



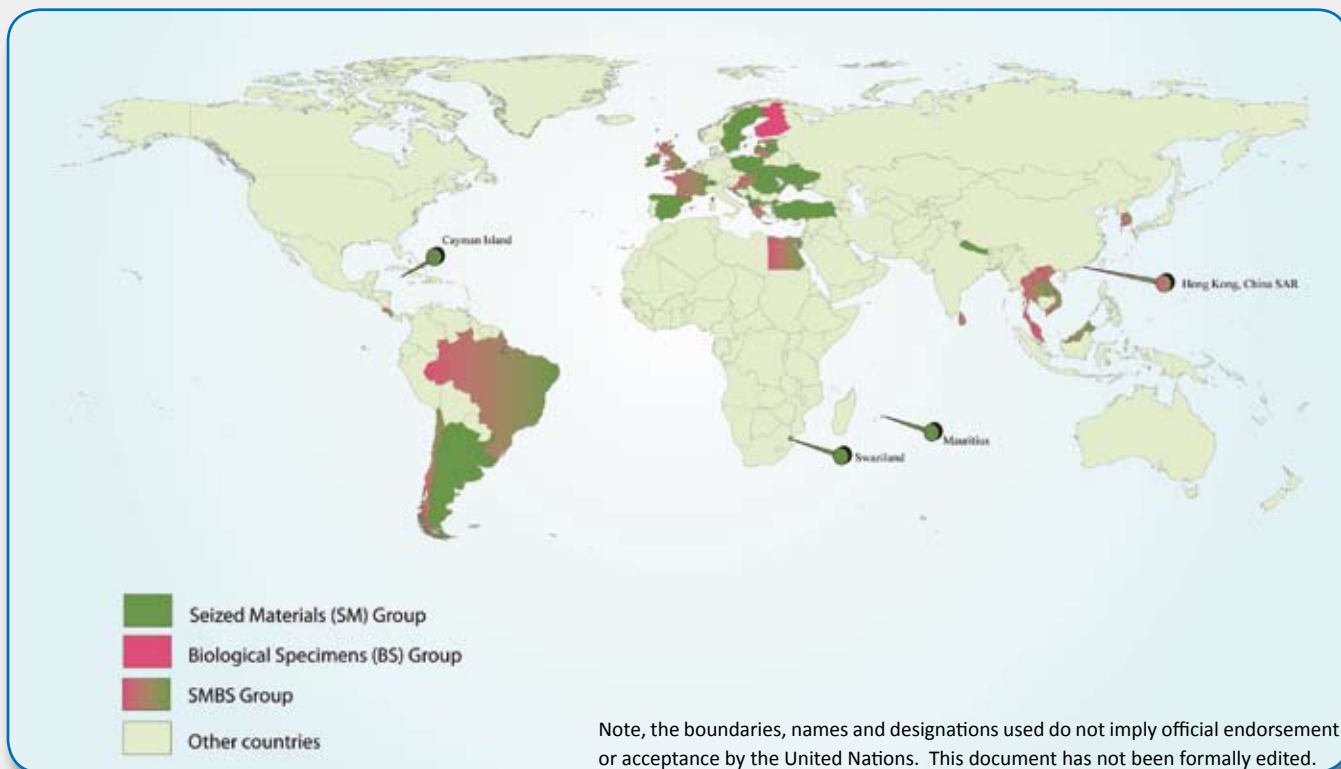
UNODC

United Nations Office on Drugs and Crime

ICE 2008



Member States participating in the 2008 round of ICE



An introduction to ICE

The UNODC's International Collaborative Exercises (ICE), a component of the office's International Quality Assurance Programme (IQAP), aims to allow laboratories to continuously monitor their performance, an essential element for implementation of quality management systems and ultimately accreditation. Furthermore, ICE offers an overview of performances and capacities of forensic laboratories worldwide and enables tailored technical support and assistance. The exercise attracts laboratories from both developed and developing countries and thus provides a platform for the latter to assess their performance on a truly global scale. The ICE programme provides feedback on results to each participating laboratory in the form of a confidential evaluation report. A Standing Panel of Forensic Experts oversees the implementation of this exercise.

Currently, ICE offers options in analysis of seized materials and of controlled substances in urine. The latter mimics the urine of human subjects after use of the controlled substances in this exercise.

ICE 2008

In mid July 2008, invitations were sent to all registered laboratories. Individual Evaluation Reports were sent to 81 participants in 39 countries. The year to date comparison of ICE participation (i.e. ICE 2007 and 2008) showed an increase of 45% and 34% in number of participating laboratories and Member States respectively. Out of the 81 laboratories participating in the 2008 round, 54 laboratories participated in the Seized Material option (compared with 32 Labs in 2007), 11 laboratories in the Biological Samples option while 16

laboratories participated in both, thus resulting in an increase of 52% in the Seized Materials group and 13% in Biological Specimens group since last year. A total of 49 laboratories (60%) returned data on quantification of the substances of abuse (40 sets of Seized Materials test samples and 17 sets of Biological Specimens samples).

Test samples

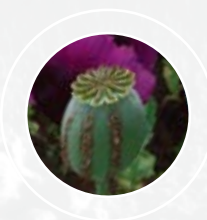
In 2008, laboratories were provided with 4 samples each in the *Seized Material (SM group)* and/or *Biological Samples (BS group)* categories and asked to report in the Analytical Results Form the presence/absence of only those substances listed in the ICE menu provided by LSS. The menu also includes adulterants and cutting agents such as caffeine, paracetamol and lactose. Participants could, in addition to the substances in the ICE menu, report on other substances identified in the samples. Quantification of substances is recommended but not mandatory in this exercise.

Part A:

Seized materials

SM1

SM1 was representative of a seizure of heroin (45 % di-amorphine as base). The sample contained the popular adulterants caffeine and paracetamol, as well as heroin related substances such as acetylmorphine, codeine, noscapine and papaverine. All the 70 participating laboratories returned a positive identification for heroin. In addition, 45 (64%) and 54 laboratories (77 %) reported the presence of paracetamol and caffeine respectively, while 42 (60%) laboratories identified both adulterants.



SM2

SM2 was representative of a seizure of methamphetamine (14% as base) containing the adulterant caffeine. Sixty-eight (68) participating laboratories (97%) reported the presence of methamphetamine, 3 laboratories produced an incorrect identification, while 1 laboratory did not perform the analysis. 63 laboratories (90%) identified the adulterant caffeine.

SM3

Participants were provided with card squares containing LSD. Sixty-seven (67) laboratories (97% of participants) identified the controlled substance in the card square as LSD. Two laboratories provided an incorrect identification while one laboratory did not submit any results.

SM4

Sample 4 was a 'white powder' made up of lactose. Lactose is, a non-controlled substance used as a pharmaceutical excipient and also as a cutting agent in drugs of abuse. Subsequently, it is included in the list of substances in the ICE menu. Out of the 70 participating laboratories, 52 laboratories (71%) identified the white powder as lactose.

In the seized material category, there were a total of 7 substances listed in the ICE menu that had to be identified i.e. heroin, methamphetamine, LSD, paracetamol, caffeine (in both test samples SM1 and SM2) and lactose. The distribution of the correct responses received is presented in Figure 1 (e.g. 50% of participating laboratories identified all 7 substances).

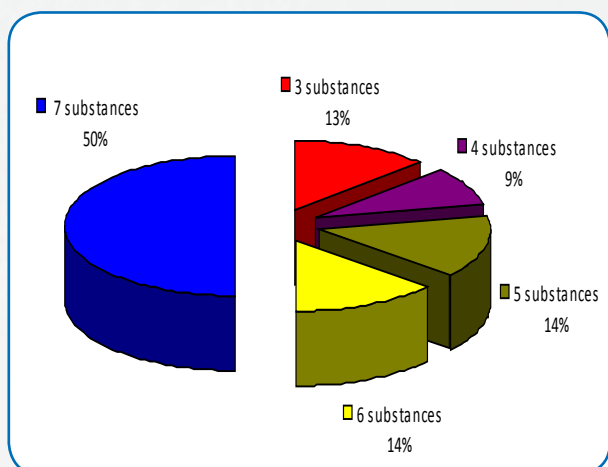
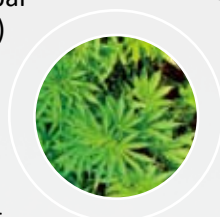


Figure 1. Distribution of the correct results considering all substances in the ICE menu (SM group)

The distribution of correct results considering only the controlled substances, i.e. heroin, methamphetamine and LSD is presented in Figure 2.

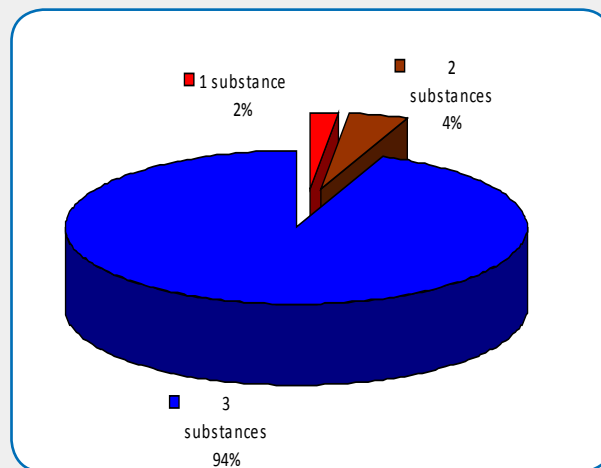


Figure 2. Distribution of the correct results considering only the controlled substances (SM group)

Part B:

Biological samples

UNODC ICE also provides support to laboratories interested in the identification and quantification of drugs and/or metabolites in biological fluids. Such data is of particular importance to treatment centres and toxicology laboratories.

BS1

BS1 was blank 'urine' without any controlled substances. This provided a profile analogous to a negative test for controlled substances. All 27 participating laboratories noted correctly the absence of controlled substances in this sample.

BS2

Diazepam is a drug of abuse controlled under Schedule IV of the 1971 Convention on psychotropic substances. It is rapidly and extensively metabolized in man to the pharmacologically active and controlled substances nordiazepam and temazepam. The latter is converted to oxazepam, which is also an active substance. The test sample provided contained nordiazepam, temazepam and oxazepam, and simulates urine of a human subject after administration of diazepam. Out of the 27 laboratories that provided results for BS2, 26 correctly identified the major metabolite nordiazepam. A total of 20 (77%) laboratories recorded a positive identification for both temazepam and oxazepam while 6 laboratories failed to identify one or both of these substances.

BS3

Cocaine is metabolised extensively in man with only 1% excreted unchanged in urine. The major metabolite is benzoylecgonine with ecgonine methyl ester and ecgonine present as minor metabolites. The sample simul-

ated the profile of urine from a cocaine user and contained benzoylecgonine (which is detectable within 4hrs of cocaine use and remains detectable for up to 8 days after use) and ecgonine methyl ester. For benzoylecgonine, 19 laboratories (70%) reported a positive identification while 23 laboratories (85%) detected ecgonine methyl ester. Eighteen (18) laboratories recorded positive identification of both metabolites.

BS4

Ketamine, a drug used for its anaesthetic and analgesic properties, is also a drug of abuse. Although ketamine is not currently scheduled in the International Drug Control Conventions, it is controlled in some countries. Ketamine may be smoked, insufflated, injected intramuscularly or ingested. Ingesting results in rapid metabolism to norketamine, which possess sedating effects. A total of 25 labs (92%) returned a positive identification for ketamine.

In the biological specimen category, a total of 6 substances listed in the ICE menu, i.e. nordazepam, temazepam, oxazepam, benzoylecgonine, ecgonine methyl ester and ketamine had to be identified together with one blank sample (7 results in total). The distribution of correct results provided for the BS samples is summarised in Figure 3.

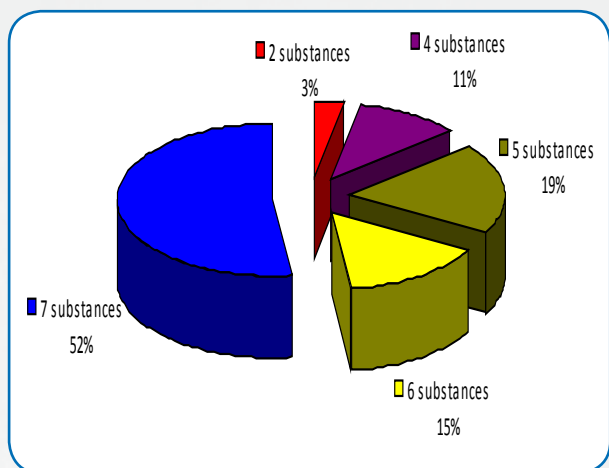


Figure 3. Distribution of the correct results considering all substances in the ICE menu (BS group)

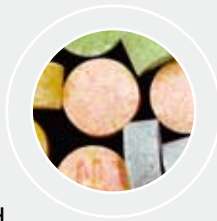
Emerging drug trends

Participating laboratories provide, in addition to information on the techniques/analysis performed, valuable comments on new forms of drugs and combination of substances encountered in their respective countries. During the ICE 2008 cycle, participating laboratories reported the presence of 'new' substances on the market and in some cases provided a description of trafficking methods.

ASIA

Amphetamine-type stimulants continue to be one of the major illicit substances reported by the laborato-

ries. The hallucinogenic substance 4-bromo-2,5-dimethoxyphenethylamine (known as 2C-B) N, N-di-methyl amphetamine and crystalline methamphetamine containing DMS (dimethyl sulfone) have been reported by some participating labs. DMS is a highly polar compound, easily soluble in water, and it is widely used in the cosmetics industry. It is mixed with methamphetamine crystals or powder for increasing the bulk of the product.



Some new drug combinations on the market include *Ermin-5* tablets (containing nitrazepam, diazepam, carbamazepine) and mixtures of methamphetamine and caffeine.

SOUTH AMERICA

Cocaine remains the main drug of abuse encountered in participating laboratories in Latin America, including cases of "Black cocaine." In addition, synthetic drugs such as brolamphetamine (DOB), 2,5-dimethoxy-4-iodoamphetamine (DOJ), dihydro-LSD, meta-chlorophenylpiperazine, zolpidem, mazindol, hydrocodone and modafinil (a stimulant drug used for the treatment of narcolepsy) have been reported.

Two participating laboratories reported a trafficking method for cocaine involving dispersion on polyvinyl alcohol (PVA) films followed by use as lining material in backpacks. Cocaine has also been found concealed in polymer plates and heroin in bean-like units.

EUROPE

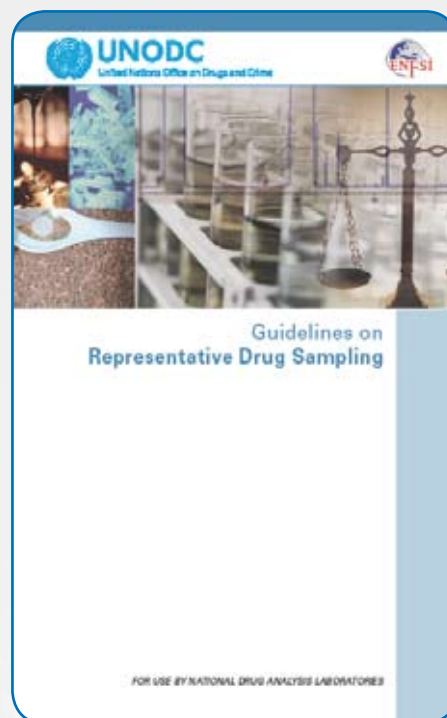
Piperazine derivatives including meta-chlorophenyl-piperazine (*m*CPP, mistakenly identified as 'Ecstasy' tablets), benzylpiperazine (BZP), TFMPP, 1,4-fluorophenyl piperazine, 1,4-dibenzylpiperazine, continue to be reported by a number of participating countries. The European laboratories also reported a significant number of new drug combinations notably: cocaine in combination with amphetamine, phenacetine, atropine, paracetamol, heroin and buprenorphine; and MDMA in combination with amphetamine, heroin and cocaine. Cases of cocaine base were also identified in the illicit market.

Reported amphetamine-type-stimulants (ATS) i.e. 4-bromo-2,5-dimethoxyphenethylamine (2C-B), 2,5-dimethoxy-4-ethylamphetamine (DOET), and *p*-fluoro amphetamine. Piperonal tablets containing 3-methyl fentanyl powder, dimethyltryptamine (DMT), *Salvia divinorum* and Kartom (*Mitragyna Speciosa*) were also encountered.

Substance suspected to be, or related to chlorazepam, lorazepam, zapiclone and zolpidem have been found in victims of drug-facilitated rapes.

New Book Review

The UNODC International Quality Assurance Programme (IQAP) provides laboratories participating in the ICE programme with some of the 'tools for the trade'. These include drug reference standards, recommended methods of analysis and guidelines on forensic best practices. E-book versions of manuals and guidelines can be downloaded directly from the UNODC website (<http://www.unodc.org/unodc/en/scientists/publications.html>).



Recognising the new challenges and the importance of accurate results, this guidance assists drug analysis laboratories throughout the world to improve the quality of their performance according to international standards (ISO 17025). It includes an overview of the impact of a Quality Management System in the laboratory; concrete requirements and guidance for their implementation; and also provides a model for a quality manual. It contributes to the promotion and harmonization of vital quality standards in drug analysis throughout the world.

Publication date: February 2009

The Guidelines describe a number of sampling methods, from arbitrary ones to methods with a statistical background. Focus is on sampling in cases where large numbers of relatively homogeneous material are available. The Guidelines aim to support drug analysis laboratories in the selection of their sampling strategy(ies) and best working practices.

Publication date: April 2009

Beyond 2008

Introduction of e-ICE

In 2009, UNODC will pilot an online-version of the ICE programme. Laboratories in Member States will be able to register for the ICE programme via an internet-based portal with enhanced security features. Participating laboratories will receive an improved and efficient service including receipt of Individual Evaluation Reports within minutes of submission of the Analytical Results Form. The ICE portal will also serve as a repository of all information and resources related to the programme. The summary reports for the 2009 collaborative exercises will be posted on the portal.

From drugs to other forensic disciplines

The need to document performance and the quality of analytical work carried out in national laboratories is not limited to the field of drug analysis. During 2009, LSS will explore the availability and accessibility of proficiency testing (PT) schemes to forensic laboratories e.g. in the field of documents examinations. Depending on the outcome of this initial assessment, the feasibility of offering such schemes by UNODC or in collaboration with existing PT suppliers would be explored

Strengthening cooperation with accreditation bodies

Laboratories worldwide need to carry out their analytical work by conforming to the requirements of an international quality standard. The aim of LSS quality assurance programme is to improve the performance of laboratories to meet internationally accepted standards and assist them to move towards accreditation. In this connection, LSS is exploring areas of collaboration with

accreditation bodies to support laboratories in setting up a quality management system and promote implementation of good laboratory practices.

Upcoming ICE rounds in 2009 and 2010

In 2009 and 2010, LSS will continue implementation of two ICE rounds per year. Laboratories interested in participating should note the following deadlines:

	ICE 2009/2	ICE 2010/1
Invitation for participation	01.08.2009	16.01.2010
Confirmation of participation	31.08.2009	28.02.2010
Receipt of import documents	15.10.2009	31.03.2010
Submission of test results	15.01.2010	30.06.2010

All participants will be issued with an individual evaluation report. However, failure to meet the deadlines might result in a participating laboratory's data not being included in the summary report.

Need additional information

Contact us

If you have comments on this report please e-mail us at Lab@unodc.org. Additional information on the ICE Programme and other UNODC Laboratory and Scientific Section programmes can be found via the internet at www.unodc.org or by writing to UNODC at the Vienna International Centre, P.O. Box 500, A-1400, Vienna, Austria.

Important web-links

ICE protocols:

www.unodc.org/pdf/document_1998-10-01_1.pdf

www.unodc.org/documents/scientific/IQAP.pdf

Acknowledgements

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