with prevalent neuroexcitatory effects (agitation, delirium, hallucinations, etc.). To better understand and assess the NPS issue, to improve diagnosis, to identify new syndromes and analytical needs in the urgency system and, more generally, to cope with this new toxicological and social emergency, in Italy urgent and special measures have been taken in coordination with the Department for Antidrug Policy of the Presidency of the Council of Ministers. The National Early Warning System (www.alertadroga.it) is indeed a network of emergency services of the NHS which includes laboratories, poison control centers and other resources that work quickly to coordinate the necessary activities, information, alerts and other useful functions to deal with this issue. Through this network toxicological expertises and analytical abilities are made available for the urgency system with the aim of early identify and confirm NSP poisoning. In this context, the Poison Control Center toxicological specialists play a central role in the diagnosis and the setting of specific treatments, in the choice of the most appropriate placement of the patient in the acute phase (e.g., indicated and contraindicated drugs), for the assessment of analytical needs in urgency, as well as specialized reference to the post-acute non-psychiatric phase.

Acknowledgements: The study has been carried out with the support of the National Early Warning System, Department for Antidrug Policy of the Presidency of the Council of Ministers, 2011-2013.

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Bath Salts

Karen Miotto - School of Medicine at UCLA, Semel Institute of Neuroscience and Human Behavior - Los Angeles

A new emerging drug commonly known as “bath salts” has recently gained extensive popularity. This synthetic cathinone yields many adverse effects similar to stimulants. Although bath salts have only been prevalent for several years, their potent harmful effects have been medically recognized. Consumers often experience a range of acute psychosis and cardiovascular symptoms, such as paranoia, hallucinations,
panic attacks, chest pains, heart palpitations, etc. This presentation will delve further into the adverse psychiatric effects of bath salts and its management in a clinical setting.

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**Fabrizio Schifano**  
*School of Pharmacy, University of Hertfordshire, UK*

**NPS, clinical pharmacological and psychopathological issues**

Prof. Fabrizio Schifano (MD, FRCPsych) will provide an overview of the clinical pharmacological and toxicity challenges posed by a range of Novel Psychoactive Substances, including: psychedelic phenethylamines; synthetic cathinones, synthetic cannabimimetics; PCP-like drugs; and herbs/plants' derivatives. He will comment as well on the clinical issues relating to the misuse of a range of prescription drugs, including gabapentinoids and anticholinergics.

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**Claudia Rimondo**  
*Sistema Nazionale di Allerta Precoce, Dipartimento Politiche Antidroga*

**The Early Warning System organizational model**

The Italian National Early Warning System (N.E.W.S.) of the Department for Antidrug Policies, Presidency of the Council of Ministers, was established in 2009 with the aim of monitoring the presence of New Psychoactive Substances (NPS) in Italy and of collecting information on their patterns of use and toxicological effects. The NPS phenomena is monitored through the collection of notification (information on seizures, collected samples or clinical cases) coming from law enforcements, toxicology laboratories, clinical/emergency departments, etc., belonging to the N.E.W.S. Collaborating Centre Network. Data are processed to activate alerts and produce technical folders shared with the N.E.W.S. Network to improve the awareness and knowledge on NPS spread in Italy and Europe. The N.E.W.S. involves 130 Collaborative Centres. Notifications of NPS registered by the N.E.W.S. for the first time in Italy resulted in a high number of new synthetic cannabinoids (30), cathinones (15) and phenethylamines (20). Since 2010, 43, 8 and 17 acute intoxication cases, related respectively to synthetic cannabinoids, cathinones and methoxetamine, were also notified. Web monitoring started in 2011 and allowed the reporting of 523 Internet pages to the Law Enforcement, 93,8% no more visible.
The spread of NPS is hard to evaluate due to unavailability of standard compounds, lack of specific analytical methods and unavailability of primary rapid screening tests in case of intoxications. Data sharing provided by the N.E.W.S. allowed the Collaborative Centres to be updated in real time on the appearance of NPS, to improve their analytical ability to rapidly identify NPS and to promptly make diagnosis, indicating that the working method used is valid, reliable and effective.

Download “ongoing”

Europol role in counteracting international drug trafficking

Klaidas Kuchalskis - Europol

Please be informed that that Europol's presentation will focus on combating NPS from the law enforcement perspective, in particular:

- Situation in the EU (SOCTA 2013 findings concerning NPS)
- Common threats
- NPS production and trafficking
- Crime relevant factors
- Intelligence gaps
- Law enforcement response/role of Europol
- Early Warning System: law enforcement component
- EMPACT priority on synthetic drugs
- Law enforcement limitations
- Europol support
- Case study.

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N.A.S. and the New Psychoactive Substances

Colonnello Vito Antonio Diomeda - Vice Comandante dei Carabinieri per la tutela della Salute (N.A.S.)

- Origin, articulation and institutional tasks of N.A.S.
- N.A.S. and “Smart Drugs - NPS”
- Law enforcement activities concerning NPS
  - Criminal organizations’ modus operandi;
Detection and notification of New Substances that have been seized on the territory by scientific Units (RIS/LASS) of Carabinieri Law Enforcement

Generale Enrico Cataldi - Raggruppamento Carabinieri Investigazioni Scientifiche (RaCIS)

In the last years, we have witnessed a new phenomenon which has revolutionized youth trends on drug abuse. Together with the consumption of “traditional” illicit drugs such as cocaine, cannabis, amphetamines and their derivatives, a new social emergency has raised, namely the spread of the so called “smart drugs”, new synthetic substances which are characterized by similar or even worse effects on human health than the “traditional” drugs. The fight against this phenomenon cannot be separated by the ability of chemical-analytical identification of these substances and by their early notification to the National Early Warning System of the Department of Antidrug Policies (N.E.W.S.) in order to allow the prompt identification of suitable countermeasures both at a local and national level and to permit the constant update of the list of illicit substances.

In order to tackle this phenomenon, the Carabinieri law enforcement corp has a technical-scientific unit (Raggruppamento Carabinieri Investigazioni Scientifiche) which is composed by 4 RIS (Scientific Investigation Detachments) each having an interregional jurisdiction and by 29 Laboratori per Analisi di Sostanze Stupefacenti - LASS (Laboratories for the analysis of narcotic substances) each having a provincial jurisdiction. They all assure a widespread NPS identification capacity on seizures carried out by Law Enforcement.

The collaboration between the Raggruppamento Carabinieri Investigazioni Scientifiche (RaCIS) and the Department of Antidrug Policies of the Presidency of the Council of Ministers forms part of such framework. The constant technical-operative update of the laboratory specialized personnel led to the achievement of remarkable results in terms of a more and more effective identification and chemical-analytical characterization of NPSs and/or of abnormal “classical” drug samples. After the end of this first “RIS-NEWS” course, an increase in the quality-quantity of alerts to the National Early Warning System - N.E.W.S. has been registered. In fact, there have been 189 alerts made by the RIS and LASS corps from April 2013 to April 2014, compared with just 32 alerts that had been reported in 2012.

Download “ongoing”
Changes in the prevalence of new psychoactive substances before and after the introduction of the generic scheduling of synthetic cannabinoids in Japan

Ruri Kikura-Hanajiri - Section Chief, Division of Pharmacognocy, Phytochemistry and Narcotics, National Institute of Health Sciences, Tokyo 158-8501, Japan

To counter the spread of the many analogs of psychoactive substances, the Pharmaceutical Affairs Law in Japan was amended in 2006 to establish a new category; “Designated Substances” in order to more promptly control these drugs. However, new analogs of controlled substances, especially synthetic cannabinoids and cathinone derivatives, appeared one-by-one. To avoid a cat-and-mouse game, a comprehensive system (generic scheduling) for designating the naphthoylindole-type synthetic cannabinoids and the cathinone derivatives was introduced into the “Designated Substances” in 2013 and 2014.

We investigated the distribution of synthetic cannabinoids before and after their control in Japan during the last six years. Until 2011, the synthetic cannabinoids having only four structures (cyclohexylphenols, naphthoylindoles, phenylacetylindoles and benzoylindoles) had been detected in products and 63% of the compounds detected from 2009 to 2011 were the naphthoylindoles. MAM-2201 was the most frequently detected in 2012. On the other hand, since 2012, new types of synthetic compounds, such as cyclopropylmethanones (e.g. UR-144 and XLR-11), carboxyamides (e.g. APICA and APINACA) and quinolinyl carboxylates (e.g. PB-22) have increased. In particular, after the enforcement of the generic scheduling for designating naphthoylindoles in March 2013, the naphthoylindoles have been completely replaced by other types. 5-Fluoro PB-22 (in early 2013) and FUB-PB-22 (in the second half of fiscal 2013) were the most detected synthetic cannabinoids in the product after the generic scheduling. Based on our studies on the binding affinities of newly-emerging synthetic cannabinoids at the cannabinoid CB1 and CB2 receptors, these new compounds have high CB1/CB2 receptor binding affinities. Although the binding affinities at the CB1/CB2 receptors do not directly reveal each neuro-pharmacological activity, their potential health damage is expected.

Because information sharing among laboratories is the key to a fight against these new psychoactive substances, we opened “Data Search System for New Psychoactive Substances” (http://npsdb.nihs.go.jp/Search/Default_e.aspx) on the web site in March 2014. To avoid health problems and abuse caused by new designer drugs, we have to continuously monitor the distribution of these products.

The Polish Legislation on Smart Shops

Michał Kidawa - National Early Warning System, National Focal Point, National Bureau for Drug Prevention

Poland was one of the countries where legal high phenomenon developed very rapidly. In two years (from 2008 to 2010) the number of street shops offering new psychoactive substances increase from 40 to over 1300, despite legal efforts to stop the
Pharmaco-toxicological and physio-pathological effects of New Synthetic Psychoactive molecules

K2 or Spice products became popular in 2008 as drugs of abuse [1] and are illegally marketed for their psychoactive effects similar to those produced by cannabis [2]. These “herbal” preparations contain varying amounts of different synthetic cannabinoids (SCBs) that showed high affinity for CB1 and CB2 receptors. Although assumed by many teens and first time drug users to be a “safe” and “legal” alternative to marijuana, many recent reports indicate that SCBs create a serious public health issue due to medical and psychiatric toxicities [3, 4] that seems not associated with the primary psychoactive component of marijuana, Δ9-tetrahydrocannabinol (Δ9-THC). In particular, seizures, hyperreflexia, myoclonias and cardiac toxicity appear to be the main “atypical” side effects observed in emergency rooms [3, 4]. In the present preclinical study we evaluated the pharmaco-toxicological effects in mice of JWH-018 and 5F-AKB, 5F-ADBINACA 5F-PB 22, three novel fluorinated SCBs, recently seized in the Internet market. SCBs were studied using a battery of behavioral tests widely used in studies of “safety-pharmacology” for the preclinical characterization of new molecules [5]. In order to compare the behavioral and pharmacological effects induced by SCBs in mice we used as a reference compound the Δ9-THC (Dronabinol®). We demonstrated that all SCBs reproduced the typical cannabinoid “tetrad” in mice characterized by hypolocomotion, catalepsy, hypothermia and acute analgesia. A significant effect is observed in the inhibition of the visual and auditory sensory reflex. In fact, SCBs (5F-PB 22 ≥ JWH-018 > 5F-ADBINACA ≥5F-AKB) inhibited more readily and with greater effectiveness than THC visual and auditory sensory responses of the mouse. Moreover, the effects are long lasting and persist beyond the 5 hours of observation. The compounds also alter the sensorimotor phenomenon (like delegalizing large number of substances). At the end of 2010 the new act of law was passed. Act banned manufacturing or introducing to trade so called substitute drugs (legal highs). Violating the ban on introducing substitute drugs to trade is subject to fine ranging from PLN 20 000 to 1 000 000 (~5,000 – 260,000 euro). The main objective of this presentation is to present the consequences and impact of legal changes on the drug scene and legal high phenomenon. An analysis of available sources have been done. Statistics of poisoning cases and surveys from the years 2010 and 2013 were analyzed. The recent survey “Youth 2013” shows that the legal change from 2010 was followed by significant decrease of prevalence of experiments with legal highs among Polish youth. The live time prevalence of legal highs use has decreased from 11,5% in 2010 to 3,5% in 2013. On the other hand undesirable side effects to public health of the implemented in the 2010 legal changes have been noted. Additionally, some aspects of the law proved to be difficult to implement in current form. Although the legal changes of drug law from the 2010 is still being considered as a success, negative side effects and difficulties in the law implementation were noted. This is why in the 2013 the team of experts started to develop recommendations for new amendment of the law. Basing on this the amendment was prepared. The amendment is still in the interministerial consultations. The concept of changes and idea behind new legislation will be also included in the presentation.
responses in reply to tactile stimuli (corneal, vibrissae, pinnae reflex), although less intensively compared to those observed on visual and auditory reflexes. Regarding the main neurological effects, it is interesting to note that the administration of SCBs (5F-PB 22 > 5F-AKB > JWH-018) induced myoclonus, hyperreflexia and seizures in mice. Moreover, SCBs (5F-AKB > JWH-018 > 5F-PB 22) induced relevant long-lasting (up to 5 hs) cardio-respiratory changes characterized by deep bradycardia (hearth rate reduction of about 50 %) alternated with episodes of tachyarrhythmias. Cardiac effects were accompanied by bradypnea (breathing rate reduction of about 50 %) and mild reduction in SpO2 (SpO2 reduction of about 25 %). For the first time the present study reproduced in the mouse model the “atypical” side effects induced by SCBs in humans as seen in emergency rooms, and it strengthens the pre-clinical evidence on the health hazard represented by SCBs.

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**Pharmacology of “bath salts” and their newly-emerging analogues**

**Michael H. Baumann, PhD - Designer Drug Research Unit, IRP, NIDA, NIH, Baltimore, MD 21224**

The abuse of synthetic cathinones, or so-called “bath salts”, is a growing public health concern. Common constituents of bath salts, including 3,4-methylenedioxyxypyrovalerone (MDPV) and 4-methylmethcathinone (mephedrone), have been rendered illegal, but new cathinones are being marketed as replacements. The purpose of the present investigation was to examine the interaction of newly-emerging cathinones with transporters for dopamine (i.e., DAT) and 5-HT (i.e., SERT). Derivatives of MDPV that were studied include α-pyrrolidinovalerophenone (α-PVP), while derivatives of mephedrone include 4-methylmethcathinone (4-MEC) and 4-methylpyrrolidinopropiophenone (4-MePPP). In vitro assays were carried out in rat brain synaptosomes to assess drug-induced effects on transporter-mediated uptake and release. In vivo microdialysis was carried out in rat nucleus accumbens to assess drug-induced changes in extracellular dopamine and 5-HT. MDPV and α-PVP displayed low nM potency as DAT blockers. Mephedrone was a non-selective transporter substrate with releasing ability ad DAT (EC₅₀ = 38 nM) and SERT (EC₅₀ = 98 nM). 4-MEC had unusual properties, blocking uptake at DAT (IC₅₀ = 546 nM) while evoking release at SERT (EC₅₀ = 123 nM). 4-MePPP (1.0-3.0 mg/kg, i.v.) selectively increase extracellular dopamine, whereas mephedrone and 4-MEC (1.0-3.0 mg/kg, i.v.) elevate dopamine and 5-HT. Each of the compounds examine displays a unique profile of in vitro transporter activity. Pyrrolidinophenones like MDPV and α-PVP are potent DAT blockers. Increasing the N-alkyl chain length of mephedrone creates compounds with reduced releasing activity, converting them to DAT blockers. In vivo findings demonstrate that all of the newer replacement cathinones increase extracellular dopamine to some extent, suggesting these drugs possess a significant risk for abuse.
Sabina Strano Rossi
University of “Sacro Cuore” - Rome

In silico and in vitro metabolism prediction: a pilot study

Sabina Strano Rossi - Istituto di Sanità Pubblica – Sezione di Medicina Legale, Università Cattolica del S. Cuore Roma

Between 2009-2012, EMCDDA reported the identification of 200 new psychoactive substances (NPS) in the illicit market; in August 2013, the National Early Warning System pointed out more than 280 NPS. These substances belong to different chemical classes, recently classified by UNODC in synthetic cannabinoids, synthetic cathinones, ketamine, phenethylamines, piperazines, substances not belonging to any of these classes, and vegetable ones. The phenomenon involves issues of public security and citizens health. In this context, health protection units (Emergency Department and Poison Control Centers) and academic research institutions (Forensic Toxicology) have a key role for the prompt identification of NPS and their metabolites in intoxicated/dead subjects’ biological samples and subsequent reporting to the National Early Warning System (EWS). Therefore, it is essential to develop analytical methods capable of detecting NPS, their metabolites or biomarkers of abuse, in consumers’ biological samples or in intoxicated/died subjects. Many of the papers published are related to the experimental study in vitro metabolism of NPS, primarily synthetic cannabinoids, because the unchanged compounds are usually not detected in urine after consumption. A further approach is the theoretical computational prediction (in silico) of metabolites, depending on the molecular structure, on the reactivity of its sites and on its possible interaction with the enzyme that catalyzes the metabolic reaction. In vitro metabolism experiment, coupled with in silico prediction, are therefore an important and working alternative to human studies. The speech describes possible methods for the identification of NPS markers of abuse in biological fluids, mainly urine, whereas it is impossible to carry out studies on volunteers, given the potential dangers of the substances tested.

Download “ongoing”

Francesco Saggio
Nucleo Antisofisticazione - Arma dei Carabinieri

Closing illicit web sites

Capitan Francesco Saggio - Comandante del Reparto Analisi dei N.A.S.

• Origins of the collaboration with the Department for Antidrug Policy of the Presidency of the Council of Ministers
• Darkening, inhibition and elimination of websites offering NPS and related law enforcement activities
  • NPS advertisements and law enforcement activities;
  • Domains which sell NPS and law enforcement activities;
  • Modus operandi of organizations managing websites and illegal advertisements;
• Police’s difficulties in law enforcement activities against NPS

Download “ongoing”
Web monitoring - Prevention of online drug sales and illegal rave parties

Giuseppe Valvo and Michele Brunetto - European Institute for Health Promotion

Internet gives the opportunity to access quickly and easily to a wide number of information and to start a commercial relations for any kind of product, including unfortunately drugs. In this context, the Department for Antidrug Policies has activated a web monitoring unit, within the National Early Warning System which operates with the aim to identify and to obtain information on these phenomena and to prevent that users purchase and consume the substances sold on the web and the darknet. The web monitoring takes place within standardized procedures shared with the Central Directorate for Anti-drug Services and Carabinieri N.A.S. The methods are based on research of websites in Italian language or with server located in Italy, easily accessible to any user interested to purchase illicit drugs. For Deep Web, the monitoring unit has highlighted the features of this “invisible web”, through specific software. Finally, for the illegal rave parties, the web monitoring unit send a notification to the Law Enforcement of the presence of any illegal rave parties, promotion on the web.

From July 2011 to April 2014, 544 web pages selling New Psychoactive Substances (NPS) were notified to the law enforcement. Of reports to the Carabinieri N.A.S of sites which sell controlled substances, 66.9% resulted in the removal of the notice and in 22.8% of cases the web page was closed. The site notified was closed in 1.3% of cases. Only 9.0% of the pages notified are still visible on the web. For deep web, have been identified 39 web sites that sell illegal drugs. Finally, the monitoring activity conducted from October 2010 to April 2014 also led to the identification of 139 illegal music events promoted online. 136 of these were notified by the Prefecture, Police, municipality and referred to the Magistrate of the place where the event was to be held and the Central Executive for Anti-Drug Services, in order to verify the legitimacy of the organisation. 43 of these (30.9%) were prevented, i.e. closed before taking place; 37 were managed by intervention in loco of the Police forces (26.6%); 39 (28.1%) took place in spite of the notification. 17 events are waiting for report; 3 events indicated as not reported, are events where insufficient advance information regarding the place has been collected and therefore they have not been notifiable to the Police forces and to the regional administrations.

The web monitoring proves to be a useful and effective tool to examine aspects of the phenomenon of supply of illegal drugs via the Internet. In terms of health, the web monitoring can reduce the availability of toxic substances to the health of consumers, thus decreasing the possibility that they may incur in cases of intoxication or situations that could endanger their health, their lives and the lives of the people close to them.

Download “ongoing”
Monitoring Dark Web Marketplaces – After the Silk Road

Joe Van Buskirk1, Amanda Roxburgh1 and Lucinda Burns1
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Issue: The closure of the Silk Road in October 2013 led to much discussion online of alternate dark web marketplaces on which to trade illicit substances. In the absence of any one marketplace emerging to take its place, and the closure of many alternative online markets due to fraud or security vulnerabilities, multiple marketplaces are now regularly monitored.

Approach: Dark web marketplaces were first identified and monitored weekly for changes in size and the availability of substances being sold. Details on retailer numbers, the substances for sale, as well as the countries of origin and shipping destinations for these substances, were collected and analysed over time. The data from seven different marketplaces of varying sizes and lifetimes are presented.

Key Findings: Marketplaces varied in the proportion of Australian domestic retailers, as well as international retailers willing to ship to Australia. An upward trend over the monitoring period was observed among both Australian and international retailer categories. Australian retailers on the Silk Road 2.0 in particular have increased markedly. The specific substances available across marketplaces varied less, with cannabis, MDMA and pharmaceutical drugs most commonly sold, with slight variations in rank. Some marketplaces had a slightly higher availability of new psychoactive substances, but largely the substances for sale mirrored street availability identified in other Australian and international monitoring systems.

Implications: The increasing proportion of Australian retailers operating on the Silk Road 2.0 requires ongoing monitoring. Despite data from the Ecstasy and related Drugs Reporting System suggesting that this group of consumers prefer to purchase their drugs from more traditional sources (e.g. through friends and known dealers), dark web marketplaces have the potential to influence the price, purity and availability of drugs in traditional street marketplaces should their reach broaden out. Given the findings from this research, dark web marketplaces appear likely to continue operating.

Download “ongoing”
Desoxypipradrol was originally developed for medicinal use, but in the later stages of its development it was replaced by methylphenidate, a structurally similar molecule currently used for the treatment of attention deficit hyperactivity disorder (ADHD) and narcolepsy. Desoxypipradrol is a very long acting psychostimulant that has been shown to cause serious side effects in some recreational users. It was recently scheduled as an illegal narcotic in the national Narcotics Act in Finland. In this study, the prevalence and serum concentrations of desoxypipradrol in drivers suspected of being under the influence of drugs (DUID) and in post-mortem cases in Finland were assessed. Serum samples from drivers apprehended on suspicion of DUID, and blood/urine samples from post-mortem cases, were analysed for the presence of desoxypipradrol and other psychoactive drugs. All samples were analysed by mass spectrometric methods. Between October 2010 and December 2012, there were 107 desoxypipradrol-positive samples from apprehended drivers. In nearly all cases amphetamine and/or benzodiazepines were also present. The median (range) desoxypipradrol concentration in DUID cases was 0.069 mg/L (0.006–0.890 mg/L). In over half of the desoxypipradrol positive cases a clinical examination was carried out by a physician shortly after the arrest and functional impairment was found in more than 43% of these. Of all the post-mortem toxicology cases in the study period, desoxypipradrol was found in 5 cases (0.05% of the investigated cases). The concentration of desoxypipradrol in post-mortem cases ranged between 0.01 and
1.40 mg/L. There is very little information available on the pharmacology and toxicology of desoxypipradrol. In our study, it was only rarely found in post-mortem toxicology. In DUID cases, however, it was the second most common novel designer drug after MDPV. Based on our findings and on the few reports from other studies, it is likely that desoxypipradrol - along with other novel drugs of abuse - has an increasing detrimental impact on traffic safety.

Download “ongoing”

Analytical difficulties for nps roadside drug tests

Maria Augusta Raggi - Laboratorio di Analisi Farmaco-Tossicologica, Dipartimento di Farmacia e Biotecnologie, Alma Mater Studiorum-Università di Bologna, Via Belmeloro 6, 40126 Bologna

It is scientifically proven that the use of psychotropic substances leads to perceptual distortions that negatively affect complex tasks such as driving. That highlights the need for rapid and reliable analytical methods to determine the actual NPS consumption among drivers.

Given the lack of analytical methodologies for NPS detection, the Laboratory of Pharmaco-Toxicological Analysis is engaged in the development of new methods, in order to assist roadside drug testing by law-enforcement agencies. The Laboratory has just proposed an alternative biological matrix, the dried blood spot (DBS), to check substance abuse. Compared to traditional venipuncture, DBS matrix has several advantages: it is very fast and minimally invasive, it allows the immediate blood collection, during police roadside control or after a road accident, showing driver’s blood condition. DBS test is a promising strategy for NPS analysis.

In particular, γ-hydroxybutyric acid (GHB) has placed analytical problems that are not easily solvable, both for its unusual chemical formula, and for its rapid metabolism. The Laboratory is validating a capillary electrophoresis method with indirect detection for the GHB analysis in DBS matrix. Moreover, it's developing analytical methods based on HPLC-F and LC-MS/MS use for ketamine analysis. Ketamine requires high analytical sensitive methods to avoid “false negatives” cases, because it is present in the blood at levels of few ng/mL. The Laboratory is also developing analytical methods for the rapid identification of some synthetic cannabinoids and of fentanyl.

Download “ongoing”
International collaborations for scientific research

United Nations Office on Drugs and Crime (UNODC), Vienna

Areas of collaboration: Prevention and Training

Activities: This joint initiative aims at supporting the creation of regional hubs connecting and training policy makers from different countries in order to provide them concrete tools to improve their respective national prevention systems, including drug prevention programs and informative materials. The initiative is active in Central America, Northern Africa, Central Asia and East Asia.

National Institute on Drug Abuse, Bethesda, USA

Areas of collaboration: Early diagnosis and Early Warning Systems

Activity 1: This collaboration aims at developing in Italy a screening model for early detection, brief intervention and improved treatment for addictive disorders, especially among adolescents and young adults, through motivational counseling, professional drug testing and educational support to families according to the US Screening, Brief Intervention and Referral to Treatment (SBIRT) model.

Activity 2: A study of pharmacology and toxicology on new synthetic psychoactive molecules in animal model was activated with the Clinical Pharmacology and Therapeutics Research Branch, Chemistry and Drug Metabolism Section. The study aims at assessing acute, sub-acute and chronic toxicological effects brought about by New Psychoactive Substances in an experimental system checked and certified according to GLP (Good Laboratory Practices).

Activity 3: A study to evaluate the tolerability and efficacy of a ketogenic diet in the reduction of withdrawal symptoms in hospitalized alcohol-dependent subjects.

Activity 4: In the framework of the AIDS Research Program, a collaboration was activated in order to study the mutation of the HIV virus in a cohort of patients treated in an Italian therapeutic community so as to understand whether and how therapies can influence such variations in the course of time.

United Nations Interregional Crime and Justice Research Institute (UNICRI)

Area of collaboration: Scientific collaboration

Activity: It is a collaboration for the implementation of initiatives aiming at promoting the scientific communication and the sharing of evidence-based information within the scientific community. This collaboration led to the creation of the Drog@News institutional website, the Italian Scientific Community on Addiction and the Italian Journal on Addiction.

Media Research Lab at Iowa State University, Department of Psychology, Ames, USA

Area of collaboration: Mass media effects on the health of children and adolescents

Activity: Research collaboration on the effects of the use of videogames on the psychology and behavior of young people in particular, on the effects of violence in TV programs, films and videogames on both peer relationship and behavior, and on the pathological computer use.

Friends Research Institute, Baltimore, USA

Area of collaboration: Outcome evaluation

Activity: This collaboration aims at drafting a scientific article on the electronic clinical data and service supply record system in health facilities devoted to the care and treatment of drug addicted patients. In particular, the electronic health record, in Italy represented by the multifunctional platform MFP, plays a very important role in opioid agonist treatment and allows to monitor and evaluate precisely and scientifically the patients’ outcomes across treatment facilities (Addiction Departments).
NYU Child Study Center (CSC), New York, USA

Area of collaboration: Neuroimaging

Activity: Study on the correlation between behavioral disorders and substance use in adolescents and young adults. This collaboration consists in the acquisition and exchange of data regarding MRI and spectroscopy sequences for the analysis of metabolites; recruiting patients so as to analyze fMRI “resting – state” signals; comparing groups of subjects affected by ADHD and groups of subjects with substance use in order to detect anomalies in both the grey and white brain matter. The study aims at both understanding biological and cognitive aspects of the brain from an anatomical and functional point of view in adolescents and young adults (aged 15-30) who use drugs, and at understanding how different substances can affect brain maturation and whether some behavioral social and organic factors can affect the natural trajectory of brain development.

University of Wisconsin, Brain Laboratory of Neuropsychology and Brain Imaging, Milwaukee, USA

Area of collaboration: Neuroimaging of addiction

Activity: Examination of the effects of marijuana, alcohol, nicotine and ecstasy on brain structure and function through the use of magnetic resonance imaging and neuropsychological assessment. This collaboration aims at outlining effective treatment methods for adolescents who make frequent use of drugs. Several advanced magnetic resonance techniques are employed in order to study the neurotoxic effects of different drugs on young subjects (aged 15-22). The analysis on the correlation between the MRI anatomo-functional and anamnestic-toxicological data allow to define the variables (early starting date of use, type of the substance used, poly drug use, comorbidity with stressful events or other pathologies, family history, etc.) that can concur to the formation and/or retention of the drug use behavior.

University of Hertfordshire, School of Pharmacy, United Kingdom

Area of collaboration: Pharmacology

Activity: This ten-year long standing collaboration consists in keeping a constant updating of the pharmacological aspects related to New Psychoactive Substances. In particular, in the last 5 years a joint effort has been carried out for the exchange of technical-scientific information and the identification of both pharmacological properties and clinical-toxicological characteristics of New Psychoactive Substances.

UC Irvine Child Development Center (CDC), Division of Developmental & Behavioral Pediatrics, Irvine School of Medicine, Irvine, USA

Area of collaboration: Neuroeducation

Activity: To disseminate at national level the scholastic intervention model for children with attention-deficit, learning-deficit and behavioral problems, promoted by the Irvine Child Development Center (CDC). This collaboration aims at developing and implementing such model also in the Italian context as a tool for detecting both vulnerability and risk factors for the use of substances and for developing preventative actions through the involvement of parents, teachers and educators.

University Hospital of Psychiatry, University Bern, Svizzera

Area of collaboration: Psychiatric Neurophysiology

Activity: Study of the physiopathological mechanisms of addiction observed by means of the Magnetic Resonance and the Arterial Spin Labeling techniques (ASL). The goal is to measure patients’ cerebral blood flow and then compare results with control subjects.

University of Wisconsin, Madison, USA

Area of collaboration: Neuroimaging

Activity: The collaboration aims at the execution of a study on the brain development of both children and adolescents and on their predisposition to use drugs that could derive from the influence of genetic, epigenetic and environmental factors. The main goal of the research is to investigate on the cerebral circuits which are responsible for decision taking, motivation and addictive behavior in adolescents that have recently started to use drugs.
The Health Value

The health promotion process – which is meant as physical, mental and social wellbeing (OMA 1948) – is a value belonging to every society which want to protect its citizens from risks and dangers. Proper nutrition, healthy physical activity and good sleep could be considered protective factors of human health. All these factors can be transferred in a set of behaviors defining the quality of a person’s health, thus acting on what is called the “Health Value”. If a person adopts negative behaviors, his/her whole health could be compromised. In particular, if a teenager – whose body and mind are still in a developmental phase – adopts behaviors such as drug use and alcohol abuse, he/she seriously endangers the quality of his/her health.

The Ethical Consortium

The Ethical Consortium is born to promote the “Health Value” between young and adult people endorsing healthy life styles, away from drug use and alcohol abuse. It aims at providing support to families, educators and teachers for a better growth of young people. It is a Community set up by authorities and opinion leaders who want to give testimony of the positive value of healthy and satisfying behaviors to help create an environment where citizens could live and preserve their physical, mental and social wellbeing.

Ethical Consortium’s national Network

• 75 adherent municipalities
• 93 testimonial

Ethical Consortium’s goals

Thanks to the collaboration agreement between the Italian Department for Antidrug Policy (DPA) of the Presidency of the Council of Ministers and the National Association of Italian Municipalities (ANCI) for the prevention of drug use and alcohol abuse, signed in Rome on December 18th 2012, it is possible for municipalities to join the Ethical Consortium in order:

• To communicate to young people – through a clear and explicit message from authorities and opinion leaders – the need and the opportunity not to use any type of drugs or alcohol, maintaining healthy lifestyles and behaviors.
• To prevent the use and the addiction to alcohol and drugs and, therefore, accidents and diseases drug and alcohol related.
• To promote the participation of positive opinion leaders within Italian Municipalities in the Ethical Consortium Ethics thanks to their endorsement of its principles against the use of all drugs and the alcohol abuse.

Ethical Consortium’s principles

1. To maintain and demonstrate our ethical and professional commitment in the prevention of drug use and alcohol abuse.
2. To promote and strengthen the educational and preventive role and value of family, school and community, as reference points for health matters.
3. To contribute in promoting a multidimensional, challenging, creative, competitive social offers – in contrast with the drug market – to stimulate young people with healthy, fun and rewarding experiences. At the same time to increase their awareness and responsibility to prevent the use of drugs and the alcohol abuse.
4. To uphold children and adolescents’ rights to be protected by drugs and alcohol provision and to grow in a healthy and drug-free environment.
5. To promote an awareness of the value and the “pleasure” of physical and mental health, of its protection and promotion.
6. To promote the practice of discovering and early detecting any drug use at a young age and behavioral conditions of vulnerability.
7. To consider addiction as a brain disease that can be prevented, treated and cured through proper treatment and never giving up the full social rehabilitation of drug addicts.
8. To promote scientific researches aimed at understanding the human brain’s and the individual and social behaviors’ operating principles, in order to define more effective interventions for prevention and treatment of addiction.
9. To promote and support the prevention and combat production, trafficking and drug-dealing by the side of the law enforcement agencies.
10. To contribute to the dissemination and application of the Ethical Consortium’s principles.

Social disapproval of drug use

Communities themselves have to express a clear dissent against any behavior that would endanger people’s health and have to disapprove social behaviors and values that support unhealthy or socially harmful lifestyles. The perception of being socially disapproved provides a strong deterrent to drug use and alcohol abuse, indeed. Keys’ studies (2011) show that the lower the disapproval of the use of marijuana in subjects when age increases, the greater the use of the substance. On the contrary, the greater the disapproval of marijuana use, the lower is substance use in adolescents, calculated over time.

Figure 1: The lower the disapproval of the use of marijuana in subjects when age increases, the greater the use of the substance. Keyes, K.M. et al. 2011.

Figure 2: The greater the disapproval of marijuana use, the lower is substance use in adolescents, calculated over time. Keyes, K.M. et al. 2011.

Factors supporting social disapproval.
Delay time in identifying substance use

The perception of risks and damages resulting from the early use of drugs and/or psychotropic substances is often underestimated by both the young and their parents. This can result in a delay in the diagnosis of substance use and therefore in the continuation of a behavior able to cause very serious damage to mental and physical health of the young. Therefore, it is necessary that parents pose a particular attention to their children as early as in the pre-adolescent phase, in order to capture any signal of behavior at risky of drug use and to act promptly, with access to health care experts. According to the Annual Report to Parliament on the state of drug addiction in Italy 2011 the period between the age of onset of drug use and age at first treatment (delay time) varies between 5 and 9 years Depending on the substance, exposing the subject to high risks to their health.

### National guidelines

The manual aims to provide guidelines and methodological elements to operators of the Addiction department about strategies and techniques for early identification of behavioral risk factors for the development of addiction and the use of drugs among adolescents.

Link for download:
http://www.dronet.org/pubblicazioni_new/pubb_det.php?id=663

### Institutional website on early detection of drug use

https://diagnosiprecoce.dronet.org/

### Link for download:
http://www.dronet.org/pubblicazioni_new/pubb_det.php?id=663

### National information campaign

The “Early detection for early intervention among children” project

The project, initiated in 2012, aims to identify as early as possible minor subjects drug users and to activate as soon as possible adequate intervention measures. It involves operators of the Addiction Departments, parents, teachers and other educational figures.
Main results (Mach 2014)

Through the project it was possible to record 297 young subjects attending health services implementing the model of early diagnosis and intervention proposed at national level (75.9% males and 24.1% females, mean age 14.4 years (min. 11, max. 17). The project also involved 523 parents (266 mothers and 257 fathers).

Delay time: elapsed time between the beginning of drug use and first contact with the services of diagnosis and treatment (measured by means of the Early Detection Project) compared with the times recorded in the absence of interventions for early detection at the Addiction Departments.

Subjects for substance use and percentage of positivity on the number of exams – Percentage

Use of substance

<table>
<thead>
<tr>
<th>Substance</th>
<th>Yes (%)</th>
<th>No (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cannabis</td>
<td>34.4%</td>
<td>65.6%</td>
</tr>
<tr>
<td>Cocaine</td>
<td>28.5%</td>
<td>71.5%</td>
</tr>
<tr>
<td>Heroin</td>
<td>16.0%</td>
<td>84.0%</td>
</tr>
</tbody>
</table>

Behavioral disorders diagnosed

- Attention deficit
- Conduct disorder
- Oppositional defiant disorder
- Attention deficit/mood disorder
- Attention deficit/mood disorder
- Mood disorder

Behavioral disorders observed

- Emotional disorder
- Behavioral disorder
- Learning disorder
- Emotional disorder
- Behavioral disorder
- Learning disorder

Type of observed disorder

- Emotional disorder
- Behavioral disorder
- Learning disorder
- Emotional disorder
- Behavioral disorder
- Learning disorder

Sexual behaviors at risk

- Regular sexual activity
- Regular sexual activity
- Regular sexual activity
- Lack of sexual activity
- Lack of sexual activity
- Lack of sexual activity

Analysis of educational models

Regular Teen
- Regular sexual activity
- Lack of sexual activity
- Regular sexual activity
- Lack of sexual activity
- Regular sexual activity

Conclusion

The model of diagnosis and early intervention so far achieved by the project “Early detection for early intervention among children” showed a significant reduction in the time between the onset substance use and the access to services (reduction of delay time); an ability to identify subjects with behavior of substance use (alcohol, tobacco, drugs) higher than that recorded from the National SPS, 2012, and a reduction in the consumption of substances also after 6 months of monitoring. In addition, it is important to highlight that the project has led to a real change in mentality, a cultural revolution among operators of services who have started to work in view of the early diagnosis and intervention with individuals much younger than usual patients and who have also been able to reorganize their internal resources to provide an adequate service to young people and their families.
Ketogenic diet: tolerability and efficacy in the reduction of withdrawal symptoms in hospitalized alcohol-dependent subjects

In collaboration with

Dipartimento Politiche Antidroga, Presidenza del Consiglio dei Ministri; Dipartimento delle Dipendenze - Azienda ULSS 20, Verona; Medicina delle Dipendenze e Alcologia di Marzana del Dipartimento delle Dipendenze ULSS 20, Verona; Divisione di Endocrinologia e Malattie del Metabolismo, Dipartimento di Medicina, Azienda Ospedaliera Universitaria Integrata, Verona.

Background

The results of the PET study indicate that in fact, alcohol intoxication significantly reduces the overall brain glucose metabolism. In contrast, the alcoholic intoxication produces a significant increase in cerebral absorption of the tracer used. The study results also confirm a reduction in cerebral glucose metabolism during alcohol intoxication and document an increase in the brain uptake of acetate. The variations in the opposite direction between the decrease of glucose metabolism and the increased absorption of acetate in the brain support the hypothesis that during alcoholic intoxication the brain can count on acetate as an alternative source of energy and provides preliminary evidence that exposure to high amounts of alcohol would facilitate the use of acetate by the brain, as an energy substrate (Volkow et al., 2013). In addition, recent findings with Magnetic Resonance imaging have shown that alcoholics promote metabolism acetate in the brain compared with control subjects, as consistent with the changes in energy use associated with chronic alcohol abuse (Jiang et al., 2013). These results raise the question of the potential therapeutic benefits that the increase of acetate concentration in plasma (which can be induced, for example, through a ketogenic diet) may have in alcoholics undergoing alcohol detoxification.

Aim of the study

The present study, exploratory in nature, has as main objective to evaluate the tolerability of the introduction of a ketogenic diet in patients hospitalized for the treatment of alcohol addiction, by collecting information on possible side effects of the diet and by evaluating its preliminary efficacy in terms of decreased withdrawal symptoms with or without the drug treatment in use at the hospital (benzodiazepines). The study also aims to measure the degree of adherence of alcohol-dependent patients admitted to a ketogenic diet in place of a pharmacological treatment for withdrawal symptoms. Secondly, the study also intends to analyze information on metabolic and functional changes in the brain induced by the particular diet regimen, through the use of high field (3.0) Magnetic Resonance techniques (MR).

Principal inclusion criteria

- Men aged 18-65 years
- Individuals knowing the Italian language so as to understand and sign the informed consent.
- Subjects with alcohol problems who meet the diagnostic criteria for alcohol dependence according to DSM-IV-TR
- Subjects who declare that they have consumed alcohol at least once in the four weeks prior to assessment of eligibility and to the start of treatment.
- Subjects who express the desire to achieve abstinence or greatly reduce alcohol consumption
- Subjects that are in good medical conditions at clinical evaluation
- Subjects not in drug treatment for a disease included among the exclusion criteria
- Subjects with a standard body mass index (BMI < 29,9)
- Subjects with total cholesterol value less than or equal to 260 mg/dl

Principal exclusion criteria

- Subjects with benzodiazepine dependence, according to DSM-IV-TR
- Subjects that have a clinical history with serious neurological disorders: epilepsy, previous TIA / stroke or other vascular brain diseases found, Parkinson’s disease, Huntington’s, Multiple Sclerosis
- Subjects with unstable medical conditions
- Subjects with severe liver disease
- Subjects with diseases such as diabetes, heart disease, kidney deficiency, metabolic deficiencies, atherosclerosis, cancers, chronic pancreatitis
- Subjects with eating disorders
- Subjects with values of total cholesterol greater than 260 mg/dl
- Subjects with total cholesterol value less than or equal to 260 mg/dl, but which have two or more cardiovascular risk factors such as family history of heart attack, family history of myocardial infarction, thrombophilic disorders, family thrombophilic disorders, family history of high cholesterol, obesity
- Subjects with hypertriglyceridemia (greater than 200 mg/dl)
Experimental design of the study

The study will be carried out in two distinct sequential phases (sequential to one another).

First phase: to n alcoholic patients in treatment and the possible reduction of the doses of medication administered for the containment of withdrawal symptoms.

Second phase: to determine if the ketogenic diet reduces signs and symptoms of withdrawal in the absence of pharmacological treatment.

The following describes the sequence of activities planned:

evaluation of the effectiveness of the diet

<table>
<thead>
<tr>
<th>Primary outcome</th>
<th>Secondary outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First phase of the study:</strong>&lt;br&gt; Tolerability of the ketogenic diet assessed by monitoring the following parameters:&lt;br&gt;- Liking of the ketogenic diet by patients&lt;br&gt;- Reduction of drug therapy administered for withdrawal symptoms (evaluated as a reduction of the number of doses of drug)&lt;br&gt;- Reduction of the clinical withdrawal symptoms as measured by the assessment of the signs and symptoms according to the scale CIWA-Ar.</td>
<td>Reduction in the intensity of craving for alcohol.&lt;br&gt;- Absence of any alcohol consumption.&lt;br&gt;- Metabolic and functional changes in the brain measured with MR.&lt;br&gt;- Changes in cortical excitability as measured by Transcranial Magnetic Stimulation.</td>
</tr>
<tr>
<td><strong>Second phase of the study:</strong>&lt;br&gt; Reduction of the clinical withdrawal symptoms as measured by the assessment of the signs and symptoms according to the scale CIWA-Ar.</td>
<td></td>
</tr>
</tbody>
</table>

Expected results

It is expected to demonstrate the positive effects can be achieved with the ketogenic diet in the control of abstinence in alcoholics in treatment. The ability to define by MR the cerebral metabolic and functional structure will allow to define this type of food regimen as a possible additional therapeutic intervention in the context of alcohol addiction and at the same time to identify which areas and processes of the brain are involved.

Bibliografía


Prevention of drug and alcohol related road accidents

Drugs on Street protocol and NNIDAC project

D.O.S. Protocol

“Drugs on street” is a national protocol for the prevention of drug and alcohol related vehicle crashes, with the aim of investigating the prevalence of both psychoactive substances and alcohol in the general driving population (under artt. 186, 186bis, 187 of the Highway Code). The operating procedure is carried out jointly with the support of law-enforcement agencies and health care professionals. Toxicological tests are performed in order to investigate drivers' physical and psychic conditions possibly related to drug or alcohol use. The results of toxicological and clinical tests enable an assessment of driver’s suitability to drive.

The activity is generally performed in the nighttime (24.00 – 6.00), during weekends. After breath alcohol tests are carried out by Law Enforcement on randomly selected drivers, they undergo clinical and toxicological tests performed by health professionals (medical history about drug use, screening drug test, clinical test, assessment of nervous responses, blood drawing for confirmation analysis).

Pictures of the phases in which the D.O.S. Protocol is articulated: police road control, breath alcohol test, reaction time test.

NNIDAC project

The Department of Antidrug Policies of the Presidency of the Council of Ministers has promoted the spread of the D.O.S. Protocol by means of a national network for the prevention of drug and alcohol related vehicle crashes (NNIDAC). The general aim of the NNIDAC project is to contrast the drugged and drunk driving phenomena by way of the creation of a national network applying standard procedures for road control. The NNIDAC project, which has existed since 2010, is currently active in 21 Italian municipalities.

Data collection method

A certification form, in triplicate, has been structured for a coherent data collection. The form is divided into fields that must be filled out by law enforcements officers (yellow coloured) and fields filled out by health professionals (grey coloured).

The first copy remains to the medical staff and it is stored in the driver’s medical record for medico-legal purposes. The second one remains to the police officer who carried out the driver’s road control. The third one, anonymous, is used for statistical purposes.
NNIDAC web platform

A web platform has been designed for both data entering and consulting statistical files which synthesize results of the project activity. The web platform is accessible at the web address:  http://nnidac.dronet.org/

Through the login, it is also possible to create and customize synthetic reports containing graphs, tabs and some indicators elaborated on the basis of the inserted information. All municipalities that have joined the project can access the platform.

Results of activity

The following preliminary results are referred to the activity carried out between July 2012 and December 2013. 97,4% of NNIDAC project's activity has been carried out outdoor, on the road. Drivers were controlled by local police (70,5%) and traffic police (14,7%). The type of vehicle more frequently inspected was the car (96,2%). Most of the drivers were tested for alcohol (76,4%), 22,8% were tested for both alcohol and drugs, 0,8% were tested for drugs only. 85,2% of drivers resulted negative for alcohol; 10,5% resulted positive for alcohol; 2% resulted positive for drugs; 2,3% resulted positive for both alcohol and drugs. Among drivers who resulted positive for breath-test (15,7%), 18,7% had a blood alcohol concentration (BAC) between 0,5 - 0,8 g/l; 35,6% had a BAC between 0,8 - 1,5 g/l; 13,6% had a BAC higher than 1,5 g/l (punishable by means of vehicle confiscation); 29,1% had a BAC between 0 – 0,5 g/l, legal limit for drivers under 21 years of age, novice drivers and professional drivers. Among drivers positive for saliva drug test, cannabis is the most frequently detected drug (39,7%), together with cocaine (22,4%) and amphetamines (6,9%). Some drivers tested positive for both cannabis and cocaine (15,5%). The urine drug test was made to verify drivers' substance use in the previous days (up to one week before). Results showed a frequent use of cannabis (53%), cocaine (25,2%) and a combined use of both cannabis and cocaine (14,8%).

Outcomes of the controls carried out among drivers tested for alcohol and drugs (2012-2013 data)
Prevention in school with video conferencing

National and international experts working in the addiction field by different agencies all around the world are available to share their knowledge and expertise with Italian students on the topic of prevention of drug use and alcohol abuse. This is possible through the sophisticated technology of EDULife videoconferencing, which connects simultaneously renowned experts with many Italian schools, at no cost to the participating educational institution.

Output indicators 2011-2014

• 7093 participating students
• 19 Italian Regions
• 102 schools involved
• 55 videoconferences

School year 2013-2014 (preliminary results)

• 7093 participating students
• 19 Italian Regions
• 102 schools involved
• 55 videoconferences

Learning assessment

D1 - “What are drugs?”
D2 - “Could the use of drug change the brain?”
D3 - “Which effects may cause cannabis use?”
D4 - “Could alcohol be considered a drug?”
D5 - “Is smoking cigarettes addictive?”

Average learning increase: +11,6%

Satisfaction evaluation

79,8% positive rating by teachers
95,8% positive rating by students
EDU platform

Educational operating system (http://piattaformaedu.dronet.org) addressed to teachers and parents, which can be accessed online free of charge, upon registration. On the platform many training courses on drug use and alcohol abuse are available. They could be used both at school or at home. Thanks to the dedicated forum which facilitates debates, it is also possible to interact with other users. The new service “Sportello Scuola” (sportelloscuola@dronet.org) is dedicated to educational professionals who need to find answers to specific doubts and questions arisen from their daily activities with students.

“Are you against drugs and the mafia” initiative

Initiative aimed at making aware young people on the risks of drug use, alcohol abuse, mafia and related violence and terrorism through the implementation of creative activities which can lead to new ideas and incentives. Creativity could be indeed a source of pleasure and can support and inspire young people by enhancing their motivation to express their potential and to maintain healthy lifestyles, in full compliance with the law. The “Ci stai contro le droghe e le mafie?” initiative is addressed to students attending italian first and second grade high schools. They should realize posters, banners and website homepages addressed to young people endorsing an explicit message against drug use, alcohol abuse and mafia. Procedures and materials are available at the website http://www.cistaicontroledroghe.dronet.org/

- 33 subscribed schools
- 246 participant students
- 105 creative products arrived
Gambling consists of betting money, or other valuable goods, in order to obtain a prize, on an event the outcome of which, in whole or in part, is determined by chance. Pathological gambling (GAP) is a morbid form clearly identified, that in the absence of appropriate measures of information and prevention, may represent a real social disease. The GAP is still a disease preventable, treatable and curable, which requires early diagnosis, specialist care and psychological and social support. A more extensive definition of pathological gambling is available in the DSM-5.

### Stages of Gambling

<table>
<thead>
<tr>
<th>Stage</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informal and recreational gamble</td>
<td>Physiological behavior with the need of awareness for the potential risks</td>
</tr>
<tr>
<td>Problematic gamble</td>
<td>Conduct at risk for health (physical, mental and social) with the need for diagnosis and early intervention</td>
</tr>
<tr>
<td>Pathological gamble</td>
<td>Neuro-psychological disease with health and social consequences and need for diagnosis, treatment and rehabilitation</td>
</tr>
</tbody>
</table>

### Subjects in treatment

In 2011, a survey was conducted by the Department of Antidrug Policies, which involved Italian Regions and Autonomous Provinces Italian and that allowed to partially detect a proportion of subjects treated at Addiction Departments/Ser.D. Emilia-Romagna, Tuscany, Basilicata, Sardinia, Umbria, Valle d’Aosta and the Marches did not take part to the research. The sample, though partial, is however interesting and consists of 4,544 subjects, of which 82% males and 18% females.

### Consequences of pathological gambling

The pathological gambling can have a serious impact on the physical, mental, emotional, and financial condition of people who play, as well as on their families. The stress caused by gambling can cause physical and emotional problems such as anxiety, insomnia, depression, guilt, anger, and so on. It is not infrequent the recourse to the use of alcohol and drugs. Regarding economic aspects, debts can be substantial and, in some cases, it may happen that there is recourse to moneylenders. In the worst case, the situation can become so unbearable as to cause suicidal intent in the player in debt.

### Resilience and vulnerability factors

Not all individuals who gamble develop a pathological form of addiction. There are differences in the population exposed to the game involving the existence of individuals more vulnerable than others to develop addiction (that is, pathological gambling), by virtue of individual, environmental and other factors, according to characteristics of the games. Depending on the personal vulnerability, behavioral paths that people can take when they are in contact and stimulated by means of gambling are reported in the following figure (Serpelloni, 2012).
Neurobiological aspects of pathological gambling

Subjects with pathological gambling perceive and appreciate the most, in terms of gratification produced, stimuli arising from gambling rather than the normal population. That is related to different structure of their dopaminergic systems and processes of gratification. Therefore, they tend to select and to reiterate the use of these stimuli rather than the other normal gratification stimuli. If you associate this dysfunction with other dysfunctions at neurocognitive level, such as control disorders (impulsivity and compulsivity), difficulties in problem analysis and problem solving, poor cognitive flexibility and the presence of irrational beliefs, the result is a complex but coherent framework of symptoms that explains the behavior of patients with pathological gambling.

Some authors (Petry 1999, Clark 2009) found that in pathological gamblers, as well as in substance dependence, there is a more rapid resolution of satisfaction reward compared to non-vulnerable population. At the same time, there is a high reduction in the duration of the satisfaction derived from the rewards. This would explain the subsequent search for new and immediately repeated stimuli in pathological gamblers.

Functional MRI studies (Clark et al., 2009) have shown that in patients with pathological gambling, while the expectation of winning, an increased activity of the reward system is registered. After winning, in the areas of gratification there is an activity lower compared to normal subjects. During the game, a lower activation of the areas of control.

Gambling and neuroimaging

Research performed by means of advanced neuroimaging techniques in pathological gamblers showed a failure to activate the right ventrolateral prefrontal cortex (VLPFC), both in condition of monetary gain and of monetary loss (De Ruiter et al., 2009).

Other researches have also showed in problematic gamblers an activation of the VLCP significantly poorer than smokers and controls (Remijnse, 2006).

Investigations available in the scientific literature show that brain areas with greater response to images linked to gambling in pathological gamblers are regions involved in motivation and in visual processing, similar to the neural mechanisms underlying responsiveness to stimuli related to drugs in drug addiction.

Activation patterns between groups for images related to gambling compared to neutral images (Goudriaan et al., 2010).

It was also shown that the “near wins” strengthen the desire to gamble by an abnormal involvement of the reward circuit, despite the objective lack of monetary reinforcement in these tests (Clark 2009). Subsequent studies (Billieux et al., 2012) have also shown that in gambling players, reactions of the brain areas of learning are almost equal when they win or near-win. That means that, in pathological gamblers, near win produces the same gratification as real wins do.
National guidelines and scientific handbooks

Variants of cannabis plants and health damage
March 2014
Author: Serpelloni G.
This iconographic manual has been prepared to provide an overview of the various and new types of cannabis seeds produced in the world. It is intended to provide a useful tool for all professionals who wish to deepen their interest or knowledge on cannabis seeds and the plants that they generate.

March 2014
Authors: Serpelloni G., Gomma M., Rimondo C., Rossi A., Tito R.
The document is intended to be an important starting point for the person suffering from pathological gambling, a moment of reflection and awareness of the problems associated with gaming and the need to stop these dynamics.

December 2013
Authors: Serpelloni G., Department for Antidrug Policies, Presidency of the Council of Ministers
The need for national guidelines on pathological gambling, in addition to meeting the requirements of the legislation, also comes from the real need to put in place as soon as possible, really effective preventive interventions to combat the phenomenon that have assumed relevance and social and health importance.

NEW DRUGS. Update and National Action Plan for the prevention of the spread of New Psychoactive Substances (NPS) and the offer on the internet
Novembre 2013
A cura di: Serpelloni G., Dipartimento Politiche Antidroga, Presidenza del Consiglio dei Ministri
First and concise update on the main characteristics of the NPS identified, developing a series of strategic directions, objectives and actions to be able to start building an integrated and coordinated response between all administrations and organizations involved in various capacities, in order to cope with this emerging problem.

New Psychoactive Substances (NPS): data sheets for the molecules recorded by the National Early Warning System
November 2013
Authors: Serpelloni G., Macchia T., Locatelli C., Rimondo C., Seri C.
NPS data sheets elaborated by the National Early Warning System which report information that can be of great benefit to professionals (laboratory personnel, personnel of the emergency unit, healthcare professionals, researchers, etc.) in order to facilitate the analysis of unknown samples.

Drug use and related infectious diseases
October 2013
Authors: Serpelloni G., Cruciani M.
Drug use and dependence have always been associated with a variety of infections. While remaining the parenteral route of absolute importance, it is to underline how the use of substances determine an increasingly important impact on risk behaviors such as sexual promiscuity, which in turn is an important cause of acquiring infections, HIV in first place.

Prevention of drug use and alcohol abuse - Collaboration Agreement DPA-ANCI
October 2013
Authors: Serpelloni G., Department for Antidrug Policies, Presidency of the Council of Ministers in collaboration with ANCI
Adhesion to the ethical consortium for the prevention of drug use and alcohol abuse through the activation of a network of Italian municipalities.

Problematic and pathological gambling: general overview, pathophysiological mechanisms, vulnerability, scientific evidence for prevention, treatment and rehabilitation
February 2013
Author: Serpelloni G.
This publication is directed to professionals of the Addiction Departments and wants to make a contribution to focus on the problem of pathological gambling on the basis of the scientific evidence with a multidisciplinary approach that highlight neurobiological, psycho-behavioral, social and financial aspects that are the basis of this phenomenon.

Prevention of drug use and alcohol abuse. Memorandum of Understanding MIUR-DPA
December 2012
Authors: Serpelloni G., Department for Antidrug Policies, Presidency of the Council of Ministers in collaboration with the Minister of Education, University and Research
Neuroscience of Addiction: Neuroimaging

November 2012
Authors: Serpelloni G., Alessandri F., Zoccatelli G., Rimondo C.
The Department for Antidrug Policies, in collaboration with NIDA, the UNODC and the Department of Addiction ULSS 20 - Verona, has published this guide with the aim of offering to professionals working in the addiction field and to researchers working in academia, scientific information on the role of neuroimaging of addiction in the clinical diagnostic practice and what possible prospects such evidence may result in the treatment of addictions.

Prison and Drugs

November 2011
Authors: Serpelloni G., Mollica R., De Luca C., Condemini M.
The main problems that have been willing to deal with this publication are those of the great heterogeneity that currently exists in making the diagnosis of “drug dependence”, the cumbersome procedures used to quickly insert people into alternative measures, the lack of coordination with the judiciary surveillance and ultimately the low percentage of eligible persons who enjoy today the benefits provided by art. 94.

RELJ - Theoretical and Practical Handbook

April 2012
Authors: Serpelloni G., Frighetto R., Dalla Chiara R.
This manual defines the general guidelines and an operational model for the processes of social and occupational rehabilitation and reintegration of drug addicts and is addressed to all operators of the Departments of Addiction.

Early Detection and Early Intervention

November 2011
Authors: Serpelloni G., Mollica M., Rimondo C.
This manual aims to provide guidelines and methodological elements to the Addiction Department operators on strategies and techniques of early identification of behavioral risk factors for the development of addiction and drug use in adolescents. Is in fact recognized the effectiveness of an intervention of this kind in interrupting the evolution of vulnerable people towards forms of addiction to substances such as heroin, cocaine or amphetamines.

The Department of Addiction. Guidelines and organizational orientations for the integration of supply and services

November 2011
Authors: Serpelloni G., Mollica M., Rimondo C.
In view of the great need to have precise methodological guidelines within the organization of Addiction Departments, the Department for Antidrug Policies has developed this document which is intended to be a technical and scientific point of reference for improvement in the field of addiction.

General principles of the Italian position against drug use

November 2011
Author: Department for Antidrug Policies
This publication lists a summary of the basic principles of the Italian position against drugs.

The reasons why NO to the legalization of drugs

November 2011
Author: Department for Antidrug Policies
This publication analyzes the main reasons why it is believed that the legalization of the use of drugs is not an acceptable nor viable choice in our country to reduce the consumption of substances and reduce the problems related to their use.

Operating Manual SIND - National Information System on Dependencies

May 2011
Authors: Department for Antidrug Policies and Ministry of Health
This manual is a joint effort made by the central government, regional administrations and autonomous provinces, in order to have a common tool, agreed and well-structured to allow for a standardized data collection and post-processing, which can ensure a good representation of the phenomenon.

Guidelines. Screening and early diagnosis of major infectious diseases related to substance use

January 2011
Authors: Department for Antidrug Policies and Ministry of Health
For several years it was found a significant decrease in the supply of HIV and hepatitis B and C tests, which could result in a substantial decrease delay in early diagnosis with respect to such infections, even with a reduction in access to antiretroviral therapies. Accordingly, this document provides some guidelines based on a series of epidemiological surveys that have highlighted the need for urgent action to increase access to testing for HIV and hepatitis.

Cannabis and health damage

January 2011
Authors: Serpelloni G., Diana M., Gomma M., Rimondo C.
The publication focuses on a series of scientific information on the effects of cannabis and its derivatives on the health. In the conduct of publication were examined issues related to neuroscience but also to behavioral psychology and sociology.

National Action Plan (NAP) on Drugs

October 2010
Author: Department for Antidrug Policies, Presidency of the Council of Ministers
National Action Plan (NAP) on Drugs (which originates and is inspired by the EU Action Plan on Combating Drugs 2009-2012) has been prepared referring to findings reported in the "Summary of the views expressed by operators in the V National Conference on Drug Policy". This document provides an important starting point to be taken into consideration to outline a new plan that meets the emerging needs, identified in this meeting of institutional shareholders, as provided for by Presidential Decree 309/90 and subsequent amendments in the field of drug addiction.
Drug and Internet

Internet gives the opportunity to access quickly and easily to a wide number of information, to be able to communicate in real time with the world and to start a commercial relations for any kind of product, including unfortunately, drugs. Internet is also a tool in which became possible to organize illegal rave party and access to the darknet, a new channel for illegal trade.

In the last 13 years, in Italy, the Internet users increased: from 27% (2011) to 54.8% (2013) – (Source: Istat Noi Italia 2014).

In this context, the Department for Antidrug Policies has activated a web monitoring unit, within the National Early Warning System which operates with the aim to identify and to obtain information on these phenomena and to prevent that users purchase and consume the substances sold on the web and the darknet. These illegal substances are often dealt during rave parties, which are notified by the web monitoring unit to the law enforcement, to prevent or to manage them, through their intervention.

The procedure to purchase drugs on the web

Methods

The methods are based on research of websites in Italian language or with server located in Italy, easily accessible to any user interested to purchase illicit drugs. The procedure allowed the web monitoring unit has identified different types of psychoactive substances that are included in Tables of D.P.R. 309/90 and s.m.i., prescription drugs were identified as well. By the web monitoring unit, the National Early Warning System notifies the sites that commercialize illegal substances within standardized procedures shared with the Central Directorate for Anti-drug Services, Carabinieri N.A.S., Police, Prefectures, Municipalities. The procedures include:

1. Identify and analyze the contents on the web sites of potential suppliers that freely commercialize psychoactive substances;
2. preparation of a report on information collected;
3. forward the report to the appropriate law enforcement authorities;
4. verify the outcome of sent report and update of recorded data on the monitoring activity.

1. Thematic research on the specialized sites;
2. preparation of technical report and document with information of the illegal event identified;
3. transmission of report to the competent authorities to initiate investigations of the case and communicate the result to the Department for Antidrug Policies.

1. Browse on the darknet through directory of links to other sites (e.g. Evil Wiki, HiddenWiki, Torlink);
2. identify blog and forum to interact with users, to obtain useful information for monitoring activities;
3. notifying the intercepted sites to the appropriate law enforcement authorities.
Results

From July 2011 to April 2014, 541 web pages selling New Psychoactive Substances (NPS) were notified to the law enforcement, specifically to Carabinieri N.A.S.

From October 2010 to April 2014, 139 illegal music events promoted online, were recorded (in Italy). These events were notified to the Prefecture, Police, municipality and referred to the Magistrate of the place where the event was to be held and the Central Executive for Anti-Drug Services, in order to verify the legitimacy of the organization.

Major structural groups and substances included in Tables of DPR 309/90 and s.m.i, identified from the web monitoring unit. Source: National Early Warning System, 2013.
**Functional, metabolic and cerebral blood perfusion abnormalities in drug addiction**

Serpelloni G., Alessandrini F., Zoccatelli G., Rimondo C., Bellamoli E.
Dipartimento Politiche Antidroga, Presidenza del Consiglio dei Ministri; Servizio di Neuroradiologia, AOUI Borgo Trento, Verona; Dipartimento delle Dipendenze, azienda ULSS20 - Verona; European Institute for Health Promotion

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**Introduction**

Magnetic Resonance Imaging (MRI) techniques have given strong impulse to the comprehension of the biological substrates of addiction. In particular alterations of functional connectivity, metabolism and blood flow perfusion could represented neural substrates of cognitive impairment in executive and general cognitive functions in drugs users. Such abnormalities has been suggested as a neuronal mechanism for the dependence and relapses in addiction.

**Methods**

**Functional Magnetic Resonance Imaging (fMRI)** studies the neural activity in the brain. It shows which structures are active during particular mental operations, thus allowing the investigation of the neural networks activated by specific brain functions. We used fMRI tasks based on blood oxygenation level dependent (BOLD) method, which measure regional cerebral hemodynamic in order to make inferences about neural activity, indirectly.

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**Figure of the paradigm used**

![Figure of the paradigm used](image)

**Magnetic Resonance Spectroscopy (MRS)** measures brain biochemistry, which is the spatial distribution of metabolite concentrations and their combination both in white matter and gray matter tissue. We investigated the ratio and distribution of metabolites as Glx/Cr, Cho/NAA and Ins/Cr on 28 young cannabis users (mean age = 18y) compared to a healthy group.

![Magnetic Resonance Spectroscopy](image)

**Continuous Arterial Spin Labeling (CASL)** is a non invasive MRI method to study the cerebral perfusion without contrast media administration. CASL relieved the changes of cerebral blood flow (CBF) and allows to obtain maps of blood flow perfusion. We tested the differences in regional CBF of 10 cocaine users compared with 10 healthy controls and the gray matter density. We compared the CBF maps with the total intracranial volume (TIV) to rule out which brain areas shows abnormal perfusion and atrophy.
Preliminary analysis and results

Subjects underwent MRI
To date, 82 subjects (70 drug users and 12 controls) have been scanned in UO of Neuroradiology (Verona). Recruitment is still ongoing.

fMRI data
Subjects subdivision in “responder” and “no responder” depended on the time of abstinence (responder > 4 weeks). During craving, “no responder” subjects activated occipital cortex, thalamic nuclei and right frontal cortex. During resisting, the same subjects activated anterior cingulate and orbitofrontal cortex. “Responder” subjects, during craving activated early the left dorsolateral prefrontal cortex and orbitofrontal cortex. These early prefrontal activations may reflect stronger cognitive strategies of craving control in “responder” patients.

MRS data
Anterior and posterior cingulate have been chosen as ROI positioning MRS sequences (CSI) with TE=80/135/30ms. Cannabis users had Glx/Cr, Cho/ NAA, Ins/Cr concentration levels out of the range. Data analysis relieved a reduced Glutamate (Glx) in ACC as altered rewarding mechanism, altered decision making and impaired of dopaminergic metabolism. We found also an increased Cho (turnover of membrane), a metabolic pattern similar to depressive syndrome. MRS data correlated with personality traits (novelty seeking).

cASL data
Cocaine users showed an increased CBF in frontal gray and white matter deep areas (thalamus, basal ganglia), in temporal and parietal cortex. These subjects showed also a reduction of the gray matter density in deep areas (i.e, thalamus), parietal and frontal cortex.

Conclusions and future directions
Here in we have summarized some preliminary data of the project. Specifically, we have shown the presence of abnormal level of metabolites (Glx, Cho) in the cingulate cortex and abnormal cerebral perfusion in drugs users. Future analyses will be performed to confirm these observations. The data indicate in cannabis users a metabolic cerebral pattern like depression that correlates with specific temperament and character traits. Longitudinal analyses, along with the comparison between drug users and matched healthy controls, will be performed to evaluate morpho-functional and biochemical measures over time and to detect potential effects of medication, chronicity and age.
Evaluation of cortical thickness and white matter alterations in adolescent drug users with 3.0 T mri

Cortical atrophy and alterations of inter-hemispheric white matter fibers connections has been suggested as a neural substrate of cognitive impairment in executive functions, language and general cognitive functioning in addictions. We assessed teen drugs users enrolled in the MRI project with a multimodal MRI and a full neuropsychological assessment to evaluate the brain and cognitive abnormalities after drugs consumption in adolescence population in comparison with a control group. MRI scans were performed in the Verona’s University Hospital, Unit of Neuroradiology, with a high-filed MR scanner. We aim to detect structural and microstructural abnormalities in adolescents affected by drugs addiction compared to healthy controls, utilizing the Cortical Thickness Analysis (CTA) and Diffusion Tensor Imaging techniques (DTI).

Methods

Cortical Thickness Analysis (CTA) is a non-invasive MRI technique that allows the quantification of neural tissue in terms of thickness of cortex. It is a process that permits to obtained morphometric informations about the cerebral gray matter. The procedure is based on measurements of brain cortical thickness of individual segmented cortical hemispheres. We compared 3D-T1 weighted images of 6 adolescent cannabis users (mean years = 16 y) with 6 healthy subjects.

Diffusion Tensor Imaging (DTI) is a non-invasive MRI technique that allows the in vivo quantification of water diffusion through indices, which reflect the microstructural characteristics of the underlying tissues (Fig.3). The most common of these indices is fractional anisotropy (FA), which measures the preferential directionality of diffusion and mean diffusivity (MD) which it is an index of water diffusivity.

Tract-based spatial statistics allows the investigation of the possible differences in white matter (WM) tracts diffusion properties between groups of patients and healthy controls.
Preliminary analysis and results

Subjects underwent MRI
To date, 18 subjects (9 drug users and 9 controls) have been scanned in UO of Neuroradiology (Verona). Recruitment is still ongoing.

CTA data
Post-processing analysis of data give us cortical thickness maps with areas of brain atrophy related to drugs addiction and cognitive impairments. We performed a computation of average thickness maps across subjects and statistic group difference maps obtaining a reduction of the cortical thickness in temporo-mesial areas and anterior cingulate cortex (blue, Figure 4a and 4b). Cannabis users showed a correlation between brain atrophy and deficit in neuropsychologic tests (impairment of attention and memory).

Results of CTA on 6 subjects affects by cannabis addictions versus 6 healthy controls. Blue areas indicate the thinner cortical thickness (atrophy) in temporal-mesial and cingulate cortex (left hemisphere).

DTI data
The TBSS procedure includes the following steps: 1) registration of the individual FA images to a common template; 2) creation of a skeleton of white matter tracts by thinning of the FA maps; 3) projection of individual FA values into the skeleton; 4) investigation of statistical difference between patients and controls. TBSS results in clusters of voxels that differ in the value of FA for healthy controls and patients, after correction for multiple comparisons. With this approach we obtained promising results when subjects affected by drugs consumption have been compared to healthy controls: differences in FA have been found in several regions, and more prominently in DPLFc, frontal and temporal areas, sub-cortical nuclei.

Results of TBSS analysis for 9 subjects affects by cannabis addictions versus 7 healthy controls. Green voxels: TBSS skeleton. Red and Yellow voxels: voxels with cannabis users FA > healthy FA (multiple comparison correction, p = 0.05). Statistical significance is higher where the color assigned to the voxel is brighter.

Conclusions and future directions

This MRI project focuses on the neurobiological underpinnings of addiction, connecting structural, microstructural and neuropsychological data, showing structural and microstructural abnormalities in young drug users with new insight for the planning of preventive and therapeutic strategies.
Origin and purpose

With the establishment of the Department for Antidrug Policies of the Italian Presidency of the Council of Ministers, as indicated to the V National Conference on Drugs in Trieste, and in accordance with European directives, the National Early Warning System (N.E.W.S. www.allertadroga.it) in the end of 2008 was activated. The System aimed at early detection of phenomena potentially dangerous to public health, associated with the appearance of new drugs and new pattern of consumption, and to make Alert notifications which promptly involve the departments devoted to the protection and promotion of public health and which are responsible for any implementation of emergency response measures.

Organizational structure of the National Early Warning System

Macrofunctioning of the Italian National Early Warning System

Geolocation of the Collaborating Centers

Web site allerta.dronet.org

Update of NPS legal status

Following notifications received, as part of the operating procedure for the implementation of health safety measures relating to new psychoactive substances identified by the National Early Warning System, agreed between the Department for Antidrug Policies and the Ministers of Health, from 2010 different decrees were issued to update the Tables of DPR 309/90.
Monitoring of New Psychoactive Substances (NPS)

Since 2009 more than 350 molecules have been intercepted by the National Early Warning System, related to notifications received by the European Monitoring Centre for Drugs and Drug Addiction of Lisbon and the new collaborating centers of the Italian System:

• 101 synthetic cannabinoids
• 6 ketamine and analogues
• 44 synthetic cathinones
• 6 azepane-like
• 75 phenethylamines
• 11 tryptamines
• 4 fentanyl analogues
• 9 synthetic opioids
• 5 piperazines
• 3 phencyclidine analogues

The identification of the New Psychoactive Substances (NPS) is associated with activation of health alert that are sent to the Ministry of Health. The Ministry provides to update the Tables of DPR 309/90 and to issue ordinances. Finally, the Carabinieri section for health protection is activated to monitor compliance of new regulations and the eventual execution of seizures and/or arrests of smugglers and drug dealers.

Clinical cases

The spread of NPS and in particular of synthetic cannabinoids, synthetic cathinones and methoxetamine (an analogue of the anesthetic ketamine) on the Italian area, occurs through commercialization in shops called “smart shops” or through the online sale, and it is highlighted by the notifications to the Early Warning System of acute intoxications related to the consumption of these new drugs.

• Synthetic cannabinoids

From 2010 to today, registered 43 intoxication cases with admission to emergency room (14-66 years; 31 males, 6 females, 6 unknown) related to herbal mixture containing synthetic cannabinoids consumption (smoke).

• Synthetic cathinones

From 2010, registered 8 intoxication cases with admission to emergency room (18-38 years, males) related to synthetic cathinones consumption.

• Methoxetamine

From 2010, registered 17 intoxication cases with admission to emergency room (16-38 years, 11 males) related to methoxetamine consumption.

Ministerial decrees that have made illegal many New Psychoactive Substances from 2010

<table>
<thead>
<tr>
<th>N</th>
<th>Common name</th>
<th>Ministerial decree</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>JWH-073</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Mephedrone</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>3,4-Methylenedioxyxyprovalerone (MDPV)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>JWH-250</td>
<td></td>
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<tr>
<td>7</td>
<td>Structural analogues of 3-phenylacetylindole</td>
<td>DM 29 December 2011 (G.U. n. 3 of 4/1/2012)</td>
</tr>
<tr>
<td>8</td>
<td>Structural analogues of 3-(1-naphthoyl)indole</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Butylone o bk-MDBB</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Structural analogues of 2-amino-1-phenyl-1-propanone</td>
<td>DM 11 June 2012 (G.U. n. 142 of 20/6/2012)</td>
</tr>
<tr>
<td>11</td>
<td>AM-694</td>
<td></td>
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<tr>
<td>12</td>
<td>Structural analogues of 3-benzoylindole</td>
<td>DM 29 December 2011 (G.U. n. 3 of 4/1/2012)</td>
</tr>
<tr>
<td>13</td>
<td>6-monoacetylmorphine o 6-MAM</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>3-monoacetylmorphine o 3-MAM</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Structural analogues of 2-amino-1-phenyl-1-propanone, with one or more substitutions in the aromatic ring, and / or on the nitrogen and / or on the terminal carbon**</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Methoxetamine</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>4-Methyamphetamine</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>CP 47,497</td>
<td>DM 24 October 2012 (G.U. n. 264 of 12/11/2012)</td>
</tr>
<tr>
<td>19</td>
<td>CP 47,497-omologo C8</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>4-Fluoromethamphetamine</td>
<td>DM 10 December 2012 (G.U. n. 303 of 31/12/2012)</td>
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<td>21</td>
<td>5,6-Methylenedioxy-2-aminoindane</td>
<td>DM 25 June 2013 (G.U. n. 158 of 8/7/2013)</td>
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<tr>
<td>22</td>
<td>5-IT</td>
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<td>23</td>
<td>6-APB</td>
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</tr>
<tr>
<td>24</td>
<td>5-APB</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>6-APDB</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>5-APDB</td>
<td></td>
</tr>
</tbody>
</table>

* With the exclusion of Bupropion and Pyrovalerone
** Replacement of chemical name of the derivative of Butylone
New Drugs 2014 - Report e Abstract

NET-OUTCOME
Treatment monitoring and outcome evaluation

Aim
- Create a network of operating units for the development, monitoring and evaluation of outcome in patients addicted to heroin, related to benefits received from addiction services.
- Promote an evaluation of treatment outcomes.
- Evaluate the effectiveness of different pharmacological treatments currently available to patients addicted to heroin, related to the implemented services (integrated therapies).

Indicators of outcome
- Abstinence from drug use.
- Condition well-being.
- Quality of life.
- Social functioning (work, home, lawlessness and social relations).
- Reduction/absence of risk of death due to overdose or other drug-related causes.
- Reduction/absence of risk behaviors for infectious diseases.

Categories of outcome
- No Responder: up to 30% drug-free days of treatment.
- Low Responder: from 30% to 60% drug-free days of treatment.
- Responder: beyond 60% drug-free days of treatment.

The Network

Characteristics of patients
- Males 83.6%; females 16.4%
- Italians 97.5%
- Africans are the most numerous group among foreigners (0.8%)
- Low grounding level (73.6%)
- Long-term job (63.2%)
- Live with parents (45.9%), 30.3% with partner and children

Subjects according to type of treatment, gender and outcome

<table>
<thead>
<tr>
<th></th>
<th>No Responder</th>
<th>Low Responder</th>
<th>Responder</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methadone</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Male</td>
<td>1,040</td>
<td>83.1</td>
<td>776</td>
<td>80.6</td>
</tr>
<tr>
<td>Female</td>
<td>212</td>
<td>16.9</td>
<td>187</td>
<td>19.4</td>
</tr>
<tr>
<td>Total (%)</td>
<td>1,252</td>
<td>14.4</td>
<td>966</td>
<td>11.1</td>
</tr>
<tr>
<td>Buprenorphine</td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>Male</td>
<td>154</td>
<td>84.2</td>
<td>164</td>
<td>88.6</td>
</tr>
<tr>
<td>Female</td>
<td>29</td>
<td>15.8</td>
<td>21</td>
<td>11.4</td>
</tr>
<tr>
<td>Total (%)</td>
<td>183</td>
<td>6.3</td>
<td>185</td>
<td>6.3</td>
</tr>
</tbody>
</table>

Users Urine tests
Outcome for pharmacological treatment

- Substitution therapy with methadone represents the most frequently used treatment.
- Both treatments (methadone and buprenorphine) produce significant results reducing the drug use.
- The greater effectiveness of buprenorphine is related to type of users, assuming it.
- Regularity of urine tests influences positively on abstinence from drug use.

Conclusions
Transcranial Magnetic Stimulation

rTMS over the left dorsolateral prefrontal cortex in a group of patients in treatment for alcohol addiction

Background

Repetitive Transcranial Magnetic Stimulation (rTMS) is a non-invasive brain stimulation technique that could be effective in addiction treatment. To date, several human studies assessed the effects of rTMS protocols on substances craving and intake, in nicotine, alcohol and cocaine addicts (Bellamoli et al., 2013).

The underlying rationale is that exciting the dorsolateral prefrontal cortex (DLPFC) by high frequency pulses, would increase its activity and its cognitive control function. In particular, with drug-addicted subjects, this treatment would increase the ability to cope with craving (strong desire for drug, that is a major component determining relapse). Moreover, because rTMS can increase the release of dopamine in the mesolimbic dopaminergic system (Strafella et al., 2009), it is assumed that repeated applications of rTMS may affect neuroadaptation induced by the chronic use of substances.

Aim

This research project, promoted by the Italian Department for Antidrug Policies - Presidency of the Council of Ministers and entrusted to the Verona Addiction Department - ULSS 20, aimed to assess the effectiveness of introducing rTMS sessions in a program of hospitalization for the treatment of alcohol addiction, in reducing alcohol consumption and the severity of craving, compared to sham rTMS treatment. As the mechanisms underlying the rTMS are still unclear, psychological and neurophysiological variables were also measured for a more comprehensive assessment of the treatment effects.

Materials and methods

This is a prospective, randomized, single-blind, sham-controlled study.

Participants

Subjects recruited for the study were patients of the 3 weeks hospitalization program occurring at the Unit of Addiction Medicine and Alcoholism Service of the Addiction Department ULSS 20 Verona. Patients were screened in the first week of hospitalization. 20 patients in treatment principally for alcoholism concluded the rTMS sessions: active rTMS was administered to 10 patients and 10 patients received sham rTMS treatment. As the mechanisms underlying the rTMS are still unclear, psychological and neurophysiological variables were also measured for a more comprehensive assessment of the treatment effects.

Descriptive scores for the socio-demographic characteristics and clinical variables of the real rTMS group and the sham group.

<table>
<thead>
<tr>
<th>Socio-demographic and clinical variables</th>
<th>Real</th>
<th>Sham</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age - mean (SD)</td>
<td>46.7 (7.7)</td>
<td>43.0 (9.6)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>Women</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Handedness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Right-handed</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Ambidexter</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Years of education - mean (SD)</td>
<td>8.7 (2.5)</td>
<td>11.6 (2.9)</td>
</tr>
<tr>
<td>SPM score (A, B, C, D; Caffarra et al., 2003) – mean (SD)</td>
<td>35.9 (7.4)</td>
<td>34.4 (7.4)</td>
</tr>
<tr>
<td>Motor threshold – mean (SD)</td>
<td>60.8 (8.3)</td>
<td>58.9 (6.7)</td>
</tr>
</tbody>
</table>

rTMS procedure description

rTMS were delivered using the Magstim Rapid2 device with a focal figure-of-eight coil. Participants were administered 4 sessions (2 each week) of high frequency (10 Hz) rTMS at 100% of Motor Threshold over the left DLPFC. Each session consists of 20 trains of 50 pulses, with inter-train interval of 20s. The sham group was administered rTMS over the left DLPFC with the same parameters, but using a shielded coil that prevented the passage of the magnetic flux to the scalp.
Assessment
Alcohol intake was assessed through patients’ self-reports and controlled through toxicological tests. A Visual Analogue Scale (VAS) was administered in different times in order to measure the severity of subjective alcohol craving. Moreover, we assessed the impact of rTMS on mood and on psychopathological symptoms in addicted patients by means of the Symptom Check List-90-R (SCL-90-R). Participants were administered also two computerized neuropsychological measures of response inhibition (Numeric Stroop task and Go/No-go task). Resting EEG was registered in order to search neurophysiological correlates of the rTMS treatment.

Statistical analysis
Data were analyzed using SPSS version 22.0. Because many data were not normally distributed and because of the low sample size evaluated, we used non-parametric tests (Friedman test, Wilcoxon test, Mann-Whitney U test) to detect differences between the real and sham group, and across different times for each group.

We did not found significant effect (p > 0.05) on alcohol subjective craving and consumption. While, we observed a significant reduction (p < 0.05) in depressive symptoms only in the real group between the baseline and 1 month follow-up. Furthermore, in the real group there was a significant improvement (p < 0.05) of the performance in the Stroop test incongruent condition, immediately after the last session of rTMS, and in the same time we observed a significant increase (p < 0.05) in the EEG theta band power.

Numerical Stroop task accuracy of the real group before rTMS (T0), at the end of the treatment (T2) and 1 month later (T3), showed as median and 25th to 75th percentiles.

Discussion
We did not found significant effect on main outcomes (subjective craving and consumption). However, in line with the neuropsychological hypothesis that rTMS can improve inhibitory control, we found a significant improvement in the Stroop task performance in the real group immediately after the end of the rTMS treatment. There is a marked tendency to synchronization in theta band after the real stimulation in comparison with pre rTMS condition, in according with the improvement in cognitive control.

This study has many limitations, first of all the low sample size evaluated. All patients received psycho-social and pharmacological treatment that may interfere with the assessment of craving and intake. Furthermore, apart alcohol, some patients had other addictions, and this also could influence results.

In the future, it may be appropriate to increase the number of sessions of rTMS to be applied to patients.

Analyses of results suggested that further studies are needed to identify the optimal parameters of stimulation for the most effective treatment of drug addiction, to improve our comprehension of the rTMS effects, and to conduct controlled efficacy studies with adequate sample.
Brain, mind and drugs.
Structure, function, and drug-related alterations
February 2014
Authors: Serpelloni G., Alessandrini F., Zoccatelli G., Rimondo C., Gomma M., Bellamoli E., Cuoghi G.

Brochure aimed to provide information about the normal functioning of the human nervous system and how the use of psychoactive substances is able to alter it, with the intent to explain those mechanisms to readers in a clear and simple way and to encourage a healthy life style, free from drugs and alcohol and from any addiction.

Drug and prevention.
Educational slides for educators and teachers.

This set of slides is an extensive collection of the principal and reasoned scientific evidence available to date on the topic of the dangers and damages resulting from the use of drugs. The material is made available to educators in order to constantly update their knowledge on the topic and be able to use it for information and prevention activities targeted especially parents, teachers and students. A very wide and comprehensive collection of products, allowing you to choose and select the slides useful for the intervention expected, on the basis of the target audience, the topic and the available time.
Brochure on substances
Datasheets
Features: Printing 4/0
Size: 21x29, 7 cm
Target: 14-21 years

Poster on substances

Posters
Available formats:
• 21 x 29.7 cm
• 29 x 42 cm
• 140 x 200 cm

Postcard “The drug does not teach”
Features: Color 4/4
Size: 15x10 cm
Target: 6-21 years

Posters and leaflets
“It’s never too early”
Campaign for the early detection of substance use in young people for early intervention

Commercials, documentaries and informational videos
Target: > 14 years
Institutional websites

**dronet.org**
Informative website developed by the Department of Antidrug Policies – Presidency of the Council of Ministers that aims at contributing to the public understanding of science by means of a national network on addiction. The website, dedicated to healthcare professionals, teachers, parents and youngsters, intends to examine in depth themes related to drug abuse and addiction through the consultation of evidence-based informative material.

Contacts: 34,777,112
Visits: 14,972,542
Reference period: January 2009 - March 2014

**cocaina.dronet.org**
Thematic website aimed at analyzing topics related to both cocaine use and addiction. The website illustrates the effects on the organism deriving from the use of cocaine, correlated pathologies, available therapeutic treatments, epidemiological data on cocaine consumption in both Italy and Europe. One section is dedicated to the in-depth analysis of the legal aspects, norms, and penalties provided in the Highway code in case of drugged driving.

Contacts: 8,957,296
Visits: 11,170,181
Reference period: October 2009 - March 2014

**drugfreesu.org**
Informative website dedicated to: teachers who are willing to include in their educational-institutional programs some research-based preventative measures in order to respond to students' needs; to parents who can increase their awareness of the drug problem and consult practical manuals containing useful suggestions on how to properly monitor their children and safeguard their health; to youths who can find scientific information on psychoactive substances and on the effects of drug of abuse on the brain.

Contacts: 4,221,378
Visits: 3,627,173
Reference period: June 2009 - March 2014

**cistacontroledroghe.dronet.org**
Initiative developed for raising young people's awareness against drug and alcohol abuse, mafia organizations, their violent actions and terrorism. The website offers an educational spur to young students for a world without drugs and mafias, where intelligence, feelings, emotions and creativity do not need psychoactive or alcoholic substances to be expressed at best.

Contacts: 283,163
Visits: 260,644
Reference period: September 2013 - March 2014

**neuroscienzedipendenze.it**
This informative website was conceived in the framework of the strategies that the Department of Antidrug Policies promotes to increase both the knowledge and awareness of the effects deriving from the use of psychoactive substances, by way of multimedia tools easing the circulation of scientifically reliable news and disclosure of clear, coherent and reliable messages.

Contacts: 4,230,383
Visits: 3,850,801
Reference period: October 2009 - March 2014

**allerta.dronet.org**
The N.E.W.S. website is based on georeference systems of input notifications that are connected to other advanced management systems of output warning notifications. This system allows the detection of both new drugs and new consumption patterns, support the work of emergency departments in case of acute intoxication caused by unknown substances and ease the analytical activity of laboratories.

Contacts: 256,052
Visits: 187,967
Reference period: June 2009 - March 2014

**drugsonstreet.it**
The “Drugs on Street” protocol and the NNIDAC project (National Network on accidents related to Drugs and Alcohol), aims at the prevention of drunk and drugged driving. The main beneficiaries are healthcare professionals and law enforcement officials involved in the project and all the subjects that are interested in the protocol implementation. On the website, it is possible to find legal references to norms regulating and sanctioning drunk and drugged driving, a collection of news concerning the road safety topic and various preventative materials.

Contacts: 1,909,750
Visits: 1,676,745
Reference period: October 2009 - March 2014
cannabis.dronet.org
Thematic website aimed at analyzing from a toxicological, neuropsychic, medical and social perspective, the increasingly frequent scientific evidence proving cannabis to be one of the main substances responsible for: the alteration of learning abilities in young people, the decrease of motivation to face life problems, the easy approach to other drugs, the damage of fetus’ normal neurologic development in substance abusing mothers and of several other health damages in humans.
Contacts: 8.991.789
Visits: 8.310.474
Reference period: June 2011 - March 2014

drogaprevenzione.dronet.org
This website contains all the preventative materials developed so far by the Department of Antidrug Policies, in cooperation with several Italian collaborating centers. This collection has been created to give further options or ideas to all those professionals working in the field of anti-drug prevention and communication, giving the possibility to personalize the materials. On the website, it is possible to find the products regarding information campaigns, dedicated websites, monographs, slide shows and videos/spots.
Contacts: 2.463.258
Visits: 2.291.793
Reference period: January 2012 - March 2014

consorzioetico.dronet.org
Website dedicated to drug and alcohol abuse prevention by means of the participation to a national network of Italian municipalities with the goal of promoting health among young people and adults. The “Consorzio Etico” is a bunch of people, administrations, associations from the civil society and from Public Administrations that express in a clear and unequivocal manner their “NO” to the use of all kind of drugs and to alcohol abuse.
Contacts: 329.588
Visits: 299.589
Reference period: May 2013 - March 2014

droganograzie.it
This website is addressed to users aged between 11 and 19 years. Every page is distinguished by teenage fiction characters who give their contribution to illustrate and describe the website contents. The website makes a description of the main psychotropic and psychoactive substances by dealing extensively with the “Drugs and brain” topic. On the website it is possible to find a wide collection of both informative and educational materials, oriented to the development of personal skills that can be useful to resist peer pressure.
Contacts: 19.451.642
Visits: 16.649.562
Reference period: June 2009 - March 2014

gambling.dronet.org
This website aims at dealing with the pathological gambling problem on the basis of scientific evidence in order to face it by means of a thorough technical-scientific analysis and a multidisciplinary approach that allow to highlight neurobiological, psychobehavioral, social and economical aspects constituting the basis of this phenomenon which is a relevant social problem besides being a public health problem.
Contacts: 1.537.805
Visits: 1.443.346
Reference period: May 2013 - March 2014

drogainbreve.dronet.org
Website designed by the National Institute on Drug Abuse, translated and adapted by the Italian Department of Antidrug Policies. It manages simple and concise information on drugs, their effects, prevention strategies and treatments. The website stems from the need to reach a wide audience of users including those with lower education in the light of certain studies who detect in this type of population, together with other problems, a preponderance of alcohol and drug abuse.
Contacts: 2.593.697
Visits: 2.338.088
Reference period: August 2012 - March 2014

diagnosiprecoce.dronet.org
This website is addressed to professionals belonging to the operating units which joined the “Early detection” project and to all those who are interested in analyzing the theme of early identification and intervention of substance abuse in minors. On this website it is possible to find informative and educational materials which can be used to face the theme of youth drug use both in the family and in the health environment.
Contacts: 397.337
Visits: 364.876
Reference period: October 2012 - March 2014

dreamonshow.it
This website promotes artistic-creative activities in various expressive fields by way of the direct involvement of young people who become active protagonist of the activities themselves. In particular, the dancing sector is characterized by a multi-level project, through which every year more than 500 young dancers are involved. The website is rich in audio, video and photographic materials describing the activities that have been carried out since 2004 to present.
Contacts: 5.949.304
Visits: 5.229.065
Reference period: June 2009 - March 2014
Considering the more and more urgent need to tackle the New Psychoactive Substances phenomenon, it is necessary to enhance the activities of the National Early Warning System that have to be directed on the one hand to increasingly improve the notification gathering also in the light of the extension of the network of collaborating centers registered in the last year, on the other hand to make more effective the interventions adopted to cope with the emergence of new substances both in terms of analytical and diagnostic identification.

The NPS ALERT 2013 project aims at extending the areas of activity of the ALERT 2011 project, together with and as an integration of what has already been encompassed in the aforementioned project and in line with the developments that this phenomenon requires by virtue of the size and characteristics that it has acquired over the years.

NPS ALERT 2013, therefore, by keeping active the activities that were already envisaged in the ALERT 2011 project aims at widening and strengthening further areas of activity, independently from ALERT 2011, by analyzing the aspects that, after 2 years of activity, have been identified as crucial to understand the phenomenon of the emergence of new drugs and to activate at a territorial level, the countermeasures in order to prevent and/or decrease all the connected risks and to improve the laboratory abilities of the collaborating operative units.

To this purpose, NPS ALERT 2013 will mainly consider all the activities that concern the management of notification activities and of the network of collaborating centers, of epidemiologic issues (demand/supply on internet and the spreading of consumptions in both the general and student population), the training and the improvement of the diagnostic skills of those who work in laboratories, emergency departments, drug addiction departments, law enforcement units.

Moreover, NPS ALERT 2013 is aimed at examining in depth the web monitoring, in particular of those drugs supply channels (e.g. dark net and illegal rave parties) that escape the controls carried out by Law Enforcement. In so doing, the project creates the opportunity to identify, through the improvement of the knowledge on the topic, new procedures for the activation of control and counter actions carried out by the competent authorities.

Registration to the Community

Italian Scientific Community on Addiction (ISCA) – Professional network for sharing good practices and tool for the promotion of scientific collaborations.

To join in, it is necessary to link on www.dpascientificcommunity.it, www.politicheantidroga.it, www.droganews.it e www.dronet.org and fill in the online form. Please, upload your curriculum vitae together with the form. In case an institution or an organization wants to join in, it is necessary to send a brief description of the activities carried out, an updated organization chart, the name of the contact persons. The registration in ISCA entails sharing its principles and objectives and accepting its functions and rules.
NSP project Alert 2013

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