Alternative methods to measure drug problems

New trends and developments on the European drug market

Jane Mounteney PhD

European Monitoring Centre for Drugs and Drug Addiction (EMCDDA)

Decentralized agency of the European Union

Seat: Lisbon

Established: 1993

Role: provide a factual overview of drug problems and a solid evidence base to support the drugs debate

Works with 30 European countries

European Drug Report

EUROPEAN DRUG REPORT PACKAGE 2014

A set of interlinked elements allowing full access to the available data and analysis on the drug problem in Europe

Trends and developments
providing a top-level analysis of key developments (print and online)

Data and statistics
containing full data arrays, graphics and methodological information (online)

Country overviews
national data and analysis at your fingertips (online)

Perspectives on drugs
interactive windows on key issues (online)

European Drug Report

EUROPEAN DRUG REPORT PACKAGE 2014

A set of interlinked elements allowing full access to the available data and analysis on the drug problem in Europe

Trends and developments
providing a top-level analysis of key developments (print and online)

Data and statistics
containing full data arrays, graphics and methodological information (online)

Country overviews
national data and analysis at your fingertips (online)

Perspectives on drugs
interactive windows on key issues (online)

In 15 minutes..

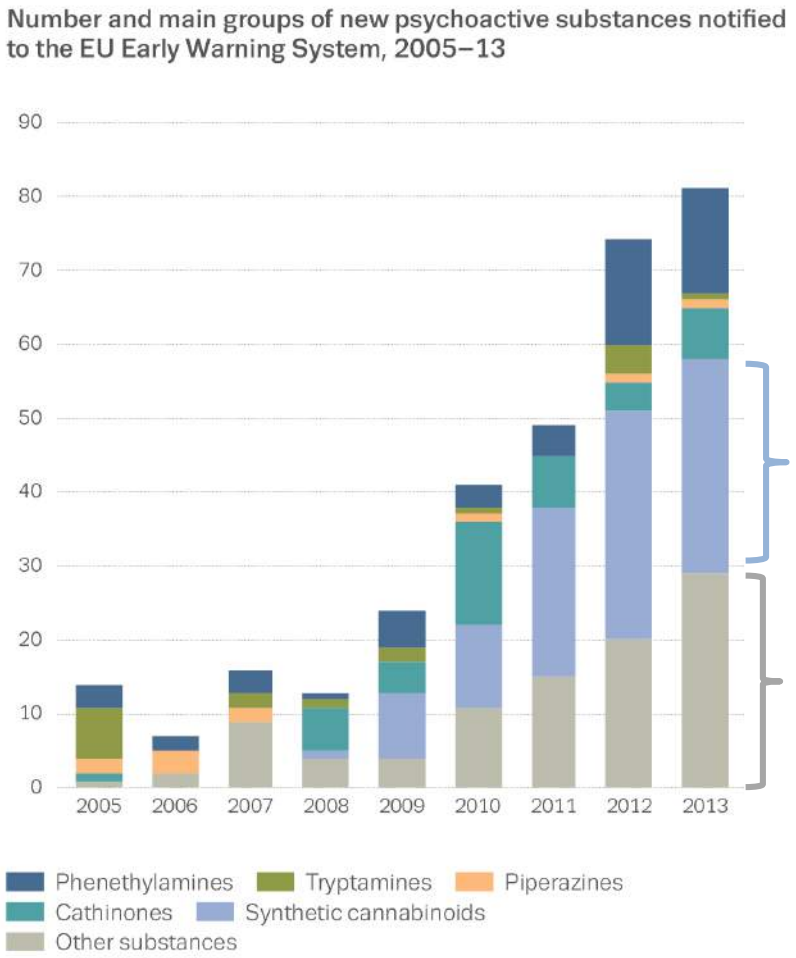
- Routine methods to measure drug problems
- New challenges
- Developing complementary data sources
- A couple of concrete examples

Routine methods to measure drug problems

- Demand side data sets, key epidemiological indicators
    - GPS, PDU, TDI, DRD, DRID
- Supply side data sets, seizures, price, purity, DLOs
- EU Early Warning System, case reports from network of forensic and law enforcement experts

Challenges…

1) Speed and diversity of new drugs market



81 reported to EWS in 2013

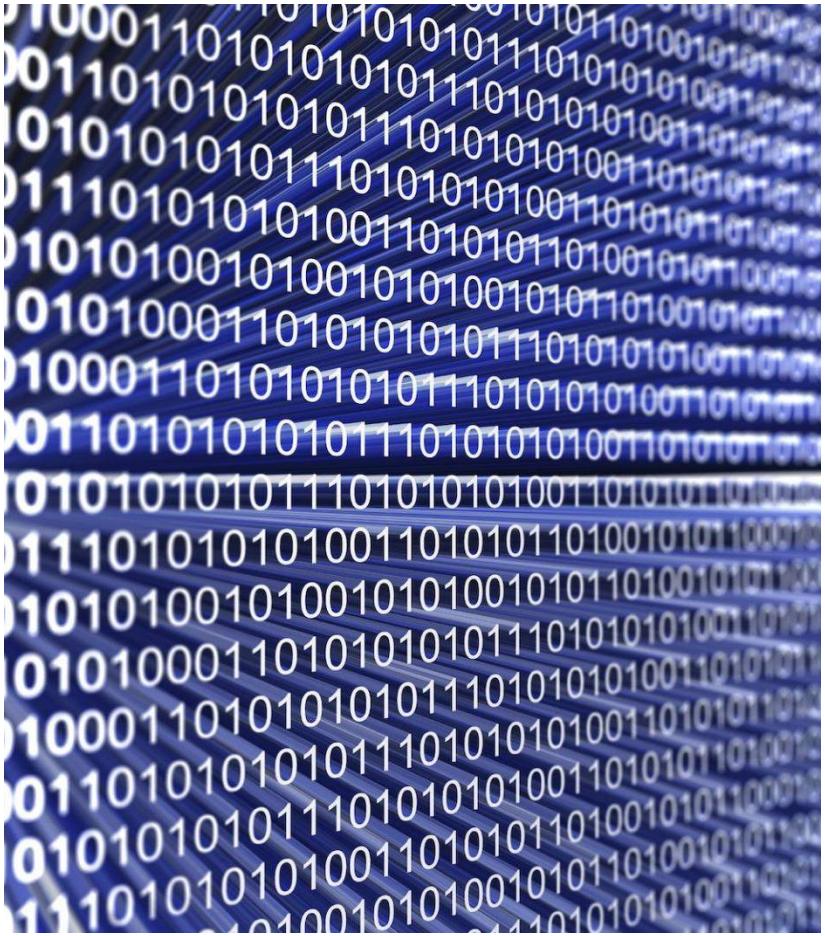
350+ substances monitored

Largest group – synthetic cannabinoids

30 ‘other’ compounds

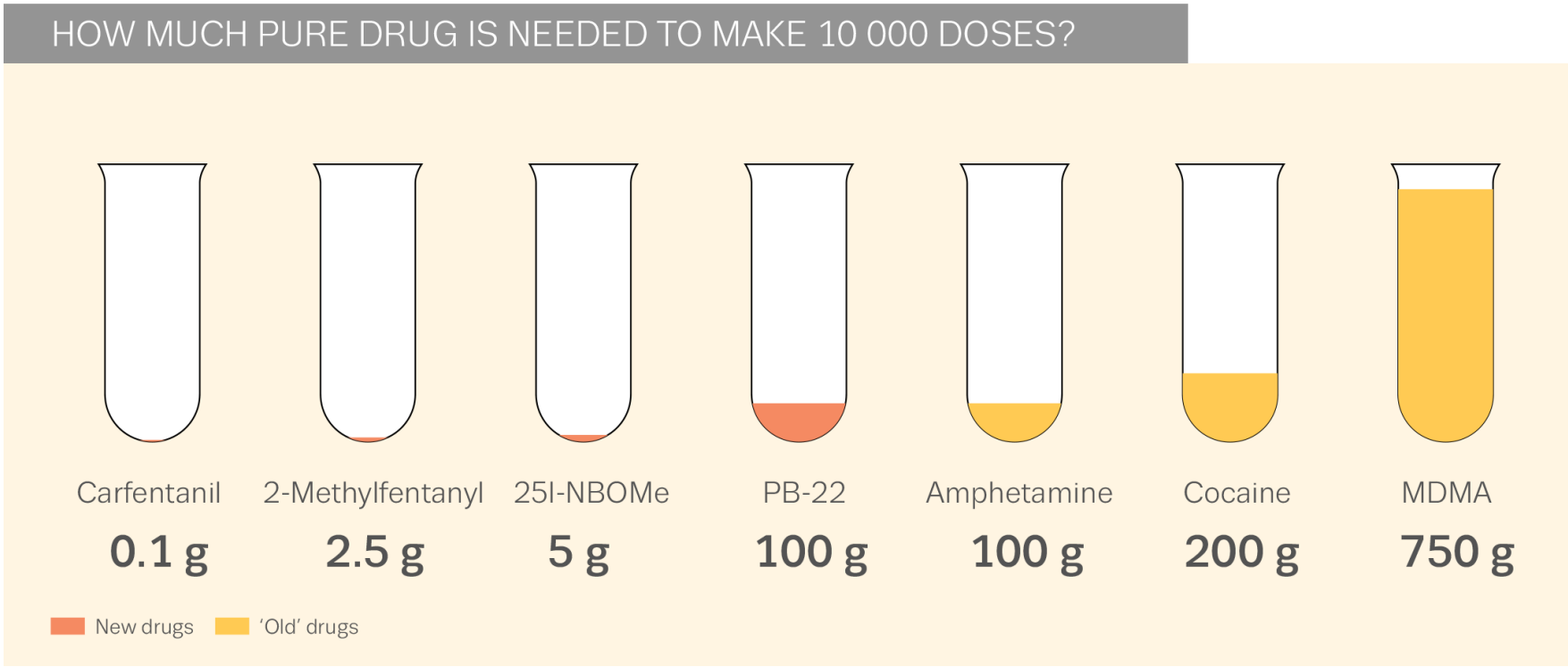
Internet a growing marketplace

- For supply of ‘new’ and ‘old’ drugs
- 651 websites selling ‘legal highs’ to Europeans, 2013
- Growth of anonymising networks ‘darknets’
- Transnational — difficult to control



High potency products

New synthetic opioids and hallucinogens
Tiny quantities can produce multiple doses



2) Drug market complexity

Stimulants market – with mix of interlinked, interrelated, competing products

A geographically divided stimulant market

2.2 million Europeans (15–34 years old) used cocaine in the last year

1.2 million used amphetamines

1.3 million used ecstasy

2) Drug market complexity

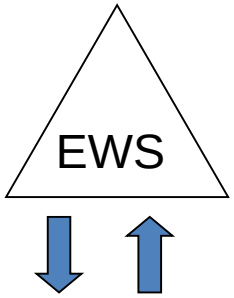
- Opioids market diversity – heroin, fentanyls, medicines
- Product replacement and displacement
- E.g. supply of fentanyls – illicit production, diversion of patches, research chemicals

2) Drug market complexity

- Use of unknown white powders and pills
- GPS, stable Ecstasy self reports – at a time MDMA not around, so was mCCP
- NBOMes – in Australia – self reports of more LSD used, people did not know what they were taking

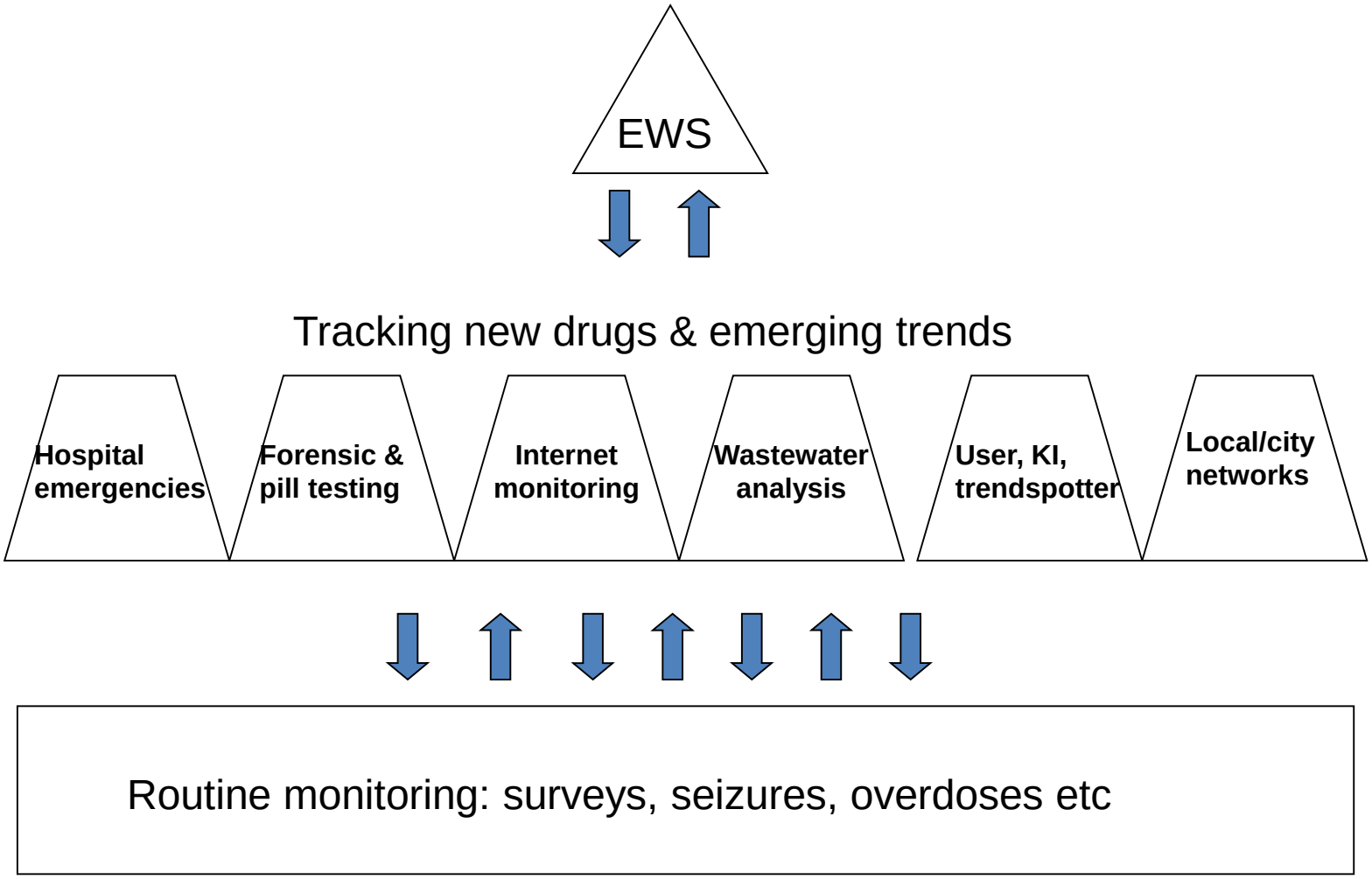
3) Monitoring challenges

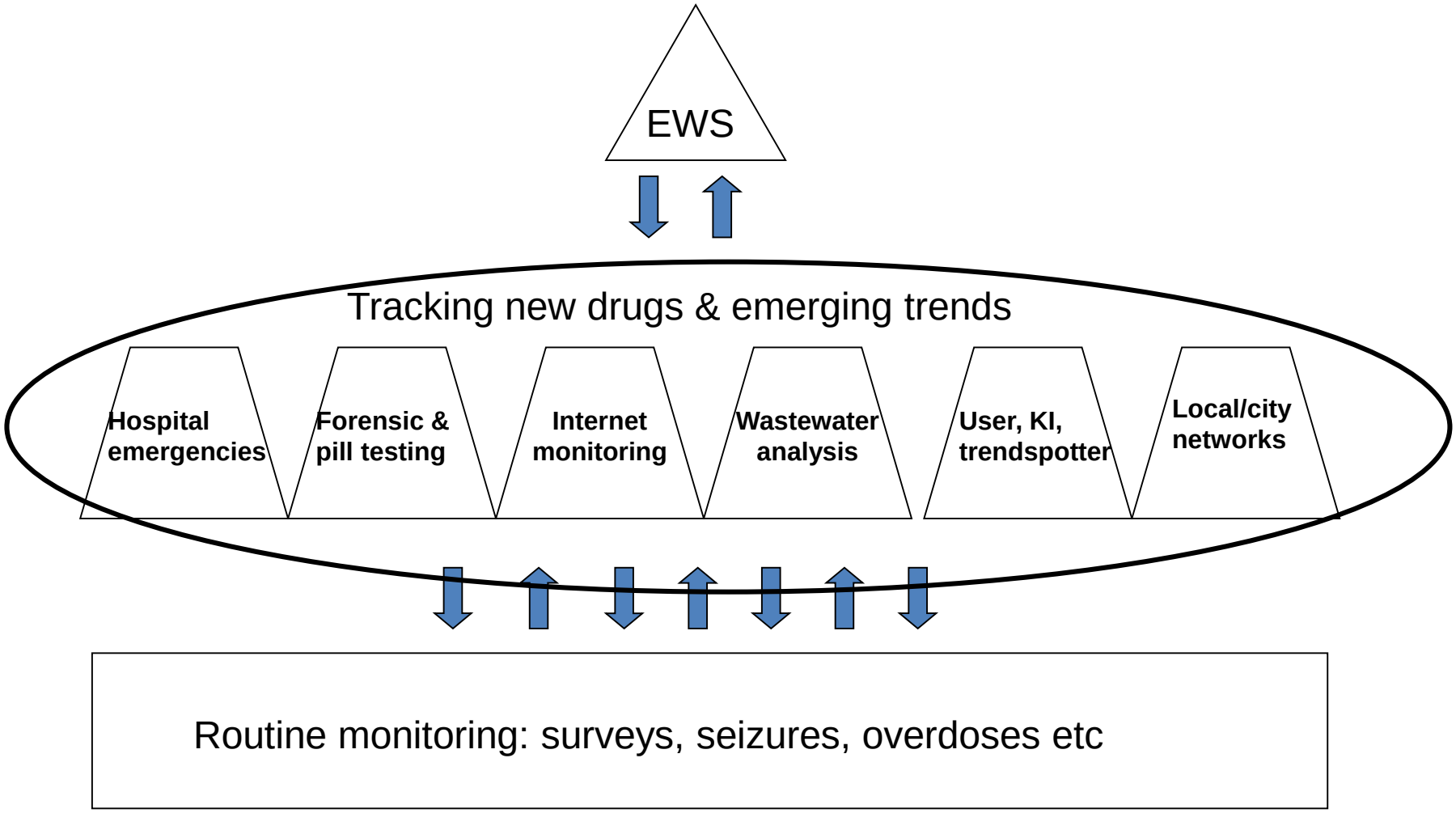
- Technological – surveys increasingly problematic, we need better methods and tools
- Timeliness, contrast between real time event-based monitoring, e.g. EWS v slow epi indicators – aggregated data
- Trying to bring these two sides closer



?

Routine monitoring: surveys, seizures, overdoses etc


EWS
Tracking new drugs & emerging trends
Hospital emergencies
Forensic & pill testing
Internet monitoring
Wastewater analysis
User, KI, trendspotter
Local/city networks
Routine monitoring: surveys, seizures, overdoses etc

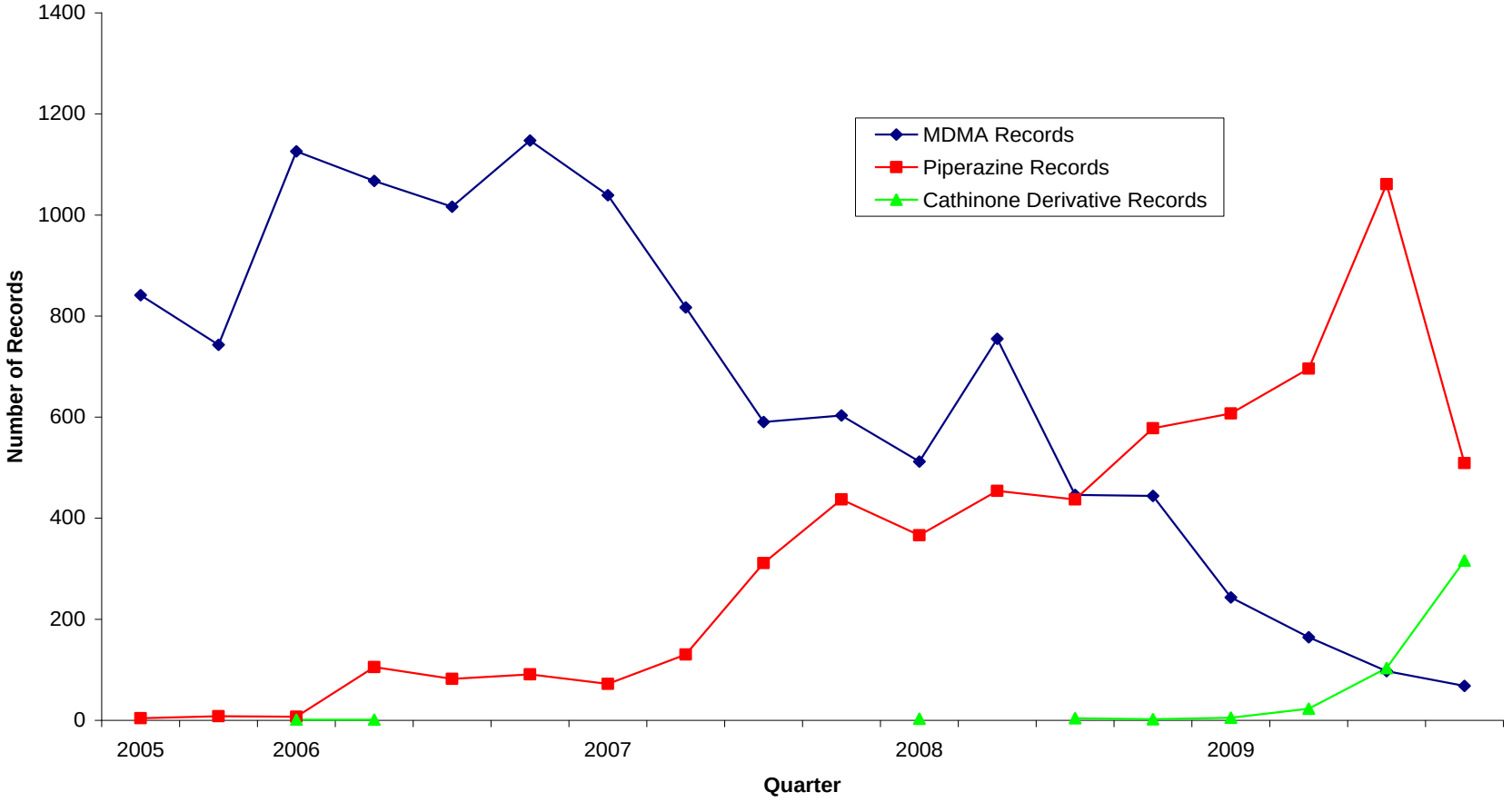

EWS
Tracking new drugs & emerging trends
Hospital emergencies
Forensic & pill testing
Internet monitoring
Wastewater analysis
User, KI, trendspotter
Local/city networks
Routine monitoring: surveys, seizures, overdoses etc

Contribution from forensics

- Drug testing drivers, workplace
- Testing prisoners, probation, treatment
- Syringe & filter testing
- Clubs and festivals amnesty bins
- Pill testing - on-site analysis (e.g. DIMS)
- Test purchases (Internet, head shop)

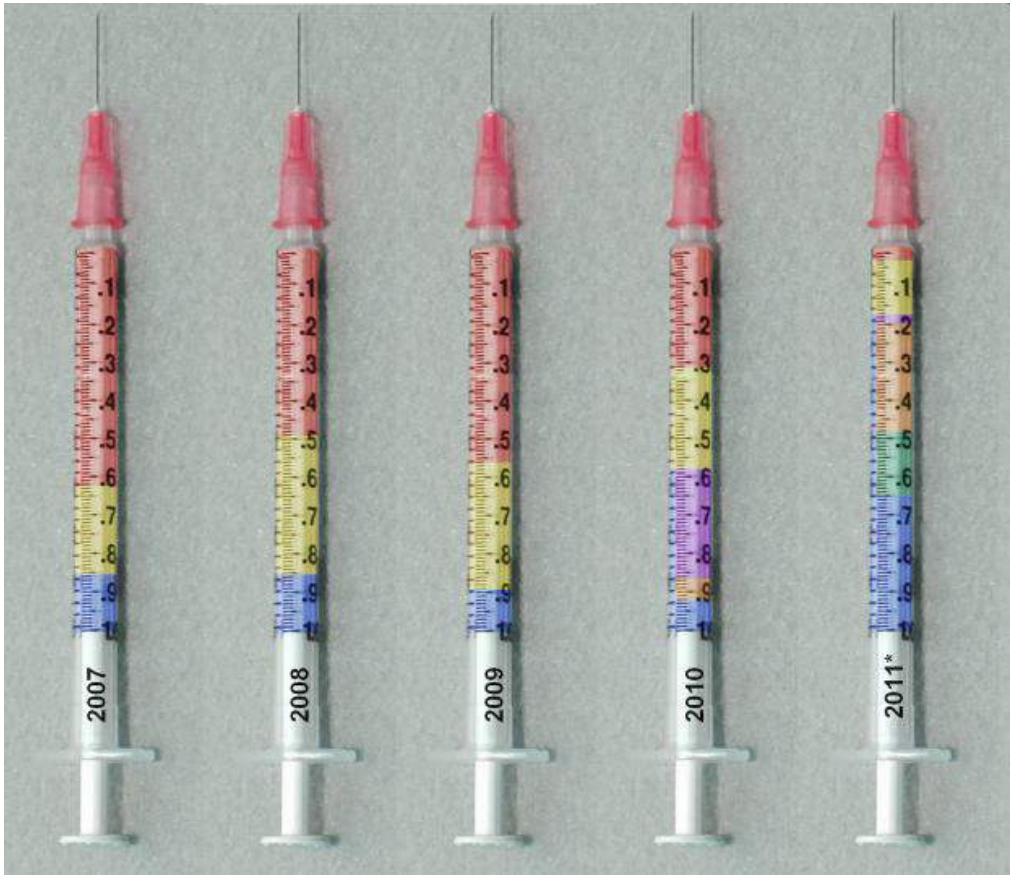
The disappearance of MDMA (UK)

UK Forensic Science Service data



Heroin shortages

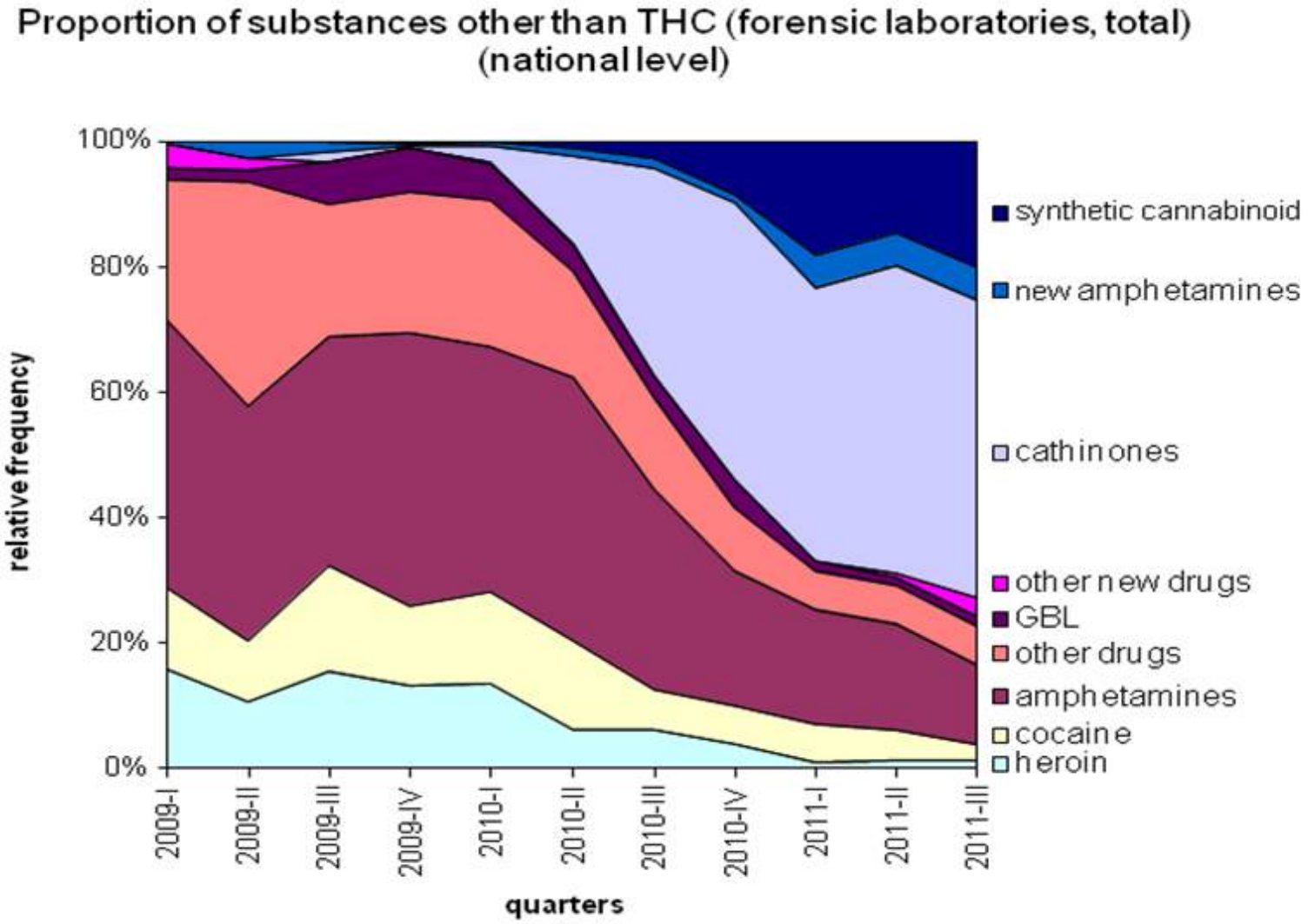
Seizure data (substances in syringes + filters)



- Heroin
- Amphetamine
- Mephedrone
- MDPV
- 4-MEC
- Other

Source: Hungarian FP & Institute for Forensic Sciences

Increased use of cathinones



WASTEWATER ANALYSIS

DRUGS

- new drugs
- cocaine
- cannabis
- heroin
- amphetamines

CONSUMER

Excretes residues of the drugs with urine after the intake

Sources of uncertainty

TREATMENT PLANT

Residues are transported to the treatment plant with the wastewater

Sources of variability

DRUG RESIDUES QUANTIFICATION

Wastewater is sampled and the residues of the drugs are measured

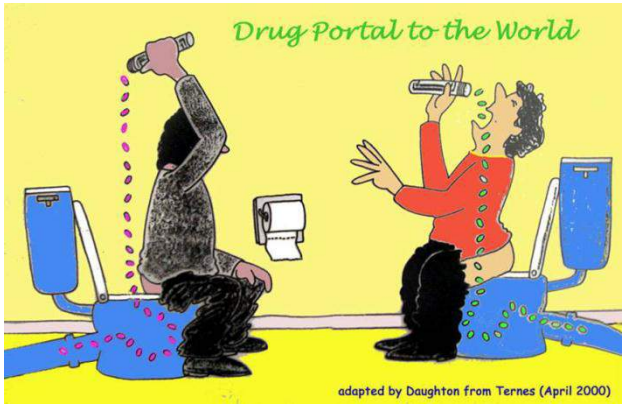
CONSUMPTION ESTIMATE

Concentrations are used to calculate residue loads (g/day)

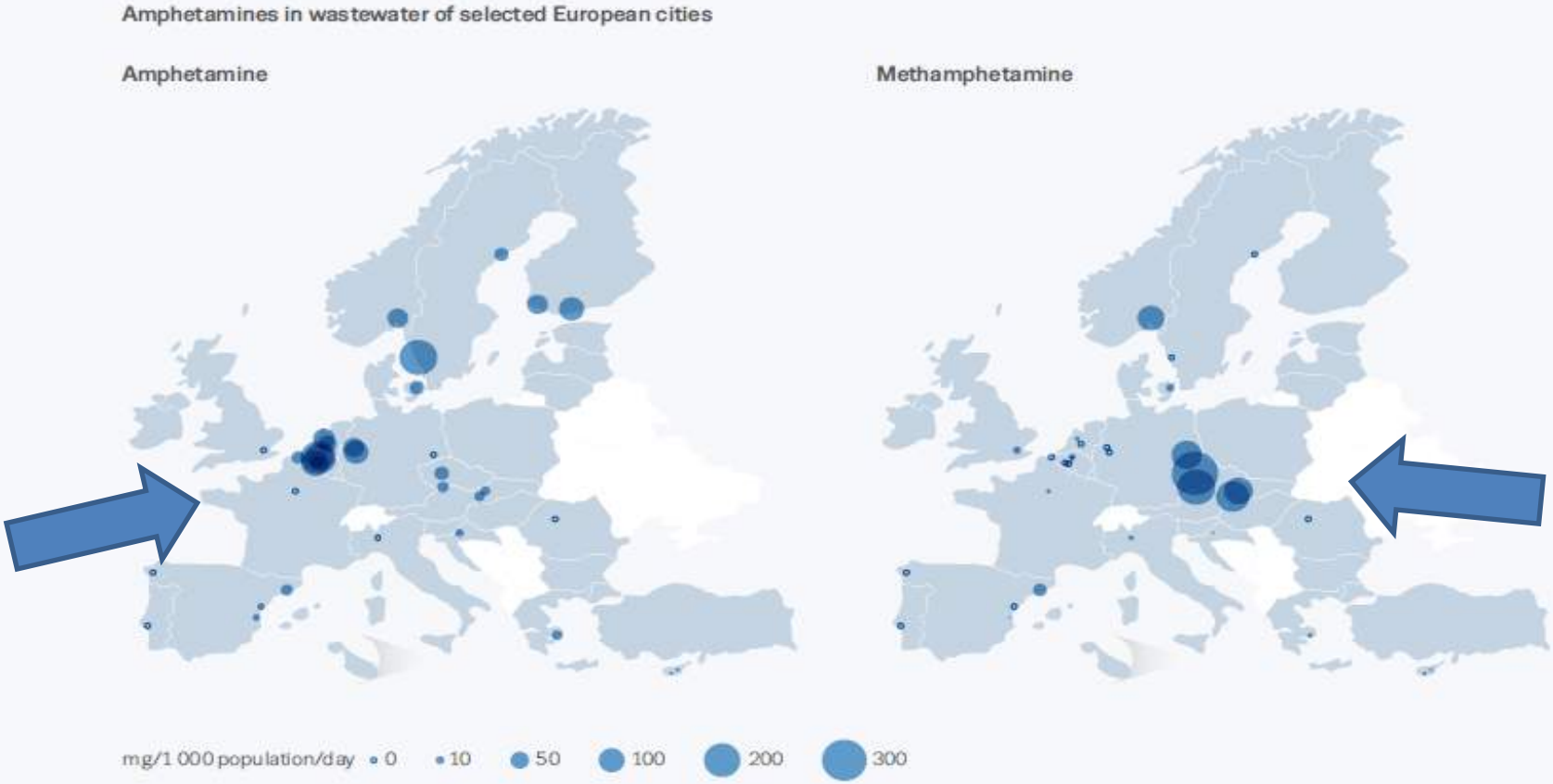
Loads can be used to back-calculate drug consumption

Wastewater analysis

- Can provide real-time estimates of collective drug consumption, community urine test
- Identify geographical patterns
- monitor consumption changes over time
- identify population level trends
- test effectiveness of prevention, law enforcement measures

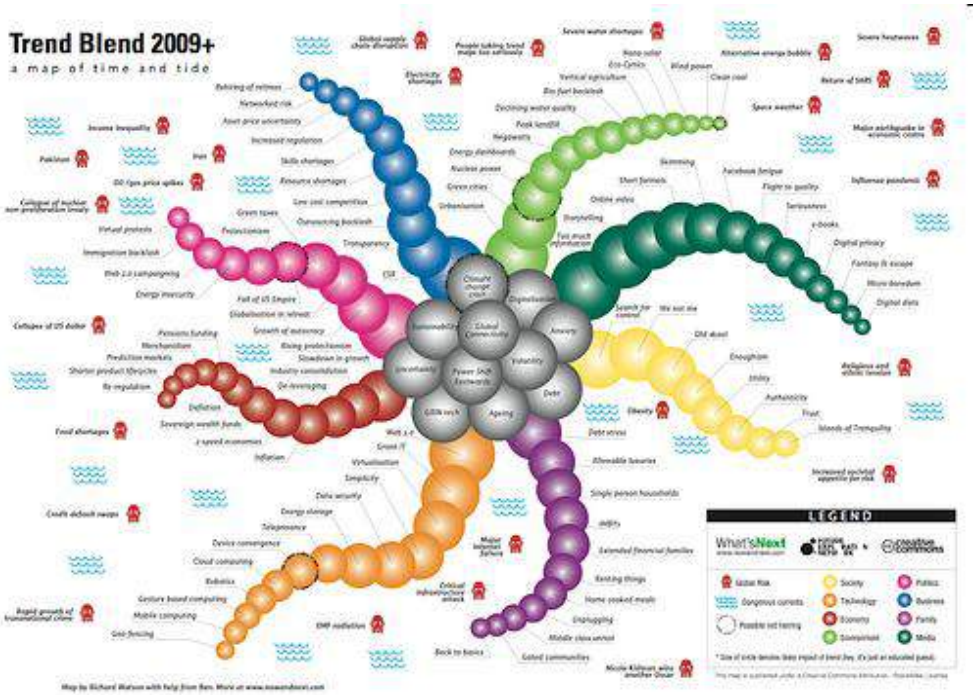


Wastewater analysis – variation in use of amphetamine and methamphetamine



Source: Sewage Analysis Core Group Europe (SCORE).

Trendspotting



- Heroin shortage
- Methamphetamine
- Fentanyl outbreaks
- IV cathinone use

Trendspotter methodology

Multi source, multi-method and triangulation:

- Literature review
- Routine data analysis
- Multi country survey
- Expert presentations
- Expert working groups
- Twitter

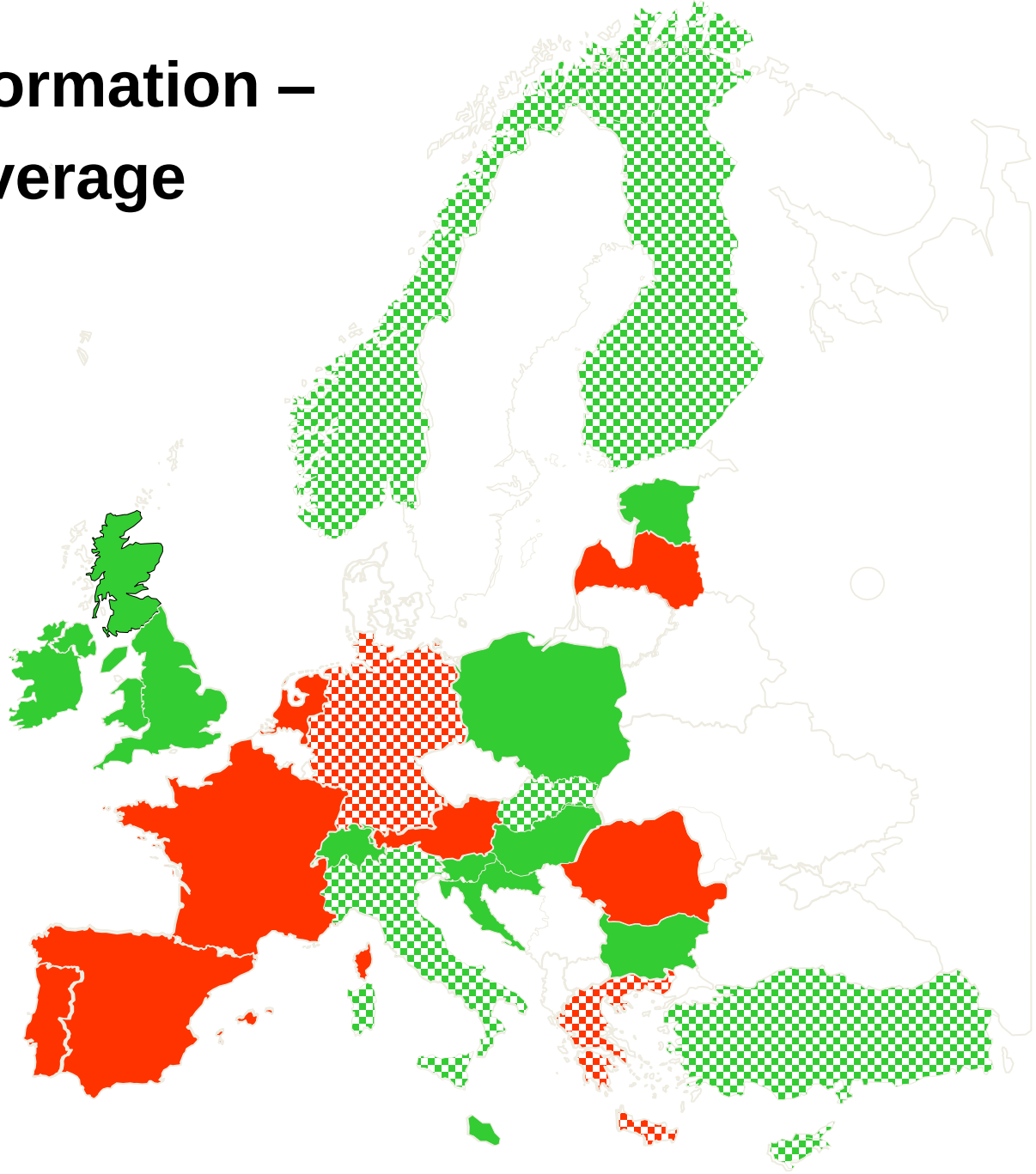
Triangulating information – geographical coverage

Heroin drought reported?

Yes

No

No answer



Slide, squeeze and shocks in EU heroin market

- Long term slide in some EU countries from 2001 Taliban ban on opium production
  - Irrevocable changes e.g. in Estonia & Finland
- Medium term market squeeze linked to poppy blight, floods (P) and fighting (A)
- Short term shock – acute drought linked with countries on same supply networks
  - Linked with law enforcement action Turkey/UK

add_3829

EDITORIAL

doi:10.1111/j.1360-0443.2012.03829.x

Understanding changes in heroin availability in Europe over time: emerging evidence for a slide, a squeeze and a shock

In this editorial we discuss the evidence that Europe recently experienced a heroin shortage. The information available suggests that some, but not all, countries experienced a severe market shock linked to law enforcement activities; however, this may be best viewed as an epiphenomenon, accompanying a longer-term decline influenced by both demand and supply side factors.

During the last decade changes in opium production in Afghanistan generated a concern that a potential 'flood of heroin' could enter the European market. To date, no evidence exists that this has happened and, conversely, the question has become whether Europe, in part or as a whole, has recently experienced a heroin shortage.

In late 2010, information began emerging that disruption was occurring in the European illicit heroin market. These accounts were difficult to reconcile, often anecdotal and inconsistent. They included reports of injectors switching to new substances, including cathinones, increased use of benzodiazepines and the appearance of novel synthetic opiates. Most consistent were media reports from Ireland and the United Kingdom, which pointed to a dramatic reduction in heroin availability. These accounts tended to focus on the perceived negative impact of the event, which included increased risk behaviour and the use of adulterated drugs. These themes were developed in the specialized press who were more analytical, suggesting, for example, that not all parts of the United Kingdom and Ireland were affected equally [1]. The lack of supporting empirical data and poor coherence between reports generated initial scepticism that this had wider significance. However, in winter 2010–11 health alerts were issued in both Ireland [2] and the United Kingdom [3] and corroborative data began to emerge from forensic science and law enforcement sources. From a European Union (EU) perspective, the evidence was now sufficient to prompt a wider investigation, which also provided an opportunity to pilot methods, currently in development, to report on emerging trends more rapidly [4]. While the findings from this exercise require further review as more data become available, the exercise not only reduced levels of uncertainty but also highlighted issues where our current understanding was inadequate. Perhaps the most basic of these was the differing conception of 'normal' levels of heroin availability that existed between countries.

A relatively consistent picture emerged across the sources used, showing that some European countries experienced a notable heroin shortage between November 2010 and March 2011, with a partial rebound occurring after this date. It is important to note that a number of countries did not experience a shortage during this period. The countries in which market disruption occurred include Bulgaria, Ireland, Hungary, Slovenia, Slovakia, the United Kingdom and Croatia. The evidence is less clear, but suggestive, for Greece, Romania, Cyprus and Russia. In Finland and Estonia the market had already largely collapsed before 2010. In contrast, in Germany, Spain, France, Portugal, Austria and possibly the Netherlands, no major changes have been observed—a caveat, being that in some of these countries heroin purity is low or has fallen. A complicating factor to this analysis is that the dramatic market shock experienced by some countries may have to be viewed as an epiphenomenon, accompanying a longer-term decline.

While it is not possible here to review all the data available to support this conclusion, an illustrative window is provided by drug testing data from Ireland and the United Kingdom. In both countries, large numbers of biological samples from treatment attendees and those in the criminal justice sector are tested. These data reveal a 50% drop in the number of positive tests for heroin between October 2010 and February 2011. The Irish data mirror the United Kingdom figures, but with the drop occurring slightly later (December and January).

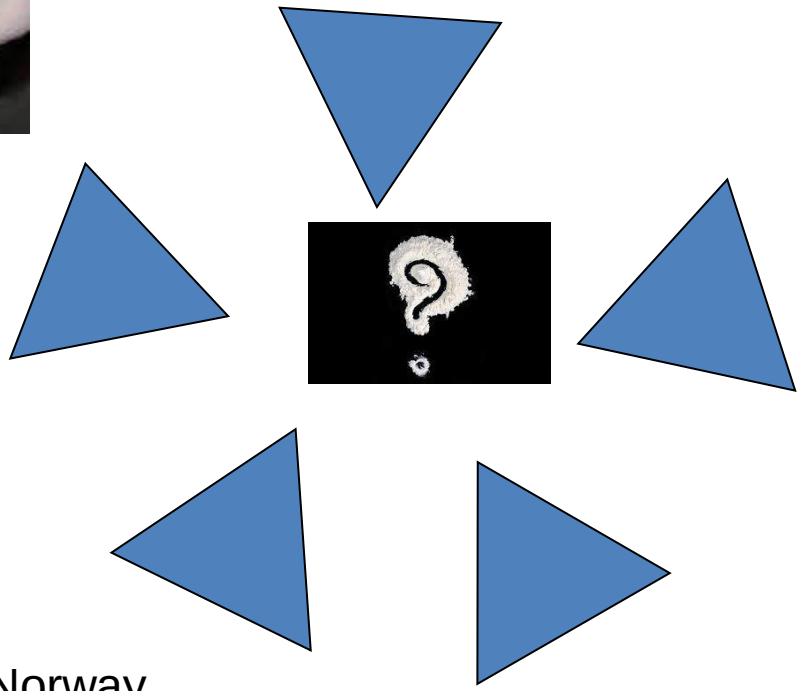
An emerging hypothesis is that we need to differentiate between a longer-term market slide and shorter-term shocks. A number of countries experienced disruption to availability following the imposition by the Taliban ban on opium production in 2001. This earlier shock seems to have resulted in irrevocable changes, with this period seeing the establishment of fentanyl in Estonia, and buprenorphine in Finland, as heroin alternatives. Following this, both demand and supply side factors may have contributed to a longer-term reduction in availability; these include an ageing population, expansion in treatment, increasing availability of synthetic opioids and competition from other markets.

A number of fairly recent events, such as reduced production due to unfavourable weather and poppy blight, floods in Pakistan and fighting in Afghanistan, are likely to have contributed to a medium-term market squeeze. Regarding the more acute period of severe heroin

Multiple faces of methamphetamine in EU

Pervitin, CZ

Slamming, UK



S(H)ISA, Greece

Amphetamine, Norway

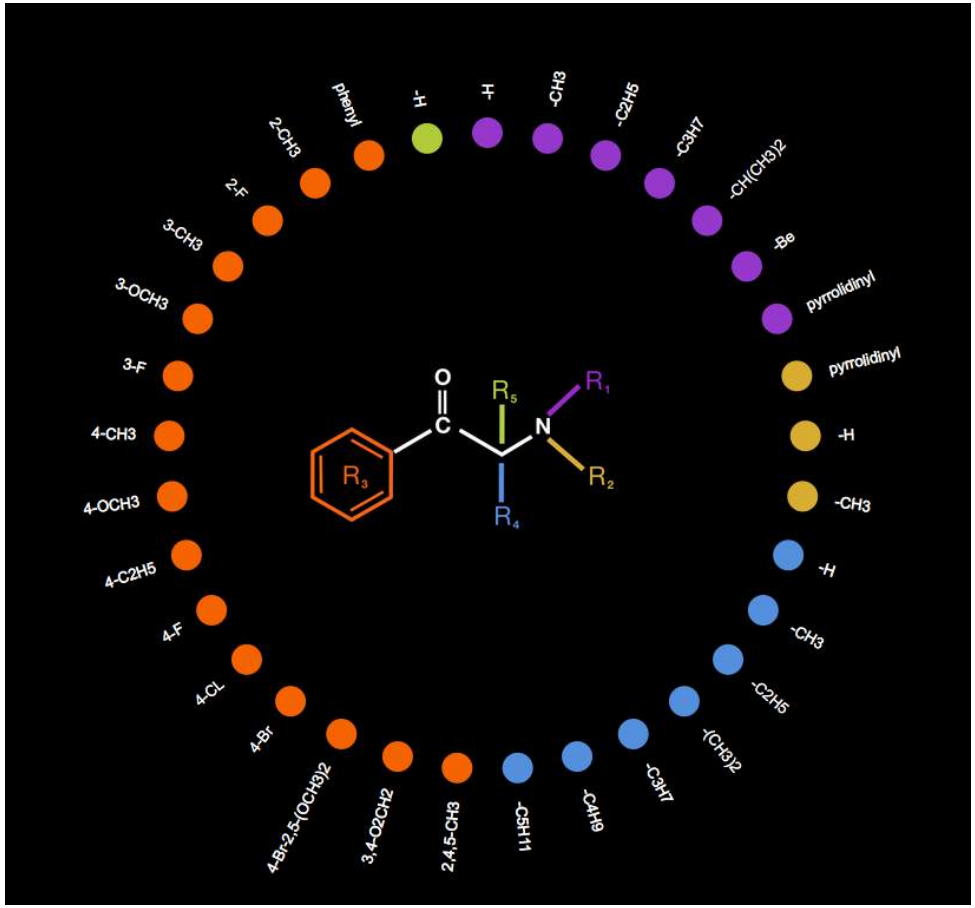
Crystal, Turkey, Greece

Injection of synthetic cathinones

Mephedrone, MPDV, pentedrone have carved a space in the illicit stimulants market in some countries.

Prevalence levels remain low but injection a concern

- Widespread IDU: HU, RO
- Pockets IDU: ES, UK, IE, AT
- Chem-sex



Conclusions

- Increasingly complex market — requiring new and more timely tools for our epidemiological tool box
- Keep both baby and bath water
- Use mixed methods and triangulation to complement, provide context and as leading edge indicator