



European Monitoring Centre
for Drugs and Drug Addiction



Testing the waters: first international multidisciplinary conference on detecting illicit drugs in wastewater

6–8 May 2013, Lisbon

PROGRAMME

Conference Steering Committee

Chairs of the conference

Paul Griffiths, EMCDDA

Sara Castiglioni, Mario Negri Institute

Barbara Kasprzyk-Hordern, SEWPROF

Kevin Thomas, NIVA

EMCDDA event team

Liesbeth Vandam

Jane Mounteney

Danica Thanki

Andrew Cunningham

Kathy Robertson

Manuela Gomes

Conference Scientific Board

Ellen Amundsen, Norwegian Institute for Drug and Alcohol Research

Caleb Banta Green, University of Washington

Adrian Covaci, University of Antwerp

Wayne Hall, University of Queensland

Felix Hernandez, University Jaume I

Matthew Hickman, University of Bristol

Colin Taylor, BBT Stats

Pim de Voogt, KWR Watercycle Research Institute

Ettore Zuccato, Mario Negri Institute

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Testing the waters: first international multidisciplinary conference on detecting illicit drugs in wastewater

OVERVIEW

'Testing the waters', the first international multidisciplinary conference on detecting illicit drugs in wastewater, is the first event of its kind to focus solely on an emerging scientific field known as 'drug sewage epidemiology', 'drug wastewater analysis' or 'wastewater sampling for drugs'. This meeting will explore the potential of this exciting new area for: monitoring population-level trends in illicit drug consumption; assessing the efficacy of drug control interventions; and complementing existing methods for studying drug use trends in Europe.

By sampling a known source of wastewater — for example, a sewage influent to a wastewater treatment plant — scientists can now obtain estimates of the total quantity of drugs consumed by a community by measuring the levels of illicit drug metabolites excreted in urine.

Research into wastewater analysis is of increasing global interest and relevance. This conference will aim to assess the state of the art of this rapidly-developing discipline, consolidate research findings and work towards a common approach and set of methodologies for wastewater analysis and monitoring.

At this relatively early stage in its development, this new field stands to benefit from an interdisciplinary focus and from consensus building. The conference will act as a catalyst, forging links between different scientific disciplines and identifying information gaps and research needs.

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PARTICIPANTS

'Testing the waters' is a scientific conference with a target audience of around 100 participants. A multidisciplinary approach is a central requirement for developing this new field and contributions to our knowledge of the topic are now being made by a number of research areas. For this reason, the conference will bring together a diverse network to explore recent technical advances in the area and their application.

The conference will gather experts from the areas of analytical chemistry, physiology, biochemistry, sewage engineering, spatial epidemiology, statistics and conventional drug epidemiology. By uniting these disciplines, the conference will create a forum to discuss future opportunities for bringing together wastewater analysis and drug epidemiology.

The event is being organised by the EMCDDA in collaboration with: the EU-funded SEWPROF research project, coordinated at the University of Bath; the Mario Negri Institute; and the Norwegian Institute for Water Research. The EMCDDA became an associated partner of SEWPROF in 2012. The SEWPROF Initial Training Network is funded by the Marie Curie Actions of the EU Seventh Framework Programme for Research.

THEMES

The conference will be organised around the following sessions:

- *Drug use in Europe and its measurement* (patterns and trends of drug use, epidemiological indicators, their strengths and limitations, moving from indicators to estimates)
- *Wastewater analysis — an emerging science: key issues and their application* (general overview, first national application, analytical methods and chiral analysis, high resolution analysis)
- *Methodological issues and emergent results*
- *Wastewater analysis: a global review* (updates from Asia, Australia, Canada, Europe and the USA)
- *Detecting illicit drugs in wastewater: understanding the complexities* (from the drug epidemiology and wastewater analysis perspectives)
- *Understanding uncertainties: conceptual issues and knowledge gaps of critical importance for developing wastewater analysis*
- *New perspectives: using wastewater analysis for the identification of old and new drugs*
- *Wastewater analysis in special populations and settings*
- *Bringing it all together — wastewater analysis and drug epidemiology: future opportunities and challenges*

LOCATION

EMCDDA, Cais do Sodré, Lisbon.

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Monday, 6 May 2013

13.00 – 14.00 **Registration**

14.00 – 15.30 **Plenary session I**
Opening session

Welcome

Wolfgang Götz, EMCDDA Director

Introduction

Wastewater analysis — state of the art of this emerging technology

Speaker: Paul Griffiths, EMCDDA Scientific Director

Drug use in Europe and its measurement

Chair: Barbara Kasprzyk-Hordern, SEWPROF coordinator, UK

Keynote presentation: Hitting a moving target — patterns and trends in Europe and the challenge for drug monitoring

Speaker: Jane Mounteney, EMCDDA

Epidemiological indicators: what are their strengths and current limitations?

Speaker: Danica Thanki, EMCDDA

Moving from indicators to estimates: an overview of current statistical methods in drug epidemiology

Speaker: Colin Taylor, BBT Stats, Portugal

Discussion

15.30 – 16.00 **Break**

Monday, 6 May 2013

16.00 – 17.30

Plenary session 2

Wastewater analysis – an emerging science: key issues and their application

Chair: Sara Castiglioni, Mario Negri Institute, Italy

Keynote presentation: General overview of wastewater analysis

Speaker: Ettore Zuccato, Mario Negri Institute, Italy

First national application of wastewater analysis

Speaker: Alexander van Nuijs, University of Antwerp, Belgium

General overview of analytical methods and chiral analysis

Speaker: Barbara Kasprzyk-Hordern, University of Bath/
SEWPROF coordinator, UK

High resolution analysis: screening possibilities and potentials

Speakers: Lubertus Bijlsma, University Jaume I, Castelló, Spain

Pim de Voogt/Erik Emke, KWR Watercycle Research Institute, The Netherlands

Discussion

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17.30 – 19.00

Open session

Methodological issues and emergent results

Chair: Alvaro Lopes, University of Lisbon, Portugal

Wastewater analysis: a tool to improve epidemiological observation on drug use

Speaker: Ettore Zuccato, Mario Negri Institute, Italy

Temporal variability in the consumption of illicit drugs and therapeutic opioids in the city of Zagreb, Croatia

Speaker: Senka Terzić, Ruđer Bošković Institute, Croatia

A calibrated model for estimating the number of contributing people to a wastewater treatment plant

Speaker: Jake O'Brien, University of Queensland, Australia

Progress towards finding a population biomarker for wastewater analysis

Speaker: Cobus Gerber, University of South Australia, Australia

Analysis of illicit drugs in wastewater

Speaker: Roman Grabic, University of South Bohemia in České Budějovice, Czech Republic

First drug monitoring in Slovak wastewater – and what next?

Speaker: Jaroslav Škubák, STU FCHPT, Department of Analytical Chemistry, Slovakia

Tuesday, 7 May 2013

09.00 – 11.00

Plenary session 3

Wastewater analysis: a global review

Chair: Thomas Pietschmann, UNODC

- Asia — Adrian Covaci, University of Antwerp, Belgium
- Australia — Jason White, University of South Australia, Australia
- Canada — Viviane Yargeau, McGill University, Canada
- Europe — Kevin Thomas, NIVA, Norway
- USA — Caleb Banta Green, University of Washington, USA

Discussion

11.00 – 11.30

Break

11.30 – 13.00

Plenary session 4

Detecting illicit drugs in wastewater: understanding the complexities

Chair: Kevin Thomas, NIVA, Norway

Keynote presentation: Understanding complexities in patterns of use

Speaker: Dirk Korf, Bongor Institute, The Netherlands

How accurately can we characterise a sewer system?

Speaker: Christoph Ort, EAWAG, Switzerland

Passive sampling of drugs in sewer systems

Speaker: Christopher Harman, NIVA, Norway

Stability of illicit drugs in wastewater post sampling

Speaker: Jason White, University of South Australia, Australia

Incorporating wastewater data with other data to estimate prevalence and trends

Speaker: Hayley Jones, University of Bristol, UK

Discussion

13.00 – 14.00

Lunch break

Testing the waters: first international multidisciplinary conference on detecting illicit drugs in wastewater

Tuesday, 7 May 2013

14.00 – 16.00

Plenary session 5

Understanding uncertainties: conceptual issues and knowledge gaps of critical importance for developing wastewater analysis

Chair: Caleb Banta Green, University of Washington, USA

Keynote presentation: Uncertainties associated with the determination of illicit drug use through sewage analysis: results from an international study

Speaker: Sara Castiglioni, Mario Negri Institute, Italy

General overview of available pharmacokinetics data of illicit drugs: state of the art

Speaker: Alain Verstraete, Ghent University, Belgium

Human pharmacokinetics: reliability of data of illicit drugs – strengths and needs for improvement

Speaker: Hans Maurer, Saarland University, Germany

Strengths and weaknesses of price, purity and adulteration data

Speaker: Tibor Brunt, Trimbos Institute, The Netherlands

Synthetic drug production in Europe and its environmental residues

Speaker: To be confirmed

Discussion

16.00 – 16.30

Break

Tuesday, 7 May 2013

16.30 – 18.00

Plenary session 6

New perspectives: using wastewater analysis for the identification of old and new drugs

Chair: Roumen Sedefov, EMCDDA

Keynote presentation: Wastewater at the cutting edge: what new drugs can we expect to find in sewage?

Speaker: John Ramsey, TicTac Communications, UK

Conceptual approach for dealing with new drugs/analysis of synthetic cannabinoids, ATS and other 'legal highs' in pooled urine

Speaker: Malcolm Reid, NIVA, Norway

Innovative approach to monitoring for new psychoactive substances: pooled urine analysis in London, a case study

Speaker: Paul Dargan, Guy's and St Thomas' NHS Foundation Trust, UK

Exploring wastewater analysis for mapping drug use at the national level – a Finnish case study

Speaker: Teemu Gunnar, National Institute for Health and Welfare, Finland

Discussion

18.00

Poster session and reception

EMCDDA atrium (see page 14 for details).

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Wednesday, 8 May 2013

09.00 – 10.30

Plenary session 7

Wastewater analysis in special populations and settings

Chair: Liesbeth Vandam, EMCDDA

Application in schools

Speaker: Ettore Zuccato, Mario Negri Institute, Italy

First application in a small community — prison

Speaker: Miren López de Alda, IDAEA-CSIC, Spain

Application of the sewage epidemiology method to five districts in Paris and six particular sites in the Parisian region

Speaker: Thomas Néfau, University Paris-Sud, France

Keynote presentation: Ethical issues of using wastewater analysis in the general population and special settings

Speaker: Jeremy Prichard, The University of Queensland, Centre for Clinical Research, Australia

Discussion

10.30 – 11.00

Break

Wednesday, 8 May 2013

11.00 – 13.00

Plenary session 8

Bringing it all together – wastewater analysis and drug epidemiology: future opportunities and challenges

Chair: Paul Griffiths, EMCDDA

Keynote presentation: Comparison of drug consumption estimates obtained from wastewater analysis and epidemiological studies: is it possible?

Speaker: Caleb Banta Green, University of Washington, USA

Bringing it all together: joint presentation

Speakers: Ellen Amundsen, Norwegian Institute for Drug and Alcohol Research and Malcolm Reid, NIVA, Norway

Key challenges for integrating wastewater data into the epidemiology models: where do we go next?

Speaker: Matthew Hickman, University of Bristol, UK

Research needs and information gaps: conclusions from the conference rapporteur

Speaker: Sara Castiglioni, Mario Negri Institute, Italy

Moving forward – panel discussion

Moderator: Pim de Voogt

Panel: Matthew Hickman, Caleb Banta Green, Kevin Thomas, Barbara Kasprzyk-Hordern, Jeremy Prichard

Concluding remarks from the chairs

Chairs: Paul Griffiths, Sara Castiglioni, Barbara Kasprzyk-Hordern, Kevin Thomas

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Poster session

Semi-targeted screening of pharmaceutically-related contaminants in the Thames Tideway using liquid chromatography-high-resolution mass spectrometry

Leon Barron, King's College London, UK

Post-analysis prediction of drug retention time in gradient liquid chromatography-high-resolution mass spectrometry data using artificial neural networks

Leon Barron, King's College London, UK

Relating sewage epidemiological data to conventional statistics about illicit drug consumption: the case of a mid-sized city in Switzerland

Frédéric Been, University of Lausanne, Switzerland

Environmental pollution

Igor Bodik, Slovak University of Technology, Slovakia

Analysis of illicit drugs in wastewater in Greece

Christophoros Christophoridis, Aristotle University of Thessaloniki, Greece

Photolysis and photoproducts of cocaine, Delta-9-tetrahydrocannabinol and morphine in water

Donata Favretto, University of Padova, Italy

Estimation of cocaine pharmacokinetic parameters on wastewater drug analysis – fraction excreted and fraction metabolised

Alvaro Lopes, University of Lisbon, Portugal

Concentration of illicit drugs in the municipal wastewater

Vera Očenášková, T.G. Masaryk Water Research Institute, Czech Republic

Integrating wastewater analysis and drug epidemiology data

Petr Tusil, T.G. Masaryk Water Research Institute, Czech Republic

Analgesics, psycholeptics, antidepressants and illicit drugs in the aquatic environment of the Czech Republic

Tomas Randak, University of South Bohemia in České Budějovice, Czech Republic

Amphetamine-type drug findings in the wastewater of nine Finnish cities

Erkki Vuori, University of Helsinki, Finland



Conference website

All information relating to the conference can be found at:
www.emcdda.europa.eu/events/2013/testing-the-waters

Thematic website

Further EMCDDA materials on the issue of drugs and wastewater, including publications and studies, can be found at:
www.emcdda.europa.eu/wastewater-analysis

SEWPROF project

Information relating to the SEWPROF project can be found at:
<http://sewprof-itn.eu/>