



news release

from the EU drugs agency in Lisbon

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KEY ROLE OF MODELLING IN SHEDDING LIGHT ON DRUG USE

The key role of dynamic modelling in helping to understand problem drug use is stressed in a publication out today from the Lisbon-based **EU** drugs agency, the **EMCDDA**.

Modelling drug use: methods to quantify and understand hidden processes – the latest edition in the **EMCDDA**'s scientific monograph series – offers, in the words of drugs agency chief Georges Estievenart, 'an overview of the application of mathematical and statistical techniques in the field of drug use'. It 'clearly points to the potential for using models for analysing and understanding drug data'.

Estievenart adds: 'I believe that dynamic modelling can help decision-makers and scientists to better understand the hidden processes of drug use, epidemiological trends and their relationships, and thus contribute to sound decision-making on policies and interventions.'

A key **EMCDDA** task is to analyse and make sense of data on drug use and its consequences in the **EU**. This is a prerequisite for developing rational interventions and policies.

Today's publication explores the potential role of modelling in this task. It says drug use and drug problems involve complex information. Modelling might help to enhance the interpretation of available but scarce data and increase the understanding of unobservable processes and relationships. In particular, it can serve to describe the dynamics of drug use at a more abstract or aggregated, local, national or international level.

Difficult to 'sell'

The monograph explains that it is this high level of abstraction that can make modelling somewhat difficult to 'sell', especially to professionals nearer to individual drug users, since the results of modelling studies seldom relate to individual experiences. But, it points out, it is exactly this abstraction that gives modelling its strength – by detecting common features within available data sets or by clarifying relationships between more abstract concepts such as law enforcement, price and demand for drugs.

Here is just a flavour of the concepts covered in the publication:

- Discussion of a very successful method in generating predictions of AIDS and HIV – the back-calculation method. The agency plans to use this in estimating incidence or rates of initiation of heroin use from routine drug-treatment data. Knowing such rates would enable more direct evaluation of activities that aim to prevent drug users from starting to use heroin than is possible with prevalence estimates.

- Use of compartmental models is useful for analysing drug 'careers'. This method has been employed for several diseases, as well as studying processes that lead young people to initiate drug use.
- System-dynamic models – used mostly to describe macro-scale drug phenomena and national policy scenarios, such as drug imports, treatment and law enforcement. These are relatively well-suited for macro-level analysis as they measure flows as aggregate measures rather than keeping track of individual persons or events.

The **EMCDDA** hopes that this monograph – and the European network of modellers behind it – will prove significant in stimulating the application of quantitative techniques to drug data.

It concludes: 'As good and comparable data on drugs are still rather scarce in Europe, progress is not expected to be very rapid. However, with increasing work on improving data sources and growing understanding of the basic knowledge needed for sound policy-making, mathematical and statistical modelling forms a valuable part of the set of tools available to understand and prevent the problems caused by the use of drugs.'

Note to editors:

Modelling is a technical way of simplifying complex processes. This is mostly achieved on a computer or with mathematical formulae by describing the components of the process, and the relationships between them, in a formal or quantitative way. The result is called a 'model'.

By manipulating or experimenting with the model, conclusions can be drawn that cannot be found by direct observation of drug users. Dynamic models can be used to generate estimates where data are sparse or to test hypotheses about drug use in so-called 'mind experiments' or 'what if?' studies. The simple act of building a model forces a researcher to make explicit statements about the process being studied, which usually leads to discussion and improved insight.

This news release may be downloaded in PDF format from:

<http://www.emcdda.org/press/press.shtml>

For information on the EMCDDA's Scientific Monograph series and ordering details see:

http://www.emcdda.org/publications/publications_monographs.shtml

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