

# Understanding drug trends in the United States of America: the role of the Community Epidemiology Work Group as part of a comprehensive drug information system

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## **ABSTRACT**

*At a meeting held in June 2001, the Community Epidemiology Work Group celebrated its twenty-fifth anniversary. The meeting provided it with an opportunity to reflect on its contributions to the understanding of drug abuse and drug abuse patterns in the United States of America. In the present article those contributions are discussed from two perspectives: the substance of drug abuse epidemiology and drug abuse epidemiological methods.*

*Keywords:* CEWG model; surveillance systems; emergent drug use patterns.

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## **Introduction**

Since the creation of the National Institute on Drug Abuse (NIDA) in 1974, a number of data systems have been established to assess the use of alcohol, tobacco and drugs in the United States of America. Traditional periodic surveys of members of representative samples of households and schools have provided estimates of prevalence rates of the use of those substances and of problems associated with such use. Although the surveys provide excellent information to guide policy, they do not provide information on emergent trends in the use of substances. In addition, as the surveys are generally expensive to administer, until recently they were only conducted at the national level. State- or local-level estimates of use, in particular by household members, was calculated through a variety of extrapolation methods, each with its own methodological problems, which affected the validity

of their products. The major household survey on drug abuse in the United States, the National Household Survey on Drug Abuse, is conducted by the Substance Abuse and Mental Health Services Administration, an agency of the United States Department of Health and Human Services; that survey has recently been expanded, oversampling households within several states.

Periodic local information about drug abuse trends and, in particular, emergent patterns of use has been more difficult to assess through traditional epidemiological methods. A unique adaptation of surveillance techniques taken from the field of public health was developed in the early 1970s by a group of providers of drug abuse treatment who wanted to conduct a needs assessment in order to plan services for the Washington, D.C., area. They formed a group of experts who either had access to data or were knowledgeable about heroin use in the area. Through meetings of the group, not only was an estimate made of the number of problematic heroin users, but also emergent and other drug use problems were identified [1, 2]. That was the foundation for the Community Epidemiology Work Group (CEWG). It is through CEWG that geographical diversity in drug use patterns has been specified and emergent patterns of drug use have been detected. These emergent problems have been incorporated into the national household and school surveys to establish prevalence estimates for the country. Emergent patterns such as the use of methaqualone (Quaalude), flunitrazepam (Rohypnol), crack cocaine and the recent upward trends of cannabis, methamphetamine and heroin use have been described and recently, the use of oxycodone hydrochloride (OxyContin), *gamma*-hydroxybutyric acid (GHB) and related drugs was described [3-5]. For drug abuse epidemiologists and prevention researchers, the combination of information from household and school surveys and CEWG reports has prompted additional analytical and prevention intervention studies.

## **Describing the Community Epidemiology Work Group**

In its current form, CEWG consists of representatives of sentinel cities\* across the United States that represent the major geographical regions of the country and the diversity of the national population. Although urban information forms the core of epidemiological descriptions of the areas represented, more recently, CEWG members have begun collecting information from suburban and rural areas adjacent to the core areas. The meetings of CEWG members, which are funded by NIDA, are held twice a year, in June and December. Over a number of years, CEWG members and NIDA staff have developed routine reporting formats so that equivalent information is collected [6]. To this base, members add the findings of research studies being conducted in their areas, as well as, in many cases, ethnographical or more qualitative information focusing on an area-related drug problem.

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\*Atlanta, Baltimore, Boston, Chicago, Detroit, Honolulu, Los Angeles, Miami, Newark, New Orleans, New York, Philadelphia, Phoenix, St. Louis, San Diego, San Francisco, Seattle and Washington, D.C.

The CEWG model has proved attractive to many other countries and regions of the world. It appeals, in particular, to those countries with scarce financial and human resources. Unlike surveys and other epidemiological methods, the model does not assume the presence of a particular drug abuse pattern. The primary objective of the model is to identify the current drugs being abused, to describe their chemistry and psychoactive effects, to determine the modes of administration and to identify the characteristics of the populations abusing the drugs. By understanding those parameters, other descriptive studies can be developed and hypothesis-driven analytical studies can be designed.

The model has two essential components: experts who are familiar with drug abuse in their communities and accessible data that already exist or can be readily collected from a number of local organizations or agencies. The group of drug abuse experts gathers and uses a standard format to summarize data from a variety of both “passive” sources, such as existing reports or other databases, and “active” sources, such as population surveys. The experts then present their report on current trends in a local area and discuss those trends in order to determine commonalities or to identify possible influences on any changing trend that has been noted. They also specify gaps in their databases, set priorities as to which gaps need to be closed and develop specifics about how to address those gaps. A report summarizing the data and the outcomes of the discussion is then drawn up and disseminated to policy makers, programme planners and practitioners and other researchers.

The natural history of drug use helps to determine where to look for data on drug users. Each drug has its own physiological effect on the user. Most drugs are not used in their pure form and may be mixed with other harmful substances. In addition, the way the drug is used can have health effects. For instance, injecting drugs, in particular with unclean needles, can cause emboli or clots, sepsis and other infections that require medical attention, most often from a hospital emergency department. Sometimes, a user overdoses on a drug and dies. It is also known that, as a user becomes more dependent on a certain drug, he or she develops a tolerance for it and requires higher and greater dosages to achieve the desired effects and to ward off withdrawal symptoms. As a result, some users seek treatment on their own, but more often their families, employers or the judicial system enter them into treatment. Finally, drug users may violate local drug laws or become involved in illegal activities to support themselves and their drug use. This review of the natural history of drug use suggests six potential sources for information on drug users: hospital admissions and emergency department logs; public health reports on infectious diseases; poison control reports; the records of deaths maintained by medical examiners, coroners or other departments; drug use treatment admissions; and arrest reports.

Although such information sources are good, they have the following limitations: (a) they include persons who may have used drugs only once; (b) they are not “population-based”, that is, prevalence and incidence rates of drug use for the general population cannot be calculated from the numbers provided; (c) as a drug user can appear in one or all of their records, each record cannot be considered

independent of the others; and (d) the records are sensitive to administrative and policy changes (for example, if a city official, in response to public opinion, orders a crackdown on drug users, the number of arrests increases). In addition, many public programmes are designed to serve the less affluent, thus introducing another potential bias. The local expert is more aware of any factor that might influence the information he or she collects.

Other types of law enforcement data that networks have utilized include drug seizure information such as the amount and type of drugs seized over a period of time. Information on the price and quality of drugs on the street has also been collected. There are obvious limitations as to how to use or interpret such information, but, surprisingly, over time, the price and quality of drugs on the street can increase in significance, in particular when the information is used with other information gathered from more reliable sources.

This model can be used for a city, a country or a region. When areas of a country or several countries want to form a larger system, such a system or network should include individual representatives from each of the local systems or networks. Each representative should present the findings from his or her network. The discussions should relate to what is going on in the larger geographical area in order that common trends can be determined.

The model has been adapted by a number of countries for their use. Knowledge about CEWG comes from several sources. Over the past 25 years, epidemiologists, other researchers or policy makers have been invited to attend meetings and to make presentations on the drug use patterns that exist in their home countries. It was principally through this approach that the Pompidou Group of the Council of Europe created a group of experts on epidemiology in 1982. The purpose of the expert group was to develop monitoring systems to evaluate the nature and magnitude of drug abuse and related problems in Europe [7]. Over the past 20 years, several hundred experts from over 40 European countries have engaged for a period in the activities of the expert group. Each member State of the European Commission sends a representative to an annual meeting to report on patterns of drug abuse in that country. Sentinel cities, often the capital cities of member States, were selected as the sites for the data collection activities. Some countries developed their own community epidemiology work groups and identified sentinel cities in autonomous regions.

Mexican public health officials also became interested in the CEWG model and began collecting information on drug abuse in key sites. Mexico adapted the model so that, rather than reviewing solely existing data, interview instruments were developed to be used in several agency settings and were administered to a sample of clients to determine the types of drugs being used and the methods and frequency of their use. As alcohol use was seen as the principal public health problem, the instruments also were used to collect information on alcohol consumption. The reason the Mexican epidemiologists added the more active forms of data collection was that much of the existing data were either incomplete or missing. The enhancement of the model was adopted by a number of other countries in developing their drug abuse information systems [8].

The models, or variations of them, have been applied in Canada, Central and South America, the Caribbean, South and South-East Asia and in East and Southern Africa. The United Nations International Drug Control Programme has developed a guidebook on self-training and on training workshops that follows the CEWG model, for the use of States interested in establishing drug abuse information systems.

### **The contribution of the Community Epidemiology Work Group to the “substance” of drug abuse**

In the last 25 years, CEWG has contributed to the “substance” of drug abuse in three major areas: by defining emergent trends, by examining the time-space relationship of drug abuse patterns and practices and by generating research questions.

#### *Emergent trends*

Historically, emergent drug use patterns were observed initially in law enforcement and hospital emergency department data. Those systems often note trends, generally within the drug-using population, between one and two years prior to their observation in the general population through household or school surveys. At almost all of the CEWG meetings, there are reports of new patterns of drug use, consisting of the new drugs or combinations of drugs being abused, new or alternative methods for administering drugs or new populations using drugs. Since CEWG began, several emergent patterns have been detected.

New drugs that have been noted include methaqualone (Quaalude) in the late 1970s, crack cocaine in the early 1980s, flunitrazepam (Rohypnol) in the early 1990s and, most recently, GHB and oxycodone hydrochloride (OxyContin). The detection of those drugs of abuse led to the involvement of public health agencies in the affected communities, which alerted hospitals and law enforcement agencies and used the electric and print media to alert the public. Although the response to the observations regarding crack cocaine was slow, the response to the other drugs was more immediate and widespread. Informing the public about the new drugs of abuse has been a major objective of CEWG and its sponsoring agency, NIDA, which prepares and distributes community alert bulletins on emergent drugs of abuse.

One of the new methods of administering drugs reported in the early 1990s at CEWG was the filling of large cigars with cannabis. Such cigars, called “blunts”, were first observed among African-American teenagers in the north-eastern part of the United States. They were usually accompanied by a 40-ounce bottle of malt liquor. Their use spread to other parts of the country. The combined use of blunts and alcohol became so prevalent that references to the pattern were made in movies and rap music. In the late 1980s, the Drug Enforcement Administration of the United States noted that the Colombian groups associated with the preparation of and trafficking in cocaine were also growing opium poppies [9]; by the

early 1990s, Colombian heroin had become available. The Colombian heroin was purer than the heroin available from Asia and pure enough to have strong psychoactive effects even when snorted. During the same period, the association between injecting heroin or heroin in combination with cocaine and human immunodeficiency virus (HIV) infection was demonstrated. Heroin that could be used without injecting was therefore believed to be safer to use. The availability of such pure heroin at low cost led to increased reports (by law enforcement agencies and by providers of substance abuse treatment) of drug users snorting heroin, while reports of such users injecting heroin decreased. A final example of CEWG identifying new methods of drug use is the injecting of crack cocaine. Until the CEWG meeting held in New Orleans in December 1994, there had been no reports of injecting cocaine. At that meeting, Rodolphe Ingold, a psychiatrist from Paris, reported on groups of crack users injecting cocaine after dissolving it in lemon juice [10]. Subsequent to that presentation, reports began to include other incidents of injecting crack dissolved in lemon juice or vinegar. The new method of administration was of great concern to public health authorities, as it significantly increased the risk of infection with HIV and hepatitis among users.

CEWG has also noted when new demographic groups have become involved with drugs. Heroin use (at first by snorting and later by injecting) among suburban youth, for example, was monitored in the sentinel cities throughout the 1990s. More recently, while the use of crack cocaine was decreasing among some populations, in particular African-Americans, it was increasing among Hispanic youth. One of the major changes of the past decade has been the use of methamphetamines. The manufacture and use of methamphetamines had been endemic in certain parts of the United States, mostly in the western part of the country, in southern California. However, by the mid-1980s, CEWG reports from cities in other parts of the country had cited the increasing use of methamphetamines. By the 1990s, there were reports of methamphetamine use not only in areas where it had not been reported before, but also among the younger age groups. Information from the Drug Enforcement Administration, when overlaid with the CEWG reports, indicated that the source of the methamphetamines was Mexico and the distribution of cases paralleled the trafficking routes used for transporting cannabis. Further intelligence indicated that the Mexican drug traffickers who were distributing the cannabis were also manufacturing and distributing the methamphetamines.

The major challenge for CEWG members is to identify how such new patterns of drug use emerge and then spread from one area of the country to another.

### *The time-space relationship of patterns of drug use*

As with an epidemic of an infectious disease, the various patterns of drug use have a time-space relationship. The reports from CEWG reveal many commonalities in the patterns of the traditional drugs of abuse: cannabis, heroin and cocaine. However, there appear to be particular patterns of drug use that are endemic in certain areas of the country. For example, as mentioned above, the use

of methamphetamines has a relatively long history as a problem in the western part of the country, in particular in California. Each area has its own unique problems, such as the peaking and waning use of phencyclidine (PCP) in Washington, D.C. Some cities have displayed patterns that contrast with those in most other areas, such as the low level of heroin use in Miami or San Francisco and the delayed appearance of crack cocaine in Chicago. However, those patterns have been changing over time and those cities and others are experiencing an increased use of those drugs. While the experience of the various city representatives concerning the detection, prevention and treatment of their current drug problems is discussed during the meetings, the public health response is often overwhelmed by the spread of the new pattern of drug use.

The above-mentioned observation that the use of methamphetamines was spreading across the country is a good example of this time-space relationship. The response to that development in the United States included public alerts, prevention programmes in those communities in which methamphetamine use was noted among students in middle school and secondary school, and conferences and workshops held for community practitioners and public health officials to provide information about the use of methamphetamines and the prevention and treatment of methamphetamine abuse.

### *Generating research questions*

Discussions on the description of geographically based drug use trends and the detection of emergent drug use patterns lead naturally to the generation of hypotheses and research questions. Many of the questions are initially addressed through ethnographical or qualitative studies. Focus groups or in-depth ethnographical studies explore the research questions, further refine them and suggest target populations, sampling plans and research designs for fuller studies. Pach and Gorman describe a study on methamphetamine that emanated from such work [11]. In the study, six cities were selected. They included cities in which methamphetamine use was endemic, those in which it appeared to be a new problem and those in which patterns of use were unclear. The study provided researchers in the field with information about the characteristics of the user population and suggested additional research questions that could be explored. Two other research questions suggested by the participants at recent CEWG meetings related to why the number of admissions to hospital emergency departments and drug abuse treatment facilities as a result of cannabis use was increasing and why the use of crack cocaine was decreasing among African-Americans.

### **The contribution of the Community Epidemiology Work Group to drug abuse epidemiological methods**

The CEWG process has contributed to drug abuse epidemiological methods in a number of different ways: one is the description of the drug abuse situation or “picture” within a defined geographical area; second is the use of existing data

sets; third is the integration of quantitative and qualitative information; and fourth is the influence of this approach on countries throughout the world.

### *Description of the local drug abuse situation*

In the course of the past 25 years, it has been noted at CEWG meetings that certain drug use patterns are more prevalent in some cities than in others. Drug use patterns reflect not only existing drug distribution networks, but also the accepted lifestyles of the residents of geographical areas. The lifestyles may relate to dominant occupations or traditions. It has been of great interest to researchers that some of the patterns of drug use are confined to an area or certain sub-populations and do not spread to other areas or subpopulations. The CEWG model, in particular when several different sources of data are collected over different periods, provides a "picture" of the local drug abuse situation. Such an overview serves the needs of treatment providers, prevention practitioners, law enforcement and correction agencies and policy makers. Targeted interventions tailored to specific populations can be developed with this information. Furthermore, the descriptive information provides fertile ground for more in-depth ethnographical and quantitative studies.

### *Using existing data sets*

CEWG has considerable experience in using existing data sets, and report formats and analytical approaches have been developed to handle the diverse and unsystematic data sets. In general, in most communities in the United States, information is available on drug-related arrests and drug abuse treatment admissions. In many of the models discussed above, this information, together with key informant interviews, forms the basis of information systems on drug abuse. CEWG has gone beyond these sources to include information from emergency departments, hospitals, medical examiners (or coroners), drug seizures (quality and pricing information) and poison control centres. More recently, information from the infectious disease reporting systems of health departments has been incorporated into the data sets to reflect not only cases of HIV/AIDS among drug users, but also cases of hepatitis B and C. While, as stated earlier, each data source has its own limitations, CEWG members have learned from experience how to assess the contribution of each data set and how to handle their limitations. Knowledge about drug use patterns in their geographical areas provides the "bigger picture" to improve the interpretation of the data.

### *Integration of quantitative and qualitative information*

The CEWG model lends itself well to the integration of quantitative and qualitative information. The examination of the existing data generates a research

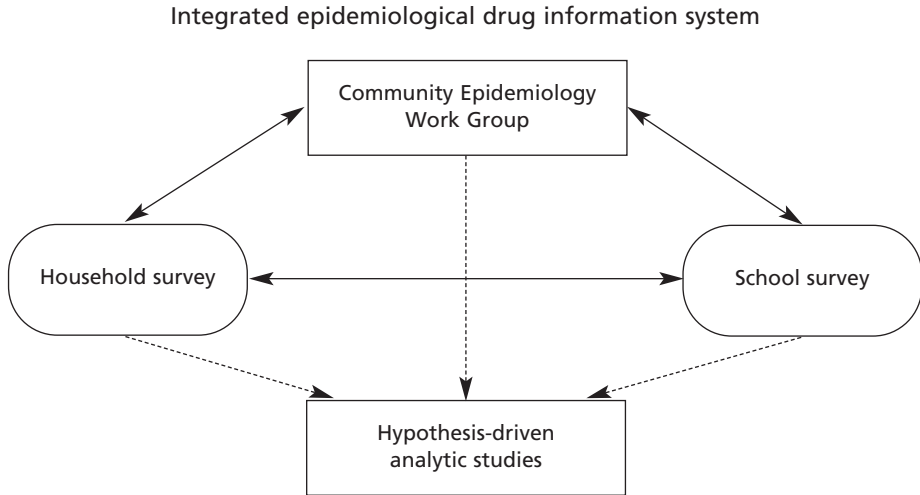


process to explore several questions or hypotheses that are prompted by the findings. Many of these exploratory studies have prompted more analytical research, both quantitative and qualitative, and have also been integrated into ongoing studies. The qualitative information puts flesh on the bones of quantitative data, enhancing the findings of these studies.

Pilot ethnographical studies have also been initiated to explore questions generated by the findings of CEWG. The process of developing research issues by deriving focused questions from quantitative data and exploring their significance through qualitative methods is described in a series of studies initiated through the CEWG project [12]. The research questions were framed through a dialogue between the CEWG representative and an ethnographer and the pilot ethnographies that resulted were intended to explore an issue of practical importance to the community. In addition, this series of studies was aimed at investigating a process for integrating the unique data resulting from utilizing quantitative and qualitative research methods. The results of this initiative point out other benefits of the CEWG approach, which are the ability to access members of the local research and service community, identify questions of immediate importance, implement a focused and grounded research study and provide feedback to public health administrators and planners within a short time frame.

### *Development of an information system*

Probably the greatest contribution made by the CEWG concept and its implementation has been recognition that an information system based on existing data can lead to a better understanding of drug abuse patterns within a defined geographical area. This inexpensive and foundation-building approach to documenting types and modes of drug use and to identifying the characteristics and locations of drug-using populations has helped policy makers to develop both demand and supply reduction strategies and to assess their impact. The history of CEWG and the value of its contributions have demonstrated the merit of this approach. As a result, it has been advocated by community-planning groups throughout the United States and adopted by professionals in the field of drug abuse in countries around the world. An information system that combines the CEWG model with household and school surveys provides the best data to inform programme-planning and identify areas for further research. The figure shows the ideal system that provides the drug abuse picture for a community using CEWG-type information, together with household or population and school surveys. In this way, emergent problems are assessed against prevalent patterns of use of specified drug types (both household and school surveys) and the initiation of those patterns (school survey). Emergent patterns observed from CEWG-systems provide the focus for household and school survey questions that determine the extent to which the patterns have spread among the general population. Findings from all of these data sources generate research questions that can be explored in depth using both qualitative and quantitative methodological approaches.



## Conclusions

Drug abuse is a major public health issue around the world. Yet the very nature of drug-abusing behaviours limits the use of traditional public health epidemiological methods for assessing the nature and extent of those behaviours within a defined geographical area. A particular challenge of drug abuse is its changing character. The types of drugs abused and the modes of their administration, as well as the demographics of the populations involved, require constant monitoring. The CEWG model developed in the United States in the early 1970s lends itself well to this task. Over the past three decades, the experiences of the CEWG members in carefully describing drug abuse patterns and detecting emergent drug abuse trends have greatly assisted public health service agencies in developing strategies that enable problems to be addressed before they spread. This public health tool can be used at the local, regional, national and international levels. The combination of information generated through the CEWG approach and its integration with household or general population and school surveys can provide a solid basis for describing drug abuse practices within a specified geographical area. In addition, research questions emerging from the data can be pursued through analytic or hypothesis-driven research. Clearly, the rapid diffusion of the CEWG model to other countries and regions of the world proves the efficacy of this approach.

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