NDLERF

Containing ecstasy: analytical tools for profiling an illegal drug market

Monograph Series No. 27

Funded by the National Drug Law Enforcement Research Fund
An Initiative of the National Drug Strategy

Containing ecstasy: analytical tools for profiling an illegal drug market

Greg Fowler and Stuart Kinner

Queensland Alcohol and Drug Research and Education Centre
University of Queensland

and

Leigh Krenske

Crime and Misconduct Commission, Queensland

Funded by the National Drug Law Enforcement Research Fund, an initiative of the National Drug Strategy

Produced by the National Drug Law Enforcement Research Fund (NDLERF)
GPO Box 308, Hobart, Tasmania 7001.

ISBN: 978-0-9803794-6-4

ISSN: 1449-7476

The research on which this report is based was funded by the National Drug Law Enforcement Research Fund, an initiative of the National Drug Strategy.

Table of Contents

List of Tables

List of Figures

Abbreviations

AA	Acetic anhydride
ABCI	Australian Bureau of Criminal Intelligence
ABS	Australian Bureau of Statistics
ACC	Australian Crime Commission
ACID	Australian Criminal Intelligence Database
ADIS	Alcohol and Drug Information Service
AGAL	Australian Government Analytical Laboratories
AIC	Australian Institute of Criminology
AIDR	Australian Illicit Drug Report
AIDIP	Australian Illicit Drug Intelligence Program
AIHW	Australian Institute of Health and Welfare
AIHWMD	Australian Institute of Health and Welfare Morbidity Dataset
AIQ	Amphetamines in Queensland study
ALEIN	Australian Law Enforcement Intelligence Net
ANAO	Australian National Audit Office
AODTS-NMDS	Alcohol and Other Drug Treatment Services National Minimum Data Set
ARQ	Annual Report Questionnaire (UNOCD)
ASSADS	Australian Secondary Students Alcohol and Drug Survey
ATODS	Alcohol, Tobacco and Other Drugs Service, Queensland Health
ATS	Amphetamine Type Stimulants
ATSI	
BCIQ	Bureau Criminal Intelligence, Queensland
BCS	British Crime Survey
CATI	Computer Aided Telephone Interview
CMC	Crime and Misconduct Commission, Queensland
COTSA	Clients of Treatment Services Agencies
CRISP	Crime Reporting Information System for Police
DASS	Drug Arm Schoolies Survey
DEA	Drug Enforcement Agency, United States
DOB	4-bromo-2, 5-dimethoxyamphetamine
DOM	4-methyl-2, 5-dimethoxyamphetamine
DUCO	Drug Use Career of Offenders
DUMA	Drug Use Monitoring in Australia
EELS	Europol Ecstasy Logo System
EMCDDA	European Monitoring Centre for Drugs and Drug Addiction
EMI	Ecstasy Market Indicators

EDRS	Ecstasy and Related Drugs Reporting System
HCV	hepatitis C virus
ICD	International Classification of Diseases
ICD10-AM	International Classification of Disease 10th Australian Modified edition
IDDR	Illicit Drug Data Report
IDRS	Illicit Drug Reporting System
IDU	injecting drug users
ILIT	Illicit Laboratory Investigation Team, QPS
INCB	International Narcotics Control Board
KE	key experts
MCDS	Ministerial Council on Drug Strategy
MDA	3,4-methylenedioxyamphetamine
MDEA	3,4-methylenedioxyethylamphetamine
MDMA	3,4-methylenedioxymethamphetamine
MDP2P	methylamine piperonyl methyl ketone or PMK
NCIS	National Coroners Information System
NDARC	National Drug and Alcohol Research Centre
NDSHS	National Drug Strategy Household Survey
NERA	National Economic Research Associates
NHMD	National Hospital Morbidity Database
NIFS	National Insitute of Forensic Science
NMI	National Measurement Institute (incorporates the former AGAL)
NSP	Needle and Syringe Program
OMCG	outlaw motor cycle gangs
PADIE	Prevalence of Alcohol and Drug use in Emergency
PDI	Party Drugs 'Initiative'
PMA	paramethoxyamphetamine
PMK	piperonyl methyl ketone (also called MDP2P)
PRISM	Precursors Required In Synthetic Manufacture
QAS	Queensland Ambulance Service
QCC	Queensland Crime Commission
QADREC	Queensland Alcohol and Drug Research and Education Centre
QHPSS	Queensland Health Pathology and Scientific Services
QPS	Queensland Police Service
SDIG	State Drug Investigations Group (QPS)
SDS	Severity of Dependence Scale
TMA	3,4,5-trimethoxy-a-methylphenylethylamine
UKNCS	United Kingdom National Crime Squad
UNODC	United Nations Office of Drugs and Crime
VIFM	Victorian Institute of Forensic Medicine
VPFSC	Victoria Police Forensic Services Centre

Acknowledgements

This project was funded by the National Drug Law Enforcement Research Fund (NDLERF) and undertaken jointly by the Queensland Alcohol and Drug Research and Education Centre (QADREC), University of Queensland and the Queensland Crime and Misconduct Commission (CMC). The project team would like to thank Vicki Hancock and Roger Nicholas of the NDLERF Secretariat, Australasian Centre for Policing Research for their assistance throughout the project.

Professor Jake Najman, Director of QADREC and Dr Paul Mazerolle, Director of Research and Prevention, CMC provided advice and project oversight.

Michael Gascoigne and Associate Professor Chris Doran were responsible for the development of the consumption based ecstasy market size model.

Jane Fischer, QADREC, managed the Ecstasy and Related Drugs Reporting System (EDRS) in Queensland in 2004 and assisted in developing the survey instrument and collecting data for the Ecstasy Market Indicators (EMI) survey. We would like to thank the EDRS/EMI research assistants in Brisbane, on the Gold Coast and in Cairns.

We would like to thank the individuals who were willing to be interviewed as key experts for the study. These individuals were chosen for their expertise and knowledge regarding ecstasy markets and volunteered their time for lengthy, in-depth interviews.

We would like to thank the 230 regular ecstasy consumers and those ecstasy dealers who were willing to share their experiences with our project staff. Their reports grounded our analysis in the living reality of young Australians who choose to use ecstasy.

The following representatives provided assistance to the project through the Advisory Committee:

- Noel Taloni, Director Illicit Drugs Section Drug Strategy Branch, Department of Health and Ageing
- Andrea Coss, Drug and Alcohol Coordinator ACT Division, Australian Federal Police
- Inspector Peter Mansfield, Drug and Alcohol Coordinator, Queensland Police Service
- Karen Price, Advisor Criminal Justice Division, Commonwealth Attorney-General's Department
- Detective Superintendent David Laidlaw, Acting Commander NSW Drug Squad
- Nerys Evans, Intelligence Co-ordinator, NSW Drug Squad.

The following organisations generously provided indicator data over the course of the study:

- Australian Crime Commission
- Australian Customs Service
- Australian Federal Police
- National Coroners Information System
- National Centre in HIV Epidemiology and Clinical Research
- National Drug and Alcohol Research Centre
- Queensland Health Pathology and Scientific Services
- Queensland Police Service Bureau of Criminal Intelligence
- Queensland Police Service Gold Coast

- Queensland Police Service Fortitude Valley
- Queensland Police Service Drug Squad
- Queensland Police Service Chemical Diversion Desk
- Queensland Police Service Drug and Alcohol Coordination
- Queensland Crime and Misconduct Commission, Strategic Intelligence Unit.

Executive summary

Analytical tools for illegal market profiling

- There is no one analytical tool to profile illegal drug markets; rather, a combination of methods are appropriate for different drug markets and different market participants.
- For the ecstasy market, data indicative of organisational activity, such as arrests, and health outcomes such as deaths, hospitalizations and occasions of specialist treatment, provide only limited market intelligence, as the majority of ecstasy consumers and suppliers do not come into contact with police or health agencies.
- A market cannot be understood by focusing solely on supply-side activities; the attitudes and behaviours of consumers and regulators also determine market mechanisms and outcomes.
- In Australia, changing consumer patterns of ecstasy use are one of the most accessible sources of intelligence about the state of the market.
- Population surveys set the baseline for the prevalence of ecstasy use and the characteristics of ecstasy consumers.
- Surveys of special populations provide richer detail of consumer attitudes, knowledge and market behaviors. Such open source intelligence also provides early warning systems for change in the market.
- Profiling the supply chain for ecstasy and the behavior of suppliers are inherently difficult because of the hidden, illegal nature of their market activities.
- Sustained research engagement with regular ecstasy consumers and suppliers, using innovative qualitative methodologies, can provide greater insights into market processes.
- The annual number and weight of ecstasy seizures can provide only limited intelligence for a market profile. The supply chain context of individual seizures is important in building a national market profile. Strategic intelligence using this data is not systematically collated or readily accessible.
- The Ecstasy Market Indicator (EMI) study has used the best available evidence from surveys of general and special populations, indicator data from law enforcement and health agencies, and interviews with consumers, suppliers and drug market regulators. This triangulated approach provides a fine grained picture of the ecstasy market in Queensland and these methods can be replicated in other jurisdictions.

The demand for ecstasy

- The United Nations Office of Drugs and Crime (UNODC) reports that Australia has some of the highest levels of ecstasy use in the world. The Australian Institute of Health and Welfare (AIHW) estimates that approximately 1.2 million Australians aged 14 years or over had tried ecstasy and over 550,000 people had used ecstasy within the last 12 months in 2004.

- Both the lifetime and annual prevalence of ecstasy use has increased in the last 10 years. The National Drug Strategy Household Survey (NDSHS) shows that the proportion of Australians reporting lifetime use of ecstasy grew from 3.1% in 1993 to 7.5% in 2004. Recent ecstasy use is less prevalent in Queensland compared to some other Australian states; however, recent use in Queensland doubled from 1.7% in 2001 to equal the national average of 3.4% of Australians in 2004.
- Patterns of ecstasy use are associated with various demographic factors including age and gender. Ecstasy use is concentrated in the younger age demographic and males are more likely to use ecstasy than females. The average age of initiation to ecstasy use is generally older than the average age of onset to a range of other illegal drugs (including cannabis, amphetamines and heroin). A recent study of drug use among emergency department attendees found that the average age of onset for females (19.9 years) is younger than the average age of initiation for males (21.9 years).
- The EMI study showed that regular ecstasy consumers are likely to consume ecstasy on a weekly basis and that a median of two tablets is consumed in a session of use. This study also found that experimentation, fun and opportunity are among the most frequently endorsed reasons for why ecstasy is first consumed. The most common location for first obtaining ecstasy is a friend's home, while the most common place of first use is a nightclub or pub.
- The EMI study found that regular ecstasy consumers generally expect to be using ecstasy in one years time, but only one in five expect to be using in ten years time. Ecstasy consumers tend to be young, white, well educated and middle class. Furthermore, ecstasy consumers are less likely to be involved in criminal activity (other than illegal drug possession) or contact the drug treatment system than are other types of illicit drug users, although they are more likely to be involved with crime than the general population.
- Ecstasy is consumed in a range of locations including nightclubs/raves, private parties, friends' homes and consumers' homes. The practice of consuming ecstasy in a private location and then moving on to a public location to experience its effects is also common.
- Key benefits of ecstasy use identified by EMI participants included enhanced closeness/bonding/empathy, enhanced communication/talkativeness/sociability and enhanced mood. The main perceived risks associated with ecstasy use, as reported by EMI respondents, were depression, dependence and damage to brain functioning.
- There is increasing evidence to suggest the normalisation of ecstasy. EMI participants suggested that the seemingly innocuous mode of consumption (ecstasy is generally swallowed) has contributed significantly to the normalisation of this drug.
- Ecstasy use is generally planned and managed by most consumers. Consumers often plan their consumption to coincide with particular events so that its effects are experienced at particular times. Various strategies are also implemented to deal with the negative effects of ecstasy including eating healthily before consuming, consuming in a supportive context and researching its effects before using.
- The consumption of ecstasy generally occurs in a context of poly-drug use. Regular ecstasy consumers surveyed in the EMI study reported the use of a range of illicit substances and often combined various substances in order to enhance or manage the ecstasy experience. The most common substances used in conjunction with ecstasy are alcohol, tobacco and cannabis.

Supply in international and national ecstasy markets

- Tablets sold as ecstasy, usually but not always contain MDMA, a phenethylamine of the amphetamine group of drugs, manufactured with precursor chemicals derived from safrole. There is a significant illicit international trade in these chemicals. Global ecstasy production is still concentrated in the Netherlands and Belgium, although this concentration has declined over the last decade, with some level of manufacture now reported in many countries where ecstasy is consumed.
- UNODC collects international data on seizures of the drug ecstasy, as well as precursor chemicals and laboratories used in its manufacture. The UNODC estimates that 7,098 kilograms of ecstasy were seized world-wide in 2002 of which 722 kilograms (10%) was seized in Australia. Based on these data, Australia is believed to be one of the highest per capita ecstasy consuming countries in the world. These data need to be treated with caution as there are considerable differences in reporting requirements and implementation of methods between countries.
- The number and weight of ecstasy seizures have progressively increased in Australia during the past decade. Given that demand has also increased while prices have remained stable, this clearly indicates a growing market. The Australian Federal Police (AFP) estimates that a total of 2,400 kilograms were seized in Australia in 2003 and 2004, however, this excludes seizures by state police services.
- Australian Customs Service data show that routes of entry for ecstasy include air passengers and cargo, sea cargo and through the post. While postal and air passenger seizures are more frequent, sea cargo accounts for the majority of seizures by weight. Ports of origin of seizures are predominantly European but with some notable transit points in South East Asia.
- Evidence from ecstasy precursor and clandestine laboratory detections clearly indicate that ecstasy manufacture has been undertaken in Australia. The extent of this production has been limited until recently. Major seizures in 2005 indicate serious attempts at large scale production using piperonyl methyl ketone (PMK) and utilising skills gained from European manufacturers.
- Mid- to high-level supply, importation and manufacturing sectors of illegal drug markets are more difficult to analyse than is the retail sector. Research subjects are difficult and potentially dangerous to access. The intelligence from the context of supply-chain seizures is not readily accessible, or organised in a meaningful manner, for research purposes. Overall, seizure data in Australia presents a number of problems in terms of accuracy, comparability and consistency.

  The mechanisms of the supply-side of illegal drug markets can be deduced to some extent by listening to consumers, suppliers and market regulators from law enforcement and health agencies. This limited evidence base can be supported by data from seizures of drugs, precursor chemicals and laboratory equipment.
- Intelligence from seizure events is the best available source of evidence to support the opinions of market participants and regulators. When presented as a simple aggregated number and weight of seizures, these data reflect police activity as much as they do the state of the market. More sophisticated analysis of attributes and the supply-chain contexts of seizure events, e.g. tablet contents and their supply-chain context, would greatly enhance both operational and strategic intelligence for market regulation.

Supply in Queensland ecstasy markets

- Queensland ecstasy markets may be driven by local demand but they are predominantly supplied from interstate, principally Sydney, and from overseas.
- There is increasing evidence of local ecstasy manufacture on a scale beyond simple experimentation and a recent detection of sophisticated large scale production with the precursor PMK has occurred.
- Some ecstasy is imported directly into Queensland from Europe, sometimes with a South East Asian transit, by air passenger and cargo, sea cargo and small vessel, and the postal system. Though on a far lesser scale than in Sydney or Melbourne, these importations may be for local retail markets, trans-shipment to other states or both.
- Our knowledge of the structure and dynamics of mid-level supply-chain activities and participants is limited. Consumers are largely unaware of the supply chain beyond their retail contacts. Law enforcement market regulators derive intelligence from cases they are involved with, but there is significant potential for strategic intelligence to be derived from case series analysis of seizure events and from ethnographic research.
- Retail supply for many consumers generally involves sourcing ecstasy from peers in social networks, particularly at market entry. Consumers who supply peers have very similar characteristics to consumers who do not supply. This supply is usually driven not by cash profit but by other, often social, motives.
- There appear to be few barriers for consumers to become retail suppliers, although capital and network connections limit participation in mid-level supply and importation. Mid-level supply may involve a mix of entrepreneurs promoting ecstasy and organised criminal networks.
- The ecstasy market is relatively closed, with consumers predominantly purchasing from known suppliers, who are usually social peers, in private homes. However, some transactions do occur between unknown market participants in nightclubs and at other music events. Even these transactions, however, may involve prior planning.
- While some consumers have specific expectations regarding the content and effects of the ecstasy they purchase, others do not. Consumers have mixed levels of confidence in the actual content of ecstasy they use, often relying on peer opinion or self use to estimate likely contents and effects. Few consumers use pill testing kits but many are aware of consumer pill testing results posted on Internet sites.
- Queensland Police Service (QPS) seizures reflect retail market regulation activities and provide valuable insights into the types of ecstasy present in the Queensland market, although these seizures are not necessarily representative of the market. QPS seized a total 18.3 kilograms of ecstasy in 2002/03 and 2003/04. Two-thirds of these seizure events were of less than ten tablets. Median tablet purity is reasonably consistent at approximately 30% or 90mg of MDMA per tablet, although the purity range can be substantial, presenting significant risk for consumers. Data on the mix of tablet contents are not readily available but few non-MDMA phenethylamines appear to be present in the market. Some tablets do contain methamphetamine, ketamine and or caffeine as well as, or instead of, MDMA.

Sizing the market – a new tool

- Not knowing the size of illegal drug markets is a significant barrier to effective drug policy. Supply-side estimates are possible for organic-based drugs such as heroin and cocaine, with significant limitations. Such estimates are not possible for amphetamine type stimulant (ATS) drugs, including ecstasy.
- Demand-side models of market size have a number of advantages for sizing national, regional and local drug markets. Accurately recording consumption and seizures provides data for the best estimate of market size. There are, however, a number of limitations to this approach.
- Detailed data on consumption (prevalence, frequency and volume of use, and retail price paid) of illegal drugs is, to varying extents, difficult to obtain. The level of difficulty varies with the drug in question, with consumer perceptions of drug policy, and with the choice of research methods to estimate consumption. Drug seizure data should be easy to compile but often is not.
- It is estimated that in 2001 at least 51,450 people in Queensland had used ecstasy within the last 12 months. Based on 2001 data, an estimated 888,238 ecstasy tablets are consumed annually in Queensland, 700,550 (79%) by males and 187,688 (11%) by females, with male users consuming an average of 23 ecstasy tablets per year and female users consuming an average of nine ecstasy tablets per year.
- By adding the average amount seized in the Queensland retail market in the past two years (i.e. 9 kg or 31,000 tablets) to the annual consumption estimate of 888,238 tablets, a total market size for the Queensland ecstasy market can be estimated at 919,238 tablets or 267 kg per year. The value of this market, using a price sensitivity analysis per tablet of $21.27 for the lower market limit, and $49.97 for upper market limit, generates a range estimate for the total market value of between $19,522,192 and $45,934,323. Using the average Queensland retail price of $35.62 the total market value is estimated at $32,743,258.
- In the Australian ecstasy market an estimated 450,000 people had used ecstasy within the last 12 months, based on 2001 data. It is estimated that at least 5,200,000 ecstasy tablets are consumed annually in Australia. The overall retail value of this consumption in the Australian ecstasy market is estimated at $182 million per year. As total ecstasy seizures in Australia cannot be quantified, a total market size estimate is difficult. Our best estimate for 2001 is a total market size of 7.8 million tablets (or 2,282 kg) annually with a retail value of $275.5 million.
- The EMI market sizing model can be used to monitor ecstasy market change at a national and jurisdictional level. It can be updated as new data is available, for example using the 2004 NDSHS detailed results. This data set prepared by the Australian Institute of Health and Welfare (AIHW) was not available at the time the EMI analysis was undertaken. This model could also be applied to the cannabis market.

Market regulation

- Illegal drugs are a very lucrative market commodity. Public policy on drugs seeks to regulate this market by suppressing the volume of market transactions to the greatest extent possible by disrupting supply and attempting to reduce consumer demand.
- Negative market outcomes for ecstasy consumers may occur in the form of health problems. General and specialist health care services generate indicator data about drug-related problems that can inform our understanding of aspects of drug markets. This is currently not the case for ecstasy, however, as health data systems do not code for ecstasy-related problems separate from other ATS drugs.
- Most ecstasy consumers do not experience problems related to their drug use of sufficient severity to seek treatment; ecstasy users do not figure prominently among drug-related deaths.
- Between 2001 and 2004, 51 deaths in Australia were attributed primarily to drugs sold as ecstasy. Ecstasy-related deaths may involve a range of other drug and non-drug factors. Deaths attributed to ecstasy consumption as the primary contributing factor are relatively few, given the volume of use in the general population. Mortality data, therefore, have limited value in analysis of the ecstasy market, although further investigation is warranted.
- Criminal justice agencies seek to control supply by developing sophisticated systems to investigate illegal drug supply. These agencies also seek to reduce demand by enforcing laws that prohibit possession and educating the community about the risks – legal, social and health - of illegal drug use.
- Aggregated annual arrest data are heavily influenced by policing activity and priorities, organisational effectiveness and policy, and do not necessarily reflect changing market conditions. Arrest data can, however, in the longer term reflect changing patterns of drug consumption.
- Illegal drug market regulation by law enforcement increasingly uses intelligence from diverse internal and external sources to manage both operational and strategic responses. Precursor chemical control strategies are an example of effective intelligence-led policing that spans global and local market levels. Price monitoring along the supply chain is an area of potential for strategic intelligence in market profiling.
- There is considerable scope to make better use of existing data for strategic intelligence purposes and to develop a law enforcement research agenda that improves the quality of data collection and reporting.

Introduction

> *It is a truism that drug policy needs reliable measures of the prevalence and extent of different forms of illicit drug use. It is equally obvious that getting such measures will remain difficult so long as the drugs in question are prohibited by criminal law and their use remains – to varying degrees – socially unacceptable. (Barham et al, 2003)*

This introductory chapter provides the background to the Ecstasy Market Indicator (EMI) research project. It sets out:

- the project background and principle research objectives as defined by the funding body
- a detailed description of ecstasy
- the policy framework currently informing law enforcement responses to illegal drug markets
- a brief review of previous research on illegal drug markets
- the way in which the ecstasy market was conceptualised for this project
- an overview of the structure of the report.

Project background

The EMI study was developed in response to the National Drug Law Enforcement Research Fund's (NDLERF) request for an enhanced understanding of the ecstasy markets in Australia for law enforcement. The call for a study measuring the structure and functioning of ecstasy markets emerged out of the recent increases in ecstasy prevalence and the unique characteristics of ecstasy users compared to other illegal drug users.

Specifically, NDLERF requested that a research template, designed to measure the ecstasy market, be developed and then trialled in Queensland. This template was to address the following research questions:

1. Market characteristics
    - What are the principal distribution channels of ecstasy across Queensland and within Australia?
    - How is ecstasy distributed within localised drug markets?
    - Is the ecstasy being manufactured/acquired in Queensland or is it being sourced from interstate/overseas?
    - What are the principal barriers to entry into the ecstasy market for users and for dealers?
    - What is the principal structure of local ecstasy markets in Queensland?
    - What indicators could be used to assess the functioning of local ecstasy markets?
2. Patterns of use
    - Who are the principal ecstasy user groups and in what environments is ecstasy used?
    - How is ecstasy administered and is poly-drug use prevalent amongst ecstasy users?
    - What health data is available that reflects ecstasy use/misuse?
    - Given the wide variety of substances that may be passed off as ecstasy, how do users know whether they are getting ecstasy, and how do they determine the quality of the drug?

3. Implications for law enforcement
    - What lessons have been learned from the implementation of the research template in Queensland that could be of benefit to other jurisdictions in their implementation of similar research programs?

The EMI project has developed a research template that utilises a range of methodologies to measure the Queensland ecstasy market. The EMI study expanded the scope of the Ecstasy and related Drugs Reporting System (EDRS)[1] by adding additional questions to the EDRS questionnaire, increasing the sample size, and recruiting respondents from Brisbane, the Gold Coast and Cairns. A series of in-depth interviews with ecstasy consumers, ecstasy suppliers and related health and law enforcement personnel about the dynamics of the ecstasy market were also conducted. Finally, all relevant and available survey and indicator data held by health and law enforcement agencies were collated and analysed.

The information collected from this triangulated approach was used to build a profile of the Queensland ecstasy market and is documented in this report. The research template created for the EMI is outlined in detail in the methods chapter and can be replicated by law enforcement and research agencies in other jurisdictions. Furthermore, the information provided in this report supplements a range of other drug market-related projects initiated by NDLERF.[2]

Defining ecstasy

Ecstasy, which is also referred to colloquially by a range of terms including 'e' and 'eckies', is the street term for 3,4-methylenedioxymethamphetamine (MDMA) and a number of closely related chemical compounds. Ecstasy belongs to a family of drugs called the phenethylamines, which also include MDA (3,4-methylenedioxyamphetamine) and MDEA (3,4 methylenedioxyethylamphetamine). The latter two drugs have in the past been passed off as MDMA (Chesher, 1990). Phenethylamines are part of the larger group of amphetamine type stimulants (ATS) that includes amphetamine sulphate and methamphetamine[3], the most commonly used ATS drugs (other than ecstasy) in Australia. The Australian Standard Classification of Drugs of Concern also lists DOB (4-bromo-2, 5-dimethoxyamphetamine), DOM (4-methyl-2, 5-dimethoxyamphetamine), mescaline, PMA (4-methoxy-1-methylphenylethylamine) and TMA (3,4,5-trimethoxy-a-methylphenylethlyamine) in the phenethylamine group (ABS, 2000). Along with the stimulant properties of amphetamines, ecstasy/MDMA is also known as an 'empathogen'; that is, a drug that releases neurochemicals into the brain that inspire feelings of well-being, love, friendship and euphoria (Grob, 2000; Hammersley, Khan & Ditton, 2002).

MDMA was first synthesised by Merck Pharmaceuticals in Germany in 1912 and patented in 1914, originally as a potential appetite suppressant. It was never commercially marketed and was largely forgotten until the 1950s when the US Army experimented with it for the purposes of psychological warfare (Gowing et al, 2001). Shulgin (1986) synthesised MDMA again in the 1960s as part of a larger research project on hallucinogens (Shulgin & Shulgin, 1992). MDMA is principally synthesised from safrole or its derivatives. These chemicals are widely used in food, insecticide and perfume manufacturing. As chemical precursors, isosafrole and piperonal are more common, but the most popular illicit synthesis route is reductive amination of piperonyl methyl ketone (3,4-MDP-2-P[4]) or more simply PMK. For clandestine manufacture, starting with PMK reduces the steps in the production process and produces more MDMA powder than starting with equivalent weights of other precursors. It is therefore more profitable and more sought after by ecstasy manufacturers.

[1] Prior to 2006, the EDRS was known as the Party Drugs Initiative (PDI)

[2] Further information on these projects can be found at the NDLERF website http://www.ndlerf.gov.au

[3] The term 'methamphetamine' is used in this report, as it is more common in Australia than the term 'methylamphetamine' which is also used in some circumstances to describe the same drug.

[4] In full, the chemical name is 3,4-Methylenedioxy-phenyl-2-propanone.

MDMA gained a legitimate reputation as a useful adjunct to psychotherapy in California in the 1970s and early 1980s. At the same time, research articles related to its psychoactive properties began to appear in scholarly journals and MDMA started to become available as a street drug (Nichols, 1986). Prescription use rapidly leaked into use by members of esoteric New Age movements and the Baghwan cults. These alternative lifestyle and spiritual groups internationalised early experience of ecstasy (Gruppo Abele, 2003). Ecstasy first became popular in Europe around 1985–06 after the publication of an article in the British magazine *The Face* (Nasmyth, 1985). Its growing popularity led to it being made illegal in the United States in 1985, with other nations following suit shortly after. Its international popularity has continued to increase since then, as one of the synthetic drugs specifically 'designed' for recreational use.

An important fact relating to ecstasy is that, like any illegal drug, there is no 'quality control' during the manufacturing or importation process. There is no guarantee that ecstasy consumers are actually consuming MDMA when they purchase or otherwise obtain what is purported to be ecstasy. Some of the substances sold as ecstasy in Australia have not contained MDMA at all, but have contained methamphetamine, perhaps in combination with a dissociative such as ketamine, an anaesthetic used primarily in veterinary surgery. They might also contain other phenethylamines such as MDA, PMA or MDEA, mixed with substances such as caffeine, glucose or paracetamol. Some tablets sold as ecstasy contain no psychoactive substances at all. Despite these variations in tablet content, the majority of seizures of ecstasy in Australia by federal agencies in the past three years have been tablets with around 30% MDMA purity. Given the range of substances found in tablets sold as ecstasy, the term 'illegal tablet market' may in many ways be a more accurate reflection of the ecstasy market (Quinn, 2004).

For the purposes of this report, ecstasy may not be MDMA or even one of its analogues. This fact may or may not be known by the consumers and suppliers of the drug. Ecstasy tablets containing predominantly MDMA currently comprise the majority of the illegal tablet market in Australia.

Current policy framework

Eliminating illegal drug use and suppressing drug trafficking have been key objectives of drug policy over the past four decades. As drug use has become more commonplace over this period, these enforcement objectives have been integrated into a more sophisticated framework of public policy with the broader goals of drug market containment and management of the harmful outcomes of these markets (MCDS, 2001, 2004). The Australian approach to drug policy has sought to integrate supply and demand reduction strategies with other strategies to address specific harmful outcomes of drug use, such as transmission of blood-borne viruses and fatal opiate overdose (Bammer et al, 2002). This harm minimisation policy framework has sought to coordinate law enforcement, health, education and community development activities. These activities are recorded in organisational information systems that can provide a range of indicators about negative market outcomes. Such data, presented in the following chapters with regard to ecstasy in Queensland, reflect levels of organisational activity influenced by a range of factors and also to some degree, reflect the effectiveness of this activity and the broader policy framework within which it occurs.

Just as treating end-stage alcohol, tobacco and drug dependence is no longer the limit of health sector responses to drug problems, simply enforcing current drug laws is no longer the only role for the criminal justice sector in responding to these same problems. Now, the goal of drug policy is to prevent drug problems from arising and from worsening for the individual and the community. This goal of 'harm minimisation' is elaborated in the National Drug Strategy (MCDS, 2004) and is supported by intersectoral collaboration between law enforcement, health, education and community sectors across all levels of government in Australia.

Strategies that seek to achieve the goals of harm minimisation are broadly grouped in terms of controlling the supply of drugs (legal and illegal), reducing the demand for drugs, and reducing specific harms that arise out of particular patterns of drug use and modes of their administration. Supply control, demand reduction and harm reduction strategies may overlap and are undertaken in all sectors responding to drug problems. For example, the most successful harm reduction strategy in terms of lives saved and injuries prevented is undertaken by police in the form of random breath testing for drink driving (Homel, 1988). Policing agencies may also be involved in harm reduction activities such as use of discretion in attending overdoses, advocating for harm reduction services, managing intoxicated people, and visible policing in problem areas. The health sector regulates the supply of pharmaceutical versions of many of the drugs that are also present in illegal markets in Australia, and both health and law enforcement sectors discourage consumer demand through increasingly overlapping strategies of legal sanctions and treatment.

Some strategies are more acceptable to different sections of the community than to others. Controlling and reducing the supply of drugs, particularly illegal drugs, is widely supported by the Australian community (AIHW, 2002a). This support is, however, mediated by a growing realisation that some patterns of illegal drug use will cause more harm than others. There is also an acknowledgement that illegal drugs are unlikely to be totally eradicated from our society. Only a small minority of Australians support lessening the penalties for use of most illegal drugs (AIHW, 2005a), however harm minimisation approaches to illegal drug use, such as diversion from the criminal justice system to education and treatment options, are increasingly accepted as an alternative to criminal prosecution (Bull, 2003).

Criminal justice agencies have a multifaceted role in the regulation of illegal drug markets. This growing sophistication in managing the complex causes of drug use and resulting problems has compelled policy makers and service managers to think about their work in different ways. One new approach, particularly among law enforcement officials, is to conceptualise the consumption of illegal drugs in market terms, with a supply-side and a demand-side. The role of the criminal justice sector in this market place is multifaceted (Caulkins, 2002; Nicholas, 2003; Spooner, McPherson & Hall, 2004). Clearly, preventing suppliers from getting their product to market is a key role, as is creating disincentives for consumers to participate in transactions. Acknowledging their role as market regulators enables policing agencies to define a broader range of objectives for their agencies than the enforcement of current laws.

Literature review

Ecstasy and illegal drug markets research

There is a substantial body of international research about consumers' experiences of ecstasy (Saunders, 1993, 1997; Holland, 2001; Measham, Aldridge & Parker, 2001; Hammersley, Khan & Ditton, 2002). In Australia these experiences are also well documented (Moore, 1995; Topp et al, 1999; Hansen, Maycock & Lower, 2001; Fitzgerald, 2002; Breen et al, 2004; Degenhardt, Barker & Topp, 2004; Duff, 2005; Fischer & Kinner, 2005; Stafford et al, 2005a). More broadly, however, the international research literature[5] on illegal drug markets has not addressed ecstasy and other ATS drugs in any great depth, focusing instead on heroin and cocaine markets. A notable exception is the comparative study of synthetic drug trafficking led by Gruppo Abele (2003) and undertaken in the three European cities of Amsterdam, Barcelona and Turin.

[5] The research literature on ecstasy as a trafficked illegal drug is spread across disciplines as diverse as law, economics, social sciences including criminology, anthropology, sociology, geography and psychology, and the health sciences. To search this literature, the use of a wide range of bibliographic databases is required. These include, but are not limited to: for Australia – CINCH, DRUG and APAIS from INFORMIT Online; internationally – ABI Inform, Factiva, InfoTrac, LexusNexus, Sociological Abstracts, PsycINFO and Medline. Search strategies that combine database specific thesaurus terms with key words and key phrases (truncated for plurals) have been used here to provided the best results. Key words and phrases were used to take into account the discipline and culturally specific terminology that may be used by authors writing about ecstasy and illegal drug markets.

While the academic research literature specifically on ecstasy as an illegal market commodity is limited, there are a number of key documents from criminal justice-related agencies that provide useful insights into ecstasy markets. The Queensland Crime Commission (QCC) has undertaken an assessment of the ecstasy market in Queensland (QCC, 2001) and the Victorian Parliamentary Drugs and Crime Prevention Committee (DCPC) (2004) has recently released a lengthy report on amphetamines and 'party drugs' in Victoria that is of national significance.

Internationally the Drug Enforcement Agency (DEA, 2001) intelligence report, "Ecstasy: rolling across Europe", scopes the potential impact of ecstasy use on the United States, and from a broader perspective, the United Nations Office of Drugs and Crime (UNODC) has provided a global overview of the amphetamine and ecstasy markets (UNODC, 2003a) using data that underpin its World Drug Report series (UNODC, 2004a, 2004b). Similar annual strategic assessments of illegal drug markets in Australia[6] have been prepared by the former Australian Bureau of Criminal Intelligence (ABCI) (1999, 2000, 2001, 2002), and the Australian Crime Commission (ACC) (2003, 2004, 2005).

Studies of illegal drug markets to date have tended to focus on either the retail end of the market from the consumer perspective, or the upper levels of the market where production and international distribution are closely allied with various forms of organised crime.[7] The middle level of distribution systems above the retail market, which exists both within and across nation states, has received less attention (Pearson & Hobbs, 2001). As newly 'designed' synthetic drugs like ecstasy have only been significant in the world market for a relatively short time, the volume of criminology literature specifically addressing this market beyond consumer experience of ecstasy transactions is quite sparse.

The bulk of the illegal drug market research literature both in Australia and internationally addresses the more established heroin, cocaine (though much less so in Australia) and to a lesser extent cannabis markets. This criminology literature focuses on typologies of drug traffickers and trafficking organisational structures, and the related issues of market economics, market size and prices as a market indicator. There is also a considerable literature on drug policy and the impact and effectiveness of drug law enforcement in achieving policy goals. This literature is discussed here where it is relevant to the study of the ecstasy market in Australia.

Conceptualising drug markets

Drug issues have traditionally been conceptualised as the epidemiology of drug-related health problems or the criminology of drug-related offences. There has only been a very limited application of economics to public policy on illegal drugs (Bridges, 1999; MacDonald, 2004). Conceptualising drug issues in an economic, market-oriented framework enables responses to drug problems to be considered in a more rational and less emotive way (Sutton & James, 1996). Studying the behaviour of drug users as consumers, and of drug traffickers as suppliers, allows for more precise consideration of their attitudes, motivations and behaviours. Observing how these market participants engage in transactions, manage their problems, and respond to regulation of their behaviour by law enforcement and health organisations can improve the effectiveness of strategies designed to minimise drug-related harm.

This market approach has been taken by the EMI study of the ecstasy market in Queensland. This approach emphasised the importance of considering both the demand- and the supply-sides of drug markets. It also argues that health services and law enforcement organisations act as market regulators seeking to contain and, where possible, reduce both demand and supply in drug markets. A number of aspects of conceptualising drug market mechanisms and the behaviour of market participants are discussed below. These include: the extent to which markets are open

[6] Similar strategic assessments are undertaken in the UK by the NCIS [www.ncis.co.uk] and in the US by the Drug Enforcement Agency (DEA), who also prepare international Country Reports, as well as a US assessment [www.dea.gov].

[7] Relevant research literature on drug consumers' participation in the market is reviewed in Chapter one: Analytical tools for illegal market profiling, of this report.

or closed, the difficulties in studying the middle and upper levels of supply chains, and evaluating the effectiveness of drug law enforcement activities as market regulation. This discussion draws on research on heroin and cocaine markets in Australia, the UK and US and provides a broad framework for understanding drugs in a market context. The specific nature of the ecstasy market in Australia, and in Queensland in particular, will obviously differ but many of the broader market concepts still hold true.

A market is a set of arrangements that brings buyers and sellers into contact in order to trade. In many ways illegal and legal markets are similar. They consist of a retail end, a distribution system or supply chain, and a production or manufacturing sector. The retail end may be an open or a closed market, it may consist of tightly contested sales territories or a free market open to new entrants. Distribution systems may consist of a supply chain that is very short, where small-scale manufacturers sell to retail suppliers in a local market, or the supply chain may stretch across the globe, with industrial-scale trans-shipment of raw materials, semi-processed or finished end-products, with a number of reprocessing, transit and wholesale stages between manufacture and retail sales. Production, be that the chemical synthesis of drugs like ecstasy, or cultivation and early stage processing of plant-based drugs like heroin or cocaine, may occur close to concentrations of consumer-demand or it may be on the other side of the world. Such production may be small scale and short lived or large scale and enduring for decades (UNODC, 2004a).

These market sectors meet in a dynamic and interactive relationship which brings supply and demand together. Supply and demand depend on a range of factors and, therefore, patterns of drug use and purchase may be highly localised within regions (Makkai, 2000). The objective of most suppliers to both legal and illegal markets is to sell as much product as possible, produced as cheaply as possible, at a price as high as the market will bear, thus maximising profit. To attract customers, the supplier may take advantage of either lowering the price, increasing the quality in comparison with competition, or establishing sales in a more desirable location (Rengert et al, 2000). Consumers will shop around for the lowest cost (in terms of price and risks) for the best quality they can afford. They will substitute products (in the case of illegal drug markets, other intoxicating drugs), where their intoxicant of choice is unavailable or too expensive. This may be a more or a less painful process determined in some cases by the severity of drug dependence. Consumers will also seek out complementary products to maximise their enjoyment and minimise the risks and adverse effects of their drug of choice.

Open and closed markets

Buying and selling illegal goods confronts people with the problems encountered in the legal market place, plus some additional problems. Consumers want some ‘certainty‘ that they can make a purchase, some assurance of ‘quality‘, or at least value for money, and ready access to the goods when and where they want them. Suppliers want easy access to consumers; they want to maximise their ‘price‘, and thus realise maximum profit, whilst minimising costs and ‘problems‘ from disgruntled buyers. In legal markets consumers pursue two main strategies to ensure a good deal.

The first is to use a reputable ‘open market‘. Open markets are those which allow equal access to all; they generally operate from fixed sites at defined times. If they were not, buyer and seller would find it hard to locate one another, although semi-open markets that rely on mail or Internet orders, or telephone sales, need not be at fixed sites. Closed markets, by contrast, are only loosely attached to places as they are as geographically dispersed as the networks through which they operate. Edmunds and colleagues detail this process in their six case studies of open street drug markets in London (Edmunds, Hough & Urquia, 1996).

Legal markets are generally open markets where the interests of anonymous sellers and buyers are protected by laws. In legal markets suppliers can readily recruit consumers through advertising, while illegal market suppliers are more restricted as they cannot be too open about their sales operations, instead relying on word of mouth and, in the case of ecstasy, branding in the form of

pill logos. Both of these illegal drug marketing strategies include an element of risks for both consumers and suppliers. Open markets for illegal drugs in Australia are relatively rare but they have existed in particular locations for some drugs (mainly heroin and cannabis) for limited periods of time (Fitzgerald, Broad & Dare, 1999; Maher & Dixon, 2001).

A second strategy for managing transactions is to use a closed market, that is, one in which access is limited to known and trusted participants. The strength of 'closed markets' lies in the trust that buyer and seller can place in each other. A disadvantage of such markets is that buyers have access to a limited range of goods, and sellers have access to a limited number of buyers. Increasingly, however, new technologies such as mobile telephones, SMS, Internet chat and email are being used to overcome some of these limitations of closed markets.

Illegal transactions have the complication that both buyer and seller run risks from third parties including the police, those who provide informal policing (e.g. venue security or competing suppliers), and those who realise that crimes can be committed against both sellers and buyers with a degree of immunity from the law (Reuter, 1983). Illegal market participants cannot depend on the civil or criminal justice system to mediate disputes or to protect them from theft or violence, unless they corrupt public officials. Open illegal markets are thus doubly risky places, and beset by problems of trust. Given the option, therefore, most rational consumers would use a closed market rather than an open one to buy illegal drugs (Rengert et al, 2000).

For any illegal retail drug market to be sustainable there must exist within its geographic locale a sufficient number, or 'threshold', of consumers generating a volume of sales to make a certain type of supply chain profitable. This geographic locale is the market's 'range': the distance consumers are willing to travel by a given mode of transport to make purchases from a supplier. A part of a supplier's sales operation may be to move to where consumers are concentrated, and to venues where consumers are willing to make purchases.

Within this framework of open and closed markets, studies of the role of location in illegal drug markets have identified three categories of sales operations:

- Street sales characterised by blatant transactions between anonymous buyers and sellers in public locations
- Indoor sales that include private dwellings, shop fronts, nightclubs, bars, raves, etc.
- Delivery sales where a supplier delivers to a consumer's home, workplace or other 'safe' location.

The degree of control and level of trust between suppliers and consumers in the transaction location can be a major factor in the sustainability of a market (Hough & Edmunds, 1999). Control over transactions is a strategy to reduce the risk of arrest, theft or violence. It may be that relatively small differences in travel time, convenience and perceived safety may override considerations of price differences in a consumer's purchasing patterns (Curtis & Wendel, 2000). These issues of market access and transaction location, and the relationship of consumers with suppliers, are considered in detail in the following chapters on demand and supply in the Queensland ecstasy market.

Upper and middle levels of drug markets

Local ecstasy markets in Australia are the retail end of international supply chains. While there is a growing body of research about retail markets for illegal drugs such as heroin and cocaine, there is far less published data and analysis about the market mechanisms involved in production, and in distribution, to these retail markets. This is understandable given the serious criminal and hidden nature of international drug trafficking and wholesale distribution. Relevant data are often limited to seizures and intelligence from policing operations that are not usually available for external research purposes (Dorn, Bucke & Goulden, 2003). The only major study of these levels of the ATS

drug markets is that of Gruppo Abele (2003) for Western Europe.

Dorn and colleagues have recently reviewed the English, French, Dutch, German, Italian and Spanish language research literature on upper-level drug trafficking. They provide a critical appraisal of the methodological approaches, and contribution to the upper-level drug trafficking knowledge base by historians, political commentators, security specialists, economists, criminologists, ethnographers and law enforcement personnel (Dorn, Levi & King, 2005). This body of literature significantly overlaps with studies of organised crime and politically motivated drug trafficking (Edwards & Gill, 2003). The relevance of this type of research literature to understanding the upper levels of international supply chains for Australian drug markets is clearly demonstrated by McCoy in his studies of the South East Asian heroin trade (McCoy, 1973, 1991, 1999) and his history of the drug market in Australia (McCoy, 1980).

There is a growing body of research undertaken in the UK on the middle level of drug markets that provide examples for a similar law enforcement research agenda in Australian drug markets. Dorn and colleagues argue that among middle and upper level suppliers there are groups who are characteristically risk averse and others who are risk takers. This risk taking occurs at both strategic and tactical levels of trafficking and involves a considerable range of management skills. Level of risk taking appears to be closely associated with the degree of capitalisation and the number of cut outs (i.e. intermediaries) between market organisers and hands-on suppliers. Their research is based on 25 qualitative interviews undertaken with both convicted drug traffickers and UK Customs informants (Dorn, Oette & White, 1998).

Pearson and Hobbs provide engaging case studies of local lads, Ronnie and Terry (Pearson & Hobbs, 2001), and of Alf and Frank (Pearson & Hobbs, 2003), who manage local middle-level drug distribution networks in middle-sized towns in the Midlands of England. These case studies, here with risk taking 'adventurers', illustrates the potential for ethnographic research in drug markets. In earlier work Hobbs has argued that global economic and social change in the legitimate labour market is re-structuring organised crime in drug markets at the local level, with traditional working class industrial cultures and community structures being replaced with *'networks of small flexible firms featuring short-term contracts and lack of tenure'* (Hobbs & Dunninghan, 1998). His more recent case studies similarly described the middle level of the drug markets as managed by *"small, flexible networks and partnerships of free-trading entrepreneurs"* (Pearson & Hobbs, 2003), similar to those identified in the study of mid-level drug market suppliers in the USA (Reuter & Haaga, 1989).

The EMI study has taken some initial steps in the direction of this UK research by incorporating in its market approach interviews with active suppliers in the Queensland ecstasy market. Recruited through regular ecstasy consumers, these suppliers have provided insights into the market mechanism that would not be possible through interviews with consumers and market regulators. Further research with both active and past drug market suppliers is clearly warranted for a more comprehensive market analysis.

Market regulation and drug law enforcement effectiveness

The EMI project has taken a market approach to the study of the demand for and supply of ecstasy. Part of this approach is to consider how the ecstasy market is regulated. As argued above, law enforcement agencies have multiple roles in drug markets, implementing strategies to reduce both supply and demand, and drug-related harm. A strong theme within the research literature on illegal drug markets is the effectiveness of law enforcement as market regulation. While some of this literature is broadly polemic and criticises 'war on drugs' orientated public policy and policing strategies, more considered work specifically examines the challenges law enforcement face in achieving policy objectives. These objectives are at times unrealistic, politically motivated short-term responses, or limited by available resources, laws and community acceptability.

In Australia, Sutton and James (1986) undertook a comprehensive evaluation of Australian drug anti-trafficking law enforcement and identified the difficulties faced in achieving a rational system of market regulation. Their work was supported by a parallel study of the relative market impact of arrest of consumers and suppliers in the Australian market by different sections of the law enforcement community (Green & Purnell, 1995). This study found that most policing resources in drug market regulation were used to apprehend minor rather than major offenders. Weatherburn and colleagues have carried the issues raised in this research forward in a series of monographs and bulletins published by the NSW Bureau of Crime Statistics and Research (Weatherburn & Lind, 1995; Weatherburn, Lind & Forsythe, 1999; Weatherburn, 2000) and elsewhere (Weatherburn & Lind, 1997). This body of research, primarily focused on the heroin market, advocates for greater collaboration between health and law enforcement agencies in undertaking effective strategies to minimise drug-related harm. More critical research has identified the potential for policing strategies in some specific heroin markets, i.e. Cabramatta (Maher & Dixon, 1999, 2001) and Fitzroy/ Collingwood (Fitzgerald, Broad & Dare, 1999) to increase the risks of harm experienced by drug users.

Australia is not alone in struggling to develop a rational and effective system of drug market regulation. The UK Home Office has supported a program of research over the past fifteen years and acknowledges that significant concerns still exist about the lack of reliable measures of effectiveness in drug law enforcement (Browne, Mason, & Murphy, 2003). However, this body of UK research has much to offer Australia in finding better methods to investigate and conceptualise drug markets and effectiveness of law enforcement in regulating drug markets.

For example, Dorn, Bucke and Goulden (2003), in a study supported by the Home Office[8] led Supply-side Research Board, proposed looking at traffickers' activities from the point of view of the potential for opportunity-reduction, as well as economic and organisational analysis. They identified the difficulties faced in measuring law enforcement effectiveness in illegal drug market regulation by focusing on increased arrest and seizures, or decreased estimated market size as key objectives. This study also questioned the impact of dismantling organised crime networks given the increasing flexibility of small, ever-changing organisational networks (Dorn, Bucke & Goulden, 2003). These views echo those of Williams (1995) who suggested moving the focus from the level of traffickers to that of the market as a whole, identifying disruption of co-operation between traffickers as a key objective.

Summary

This brief review of the research literature on drug markets has found that:

- There is a substantial body of descriptive research about consumers' experience of ecstasy but far less about other aspects of the ecstasy market.
- A market approach to understanding drug issues that considers both the demand and supply is slowly becoming more widely accepted.
- Agreed methods for investigating the behaviour of market participants, consumers and suppliers, and the effectiveness of market regulation, are still being developed and trialled.

The body of drug market research literature is primarily descriptive and theoretical, indicative of the relatively early stage in development of illegal drug markets as a research domain in its own right. There are few studies attempting to measure the effectiveness of market intervention and regulation. At the present time, any investigation is inhibited by the limitations arising out of the lack of agreed validity in research methods, the poor quality of data, and limited consensus on the goals

[8] Details of the research agenda for the Drugs and Alcohol Research (DAR) Programme of the UK Home Office, and particularly of the Availability, Communities and Trafficking Section, are provided on their website www.homeoffice.gov.uk/rds/drugs1.html

of drug policy. Therefore, a study of ecstasy markets at a state or national level in Australia will be of necessity an ongoing exploratory endeavour.

Structure of this report

Chapter one: Analytical tools for illegal market profiling

This chapter details what tools are available to profile different aspects of illegal drug markets, and provides a summary of the tools employed for the EMI project. It is argued that there is no one tool, technique or methodology to encompass all levels of all illegal drug markets, but rather different combinations of methods can be used for different purposes and settings. All such methods and combinations of methods have their limitations. Acknowledging these limitations can assist in determining how best to invest in illegal drug market intelligence systems and research programs.

Law enforcement market scan methodologies have emphasised market indicators for problematic drug use, particularly indicators for arrests of consumers and suppliers and seizures of drugs; as well as indicators from the health sector that focus on deaths, hospitalisations and specialist drug dependence treatment and other services. While this indicator approach has been supplemented with the expert opinion of drug law enforcement specialists and other police officers, there are a number of shortcomings in this approach. What has been largely missing is detailed study of the demand-side of the market, the patterns of consumer drug use over time and in different regions, particularly where regular consumers interact with retail suppliers.

Market analysis that incorporates demand, supply and market regulation aspects for drugs such as ecstasy can best be served by utilising general and special population surveys, in concert with focused interviews with selected consumers, suppliers and key experts. This latter source of rich contextual intelligence can then be integrated with evidence from seizures of drugs, precursor chemicals and clandestine laboratories. The value of seizure and detection data is not just in monitoring changes in their number or weight, a more detailed understanding of the context of seizures and detections would greatly facilitate an enhanced understanding of the manufacturing processes, distribution and structure of illegal drug markets.

Chapter two: The demand for ecstasy

This chapter presents the current state of knowledge about the demand for and consumption of ecstasy in Queensland, within the broader context of Australian and international patterns of ecstasy use. This chapter incorporates data from a wide range of sources including the National Drug Strategy Household Surveys (NDSHS), other general population surveys in Queensland, and the Australian Secondary Students Alcohol and Drug survey (ASSADS); special population surveys of regular ecstasy and related drug users, injecting drug users, and methamphetamine users in Queensland; and studies of police detainees, prisoners, and emergency department attendees. Particular emphasis is given to quantitative, market-relevant data collected from regular ecstasy consumers, as part of the EMI project.

The quantitative data from these surveys is fleshed out by interviews with consumers, suppliers and key experts from the law enforcement and health service sectors. A demographic profile of consumers is provided, along with discussion of consumer knowledge, attitudes and behaviours,

particularly with regard to their interaction with suppliers and with police and health sector market regulators. This analysis focuses on market entry, the changing cultural context of ecstasy use, and the market transactions between consumers and suppliers.

Chapter three: Supply in national and international markets

This chapter details the supply-side of the Australian and international ecstasy markets. The way in which ecstasy is manufactured is described and the importance of the trade in precursor chemicals in the international ecstasy market is detailed. The supply chain between manufacture and retail markets is the focus of this chapter. The analysis presented here relies on national and international data from a number of agencies on the seizure of drugs, precursor chemicals and clandestine laboratories. These agencies include the Australian Customs Service, the Australian Federal Police (AFP) and Australian Crime Commission (ACC) for national data and the United Nations Office on Drugs and Crime (UNODC) and United States Drug Enforcement Agency (DEA), among others, for international data.

In addition to national and international seizure data, the EMI study makes considerable use of interviews with consumers about the retail market, and with suppliers about the distribution supply chain and manufacturing processes. Market regulators from law enforcement were also generous with their time for interviews. However, only limited access to operational case reports and strategic intelligence summaries was provided for this study. This has constrained our ability to critically assess the validity of data gathered through our interviews.

Chapter four: Supply in Queensland ecstasy markets

This chapter replicates the methodology used in Chapter three, but with a greater focus on the quantitative survey of consumers developed for this study, and in-depth interviews with consumers, suppliers and market regulators from both law enforcement and health agencies. Seizure data generated by the Queensland Police Service (QPS) retail market regulation activities was provided by Queensland Health Pathology and Scientific Services (QHPSS). Australian Customs provided data on border interdictions in Queensland.

The design of this study enabled some preliminary comparison of the ecstasy markets on the Gold Coast and in Brisbane and Cairns. Much more work is required than was possible in this study to fully understand regional differences in illegal drug markets. Our analysis presents information regarding the interaction of consumers with suppliers in the retail market. This analysis has highlighted the relatively closed nature of the ecstasy market and the importance of peer supply among consumers as a distinguishing feature from other illegal drug markets.

Chapter five: Sizing the market

This chapter introduces a new tool into illegal drug market modeling in Australia. A major obstacle in assessing the impact of supply control and demand reduction strategies in containing drug markets has been the lack of appropriate benchmarks against which to measure change. The EMI market sizing model provides the first step in overcoming this obstacle by benchmarking the minimum size of the ecstasy market in Australia. This model can be updated as new data becomes available.

This consumption-based model of the ecstasy market size extends the work undertaken for the

UK National Criminal Intelligence Service and UK Customs and Excise (Bramley-Harker, 2001; Barham et al, 2003). While consumption-based market models are less reliable for more hidden drugs such as heroin, cocaine and methamphetamine, due to the significant limitations of including regular users of these drugs in population surveys, we argue here that this approach is valid for ecstasy, and probably for cannabis as well.

Chapter six: Market regulation

This chapter details what intelligence can be gathered from the organisational activity of health agencies in Queensland responding to the negative consequences of ecstasy use. These activities include recording ecstasy-related deaths, hospitalisations, specialist drug treatment and telephone counselling. Arrest data from QPS is presented in this chapter and the limitations of all these sources of indicator data for profiling the ecstasy market are discussed.

These market regulatory activities are placed in the policy context of the National Drug Strategic Framework, and the growing role of intelligence-led policing is discussed in the context of profiling illegal drug markets. Examples of the potential for precursor chemical and clandestine laboratory monitoring, and price along the supply chain, are used to illustrate how better use can be made of existing data from law enforcement agencies. This chapter also provides some insights into how this intelligence is collected and stored for access within and between law enforcement agencies. This includes some reflection on operational information systems for generating and sharing intelligence between agencies and with broader audiences.

Chapter one: Analytical tools for illegal market profiling

Summary

There is no one analytical tool to profile illegal drug markets, rather a combination of methods are appropriate for different drug markets and different market participants.

- For the ecstasy market, data indicative of organisational activity, such as arrests, and health outcomes such as deaths, hospitalisations and occasions of specialist treatment, provide only limited market intelligence, as the majority of ecstasy consumers and suppliers do not come into contact with police or health agencies.
- A market cannot be understood by focusing solely on supply-side activities; the attitudes and behaviours of consumers and regulators also determine market mechanisms and outcomes.
- In Australia, changing consumer patterns of ecstasy use are one of the most accessible sources of intelligence about the state of the market.
- Population surveys set the baseline for the prevalence of ecstasy use and the characteristics of ecstasy consumers.
- Surveys of special populations provide richer detail of consumer attitudes, knowledge and market behaviors. Such open source intelligence also provides early warning systems for change in the market.
- Profiling the supply chain for ecstasy and the behavior of suppliers is inherently difficult because of the hidden, illegal nature of their market activities.
- Sustained research engagement with regular ecstasy consumers and suppliers, using innovative qualitative methodologies, can provide greater insights into market processes.
- The annual number and weight of ecstasy seizures can provide only limited intelligence for a market profile. The supply chain context of individual seizures is important in building a national market profile. Strategic intelligence using this data is not systematically collated or readily accessible.
- The EMI study has used the best available evidence from surveys of general and special populations, indicator data from law enforcement and health agencies, and interviews with consumers, suppliers and drug market regulators. This triangulated approach provides a fine-grained picture of the ecstasy market in Queensland and these methods can be replicated in other jurisdictions.

Introduction

Analysis of illegal drug markets requires the development and application of a range of tools to understand the behaviour of market participants and market mechanisms (Shand et al, 2003). Market participants come from three intersecting groups: consumers who demand ecstasy; suppliers who manufacture and bring the drugs in demand to the market; and regulators who contain and control these behaviours and the outcomes these market activities create for both market participants and the community as a whole. This chapter describes the range of methodological tools used in the EMI study, their usefulness in analysing the ecstasy market at a jurisdictional level, and their limitations.

Law enforcement officers use operational and tactical intelligence to investigate specific market transactions and arrest individual suppliers with the intent of disrupting criminal networks and supply chains. More frequently, however, drug law enforcement involves the arrest of consumers for possession-related offences. Strategic intelligence requires a more detached response that places supply control activities within broader national and international market contexts. Limiting an analysis of drug markets to just the activities of suppliers, and paying insufficient attention to the behaviour and attitudes of consumers and regulators, will distort any market profile.

Analytical tools are the methodologies and techniques used to move beyond the inherently limited perspective of the personal experience of an individual or a group of individuals with a similar organisational role, professional orientation or policy viewpoint. While no one tool can tell us all that we want to know about illegal drug markets, and no specific methodology or technique is without limitations, by developing, trialing and modifying a set of tools relevant to the behaviours of our three groups of market participants, we have the best possible opportunity to monitor change in specific drug markets that by their very nature are normally hidden from public scrutiny.

We review here the traditional sources of indicator data[9] used in drug market profiles, and discuss their limitations in general and with specific reference to ecstasy markets in Australia. Of particular importance here is the role of intelligence gathered around seizure events. We argue strongly that this traditional approach must adapt new methodologies to capture and analyse intelligence about supply chains. We also present, more importantly, details of the methods essential to understanding the demand-side of the market.

The analytical tools used in the EMI study included direct and indirect methods for monitoring consumer behaviour and estimating the size of the ecstasy market. Direct methods involve household and target group surveys and interviews, and indirect methods involve drawing inferences from the routine data collected by law enforcement and health organisations that provide indicators of market participant behaviours. Details of the survey data set used in the analysis are provided in Appendix A. The best mix of analytical tools has been applied for the EMI study of the Queensland ecstasy market, and this market analysis is provided in the following chapters of this report.

[9] Indicators are data that give pointers or act as tools in the estimation of prevalence of drug use and often patterns of drug-related problems. Such data is collected routinely by government agencies such as police arrest data, drug treatment data and mortality data. The data reflects only those who have come into contact with services and not all users of illegal drugs.

Traditional drug market indicator data sources

The most well known and respected strategic analysis of illegal drug markets in Australia is the Australian Crime Commission publication, the *Illicit Drug Data Report* (IDDR), an evolution of the *Australian Illicit Drug Report* (AIDR) and previously published as the *Australian Drug Intelligence Assessment*, which were both produced by the former Australian Bureau of Criminal Intelligence. The IDDR provides a law enforcement oriented statistical overview of drug arrests, seizures and detections. Data are provided by federal, state and territory police, as well as forensic laboratories and Australian Customs. It is the only report in Australia that publicly disseminates nationally agreed illicit drug data and provides law enforcement and interested stakeholders with a national overview of illegal drug markets.

The ACC (2004) states that statistical information in the IDDR helps national law enforcement, government and stakeholders understand the illegal drug environment in Australia and also provides the data necessary to assess possible future illegal drug trends. The annual publishing of the IDDR supports United Nations reporting requirements (UNODC, 2004a) for national law enforcement illicit drug statistics. The IDDR for 2002–2003 was a significant departure from the AIDR, with considerably less detail in both statistical analysis and textual summaries of significant cases and other intelligence. The 2003–04 iteration of the IDDR has included greater levels of qualitative information on the illegal drug market in Australia, although still less than the AIDR.

As an annual public report series the IDDR is, in effect, a summary of more detailed traditional drug market analysis that generates a range of other internal intelligence publications. These intelligence products are based on case studies of significant operations, the expert opinion of experienced law enforcement officers and other national and international agencies, and indicator data about arrest and seizures, drug purity, price and availability. The sources for these latter indicators include the following sentinel monitoring systems: the Illicit Drug Reporting System (Stafford et al., 2005b), the Party Drugs Initiative (Stafford et al, 2005a) and the Drug Use Monitoring in Australia (Schulte, Mouzos & Makkai, 2005). The relative value of these data sources as analytical tools for profiling the ecstasy market is discussed below.

Arrest indicator data

Police and criminal justice data provides useful information on drug-related offences under the various Drugs Misuse Acts in various state and federal jurisdictions. These data show the number of different type of offences, broken down by drug type. The number and types of offences vary between state jurisdictions, but can usually be aggregated into possession/use ('consumer') and supply/trafficking/production ('provider') categories.[10] Trends in the aggregate number of these two types of offences are interpreted as indicative of the changing size of drug markets, the effectiveness of drug law enforcement, or both.

These interpretations, however, need to be treated with caution. The limited quality of arrest data in Australian drug markets is acknowledged by the ACC (2005) and by others (Wardlaw, 1986; Sutton & James, 1996). If the level of policing activity relating to illegal drug use was constant and arrest rates increased, this may indicate an expanding market, but it could also indicate enhanced effectiveness of policing through either greater experience or through wider application of new techniques, such as cargo x-ray, sniffer dogs, ion scanners or telephone intercepts. The market regulatory activity of police is not constant but varies with changing policy, priorities and available resources. Arrest rates may actually decline in the context of expansion in some markets where market participants do not come to the attention of police – for example where consumers are not involved in property- or violence-related offences. Similarly, consumer arrest rates may vary if police diversion or official cautions for illegal drug-related activity increases. The ACC notes this as the case with some jurisdictions, in some editions of the IDDR and AIDR.

[10] These are the summary categories of offences used in the IDDR.

Just as policing activity is not constant, so too does the size of different drug markets vary. Without a benchmark of market size, the interpretation of arrest rates is of limited value in drug market analyses. They provide an indication of policing activity in the short term and additional evidentiary support for changing patterns of consumption in the longer term. Most arrests are for possession offences and a significant proportion of supply offences involve only small quantities of drugs – often enough only for one person's individual consumption (Green & Purnell, 1995). The significance of supplier arrests lies less in the number of arrests than the potential disruption they cause to supplier networks. Arrest data for consumers are a poor proxy for estimating the demand-side of a drug market. More appropriate methods for estimating market size, the number of market participants and their transactions, and the volume and frequency of consumption are general and specific population surveys.

Seizure indicator data

Seizures of drugs and, for ATS markets, precursor chemicals and clandestine laboratories, are important indicators for drug market analysis in Australia. While the number of seizures may, like arrest data, be broadly indicative of trends in a given drug market, they are also heavily influenced by policing activity and priorities. Without an understanding of the size of the market in question, these data are difficult to interpret and of more limited value. While a range of Federal and State law enforcement agencies do collect seizure data, this occurs with only limited detail and consistency, particularly for ecstasy.

Nevertheless, in combination with other market data such as drug price, purity, consumption and perceived availability, seizure data can be a valuable tool for strategic intelligence. For example, if price and purity are stable, perceived availability is not declining and consumption is increasing, while seizure weights are increasing – then clearly there is an expanding market. This is the current situation with the ecstasy market in Australia. If price was stable or increasing, particularly where purity was decreasing and availability perceived as more difficult, and consumption reducing, then it is likely that the market is contracting though seizure rates may, or may not, fall. This is a reasonable approximation of the Australian heroin market in the past five years.

The relationship between the weight of a seizure for a particular drug type and the number of such seizures can also be informative, particularly where the market context of the seizures is known. For example, a large number of seizures of less than ten ecstasy tablets by State police services would be seen as part of normal retail market regulation. The same number of similar sized seizures through the postal system by Australian Customs would be indicative of a substantially different aspect of the ecstasy market. Similarly, much larger multi-kilogram seizures of predominantly MDMA ecstasy tablets on the person of an international air passenger would have a significantly different meaning to seizure of similar weights of tablets containing a mixture of methamphetamine and MDMA found in the possession of those associated with an inner city night club. The value of seizure data lies not only in the aggregate weight and number of seizure events, but also in the supply-chain context of the seizure.

The total weight of seizures, on both a state and federal level, is useful in framing the broader strategic view of a drug market. This process is an essential component in estimating market size. However, the limitations of what is counted and what is not counted must be acknowledged.

These limitations are detailed by the ACC (2005) in the IDDR and include:

- a lack of uniformity in both recording and storing data on illicit drug arrests and seizures across all states and territories.
- ongoing problems with quality control, resulting in the absence of essential information from some records.

- differences in applying a uniform counting and data extraction methodology in all jurisdictions.
- differences in definitions of consumer and provider offences across jurisdictions and within jurisdictions over time.
- differences in the way drugs and offences may be coded.
- insufficient drug identification.
- inability to identify seizures resulting from joint operations, for example, those involving a state or territory agency and the Australian Federal Police.

The ACC has developed a National Illicit Drug Reporting Format system that seeks to address these shortcomings, and works closely with police data managers to improve the quality of these indicator data. Despite this ongoing work, however, these inadequacies remain largely unchanged from those identified by Sutton and James (1996) nearly ten years ago. A further limitation of current seizure data is that not all State police services distinguish phenethylamine (ecstasy) seizures or arrests from other ATS drugs, while federal agencies do make this distinction.

Price, purity and availability

Seizure weight and number, together with consumer/provider arrest data, are the central elements of traditional approaches to illegal drug market profiling. These indicators are often accompanied by data on retail price, perceived and actual drug purity, and perceived drug availability. Price is a crucial indicator in any market although in illegal drug markets, retail price is more meaningful if accompanied by information about drug purity and transaction weight. Price range may also be affected by location of purchase and the relationship between consumer and supplier. As in any market, price per unit will decrease as one moves up the supply chain toward the source of manufacture where the volumes transacted are larger. Understanding an illegal drug market can, therefore, be enhanced by collecting price/volume data at various points along the supply chain; for example, at the point of manufacture, wholesale/importation transactions, and middle-level transactions between importation/manufacture and the retail market. Where supplier costs can be calculated at these supply chain points, profit margins can be determined, thus providing a guide to incentives for relative risk-taking behaviour among suppliers.

Another factor which may complicate interpretation of drug price data is that while average retail prices for given drug quantities (e.g. 1 tablet) may remain stable, the drug may vary as a function of purity and total substance weight. Historically, these practices have been common in markets for 'white powder' drugs like heroin and cocaine, where drugs are regularly cut with other substances to increase volume and thus profit. While the issue of cutting drug purity along the supply chain is less of an issue with pressed tablets, intelligence indicates that the grinding and re-pressing of tablets, usually those with higher MDMA content, does occur (ACC, 2005).

The issue of drug purity and tablet contents therefore warrants more detailed attention. While median purity across all seizures is a useful measure, analysis of purity levels in seizures at different points in the supply chain can provide further valuable intelligence. In fact, average purity can be quite misleading if it is based on sampling from both the retail and manufacturing ends of the supply chain. Large seizures of high purity, imported drugs can distort perceptions of change in average purity at the retail level. In the ecstasy market, combining data from seizures of imported MDMA powder with tablet seizures in the retail market can distort the average purity estimates.

The rapidly expanding market for ATS drugs has presented a number of challenges for market profiling by law enforcement agencies. One aspect of this is the diversity in drug types and their physical forms. Amphetamine sulphate has been largely replaced by methamphetamine in the Australian market.

Methamphetamine appears in powder, paste and crystal forms. It is also pressed into pills, frequently with other substances, particularly ketamine and phenethylamines such as MDMA. This illegal tablet market requires significantly more forensic analysis to determine substance combinations and purity in tablets produced in batches both domestically and overseas. Monitoring trends in content and purity of tablets is a relatively new practice in drug market profiling. As Pearson & Hobbs (2001: 25) note:

> *'Systematic purity-testing at all levels of the drug market is an imperative intelligence requirement if one is to understand more completely the economic workings and vulnerabilities of drug brokerage in the 'middle market' and elsewhere'.*

Clandestine laboratory and precursor chemical seizure data

The detection of clandestine laboratories (clan labs) is a clear indicator of illegal drug manufacturing in that location. Drug law enforcement agencies usually report the number and location of clan labs seized. The type of drug being produced is usually, but not always, reported. Other details of individual clan labs are reported in post-seizure reports and this information often forms the basis of intelligence reports on aspects of illicit drug market conditions in a given jurisdiction.

Clandestine laboratories

Clan labs producing ATS drugs are clearly distinguishable from those producing cocaine or heroin. The distinctions between individual ATS clan labs producing amphetamines, methamphetamines, ecstasy-related phenethylamine drugs or other ATS drugs are less clear. While much of the laboratory equipment used is similar, there are some differences in terms of precursor chemicals, chemical by-products and obviously, end product.

In the Australian market a key indicator of ecstasy market activity is the identification of local ecstasy production. This manufacturing may be from basic precursors such as sassafras oil, safrole and processed precursors such as PMK. Alternatively, manufacturing may be the re-processing powder MDMA or re-grinding MDMA tablets, to be pressed locally to produce ecstasy tablets with lower MDMA content and/or other tablets containing other illicit drugs such as methamphetamine or ketamine.

Within the broader ATS manufacturing industry there are different types of clan labs with different functions and production capacities. Despite some overlap, it may be useful to distinguish among the following types of production sites:

- 'powder laboratories' producing ATS powder
- 'tablet laboratories', where ATS powder is pressed into tablets
- 'cutting laboratories' where ATS powders are diluted ('cut') to increase bulk and maximise profits
- 'refining laboratories' where immediate precursors (e.g. MDP2P/ PMK) are converted into the crystal form of the drug (in this case, MDMA), in a relatively straightforward chemical process
- 'precursor laboratories' where immediate precursors for MDMA (e.g. MDP2P/PMK) are manufactured from sassafras oil or safrole.

In the current Australian ecstasy market these distinctions in MDMA manufacturing are less relevant as these manufacturing processes appear to be undertaken in one laboratory, in the limited number of detected MDMA clan labs. However there are overseas examples of larger scale industrial production of ecstasy where these processes occur in different laboratories in different locations (Gruppo Abele, 2003). If domestic MDMA production expands to a point where specialization in production processes occurs, this level of analysis of clan labs may prove useful.

In addition to classifying the general type of clan lab it is also useful to determine its activity status. In August 1997, at the first Chemical Diversion Conference held by the Australian Bureau of Criminal Intelligence (ABCI, 1998), a categorisation of the various activity status of clandestine laboratories was developed. Initially there were three categories but a fourth has since been added. The categories are as follows:

- Category A – active (chemicals and equipment in use)
- Category B – stored/used (equipment or chemicals)
- Category C – stored/unused (equipment or chemicals)
- Category D – used site/evidence or admissions of a prior laboratory.

Indicators of local ecstasy production are laboratories in which MDMA precursors are present in quantity or MDMA powder or re-ground ecstasy pills are present. Specialist equipment, such as a vacuum pump to evaporate the solvent used in processing isosafrole in the synthesis of PMK, or certain multi-neck glassware not regularly used in methamphetamine production, can be indicators of local ecstasy production. Pill presses or dies, tabletting and encapsulation machines in clan labs may also indicate ecstasy production, given the relatively low prevalence of known methamphetamine pill consumption in Australia.

Clan lab capacity

Clan labs vary significantly in terms of size or manufacturing capacity, ranging from small-scale facilities, frequently referred to as 'kitchen', 'suitcase', or 'box' laboratories, which produce for personal or local supply, to large, industrial-scale facilities with a potential output of several hundreds of kilograms per week. Intelligence on the production capacity of clan labs has not been reported in a systematic manner in the past.

The batch nature of production means that most laboratories do not produce seven days per week and 52 weeks per year, primarily because of difficulties of ensuring continuous supply of precursor chemicals. Daily, weekly or monthly capacities can therefore not simply be extrapolated. Formulae for output based on precursors in stock and equipment set up, together with details of 'chemist' skill level, competency and experience, would improve the market intelligence from 'clan lab' seizures.

UNODC (2003a) acknowledges that information on the size, capacity and ATS drug type of clandestine laboratories is not always collected or reported on a systematic basis. They believe that the majority of clandestine ATS laboratories detected worldwide – several thousand laboratories detected annually – produce less than 100 grams per year for personal use or local supply, and that there are only a few hundred high-capacity laboratories producing up to five tons per year.

Precursor chemicals

The trade in precursor chemicals and the diversion of pharmaceutical medications for the purposes of illicit drug manufacture are the second major change in drug market manufacture activity, after the appearance and increase in numbers of clan labs that have arisen out of the growth in the ATS market in Australia. While some of these chemicals are common to the production of all ATS drugs, there are specific precursor chemicals used in the manufacture of MDMA. These are principally the derivatives of safrole. Modeling of ecstasy tablet output from varying volumes of these precursor chemicals using different synthesis routes is potentially a useful source of intelligence about change in the supply-side of the ecstasy market. Systematic data detailing seizures of precursor chemicals and pill presses for domestic MDMA production are not readily available, although some individual seizures have been noted in law enforcement documents.

Much has been achieved by the National Strategy to Prevent the Diversion of Precursor Chemicals since it commenced in mid 2003. Recently announced activities under this Strategy have included the development of a National Clandestine Laboratory Database, enhancements to a National Industrial Chemicals Monitoring Scheme, a framework for research and evaluation of current controls on precursor chemicals, development of awareness-raising activities for key stakeholders and the public, and increased training opportunities for key stakeholders (Attorney-General's Department, 2004).

Of particular importance for market profiling is the National Clandestine Laboratory Database, which, as an inter-jurisdictional resource, will store and integrate information on clandestine laboratories detections and precursor chemical seizures from police and forensic agencies in each state and territory. The inclusion of Australian Customs and Australian Federal Police (AFP) data on precursor chemical importation seizures will be essential to the success of this initiative. To date, the lack of consistent and accurate data on precursor chemical seizures, clan lab and illicit pill press detections has been a major impediment to strategic market profiling for ATS drugs, including ecstasy. The National Clandestine Laboratory Database should address this shortcoming.

For this study of the ecstasy market, seizure data were sought directly from the Queensland Police Service, Queensland Health Pathology and Scientific Services, the Australian Customs Service, the Australian Federal Police and the Australian Crime Commission. Raw data from the operational information systems of these agencies was preferred, rather than relying on the more limited data provided in various published reports, which may be published for the purposes of public accountability and intelligence dissemination, rather than to facilitate more fine-grained analysis. A significant task in accessing these raw data was identifying the relevant data sets, determining the appropriate channels for requesting these data, and obtaining access to these data as researchers outside of the law enforcement community. Where the requested data were unavailable within the timeframe of the project, published data were used instead.

Limitations of seizure data

Caution is needed in understanding the meaning of seizure data. Seizure data can, at one level, provide information on markets trends in drug types and volumes, but changes in what is seized may equally reflect law enforcement effectiveness, simple luck and improvements in interdiction technology. Similarly, the location or jurisdiction in which drugs are seized does not necessarily reflect the prevalence of consumption in that location. Accordingly, aggregated Australian seizure data can only give a partial indication of the actual market conditions, for the following reasons:

- law enforcement resource allocation shifts with changing policy, which has a flow-on effect on how much of a particular drug is seized
- changes in international markets and distribution can have an effect on regional and local market conditions
- not all drugs seized in Australia or Australian waters are necessarily destined for the Australian market.

Seizure data are routinely collected by both police and customs agencies in the process of investigations for prosecutions. Seizure data are also used as an indicator of organisational activity and in some cases, organisational effectiveness (McFadden & Mwesigye, 2001; AFP, 2004). Each agency collects data in a format tailored to its own needs, and these varying formats do not always enable direct comparison of data between agencies. In addition, due to the operational focus of most law enforcement agencies, data reliability is an issue of ongoing concern. Despite their importance in monitoring illegal drug markets, seizure data are not usually collected for the purposes of strategic intelligence, and their value in strategic market analysis is therefore limited.

Another limitation of seizure data is that there are often significant delays between the occurrence of a seizure and the collation of all relevant data about that seizure. Forensic analysis of seizures – particularly clandestine laboratories – may take considerable time and analysis results are not always fed back to all the agencies involved with that seizure. The considerable investment by the Federal Government, in the 2003 budget, in the Australian Illicit Drug Intelligence Program (AIDIP), an extension of the Joint Drug Intelligence Team (JDIT), a collaborative venture since 1997 between Australian Federal Police (AFP) and the Australian Government Analytical Laboratories (AGAL), may address some of these issues (Huttunen, 2004). Building on the success of the National Heroin Signature Program (NHSP), AIDIP has provided fifteen Leica digital imaging systems to Australian state and federal forensic laboratories to allow the collection of tablet images using standardised equipment. These organisations, in turn, have submitted data to the National Institute of Forensic Science (NIFS) Drug Logo Database, which is maintained by the Victoria Police Forensic Services Centre (VPFSC), thus creating a national holding of the types of tablets encountered by law enforcement in Australia. AIDIP is also contributing to the international drug profiling community through the development of an International Drug Profiling Database (IDPD) for heroin and ATS. AFP and AGAL are seeking to adapt this as a shared database for AIDIP business, which will see physical evidence, such as seizure-related digital images and analytical results of packaging materials, linked directly with the chemical drug profiling data. AGAL is now part of the National Measurement Institute.

This investment may overcome the current difficulties in collating seizure data from the AFP and Customs. It is not always evident from the data provided by these agencies whether a seizure is undertaken independently or collaboratively, thus making double counting of seizures a possibility. In current data systems, what actually constitutes a seizure item is not always consistent. For example, where a number of packages of drugs (the same drug, different drugs, or the same drug in different forms (e.g. tablet, powder or liquid) are seized at the same time and in the same operation some agencies will treat these packages as individual seizures, while others will sum the packages into one total seizure for the operation. The former process results in a higher recorded number of seizures.

From a tactical and strategic intelligence point of view, it is also important to consider the context of each seizure – details such as mode of importation, concealment, point of origin, trans-shipment locations and final destination. Information regarding the persons transporting the drug are also important as their movement along a supply chain can provide information on wholesale pricing, by quality and volume, profit margins and barriers to market entry and exit for supply chain participants. Similarly, details of seizure events can provide intelligence about suppliers' knowledge of drug law enforcement strategies and technologies, and the risk management strategies used by suppliers to avoid detection.

At present, these aspects of seizure events are not collected in a systematic manner in Australia; this information, therefore, cannot be used effectively for the purposes of drug market analysis and profiling. Seizure event information is used principally in a tactical sense to inform future investigations and border monitoring through the development of target profiles. Strategic intelligence is often not considered to be the realm of operational staff, or their managers, and is perceived as relevant only for senior organisational executives for policy purposes. More effective use of strategic intelligence could improve the understanding, by operational staff, of the relevance and relative effectiveness of their work tasks within the broader framework of the National Drug Strategy.

Estimating consumption

Determining the prevalence and patterns of drug use is a core component of understanding illegal drug markets. Prevalence is a measure of how many drug consumers there are in a given geographical area, a region, state or nation, and how they are distributed across the population e.g. by age, gender, location, and by patterns of drugs used (Cox, 2003).

Prevalence estimates provide a means to:

- gain a reliable view of the extent of illegal drug use in an area
- assess whether existing services and responses match the scale of problems
- direct responses to the relevant sections of the population
- evaluate the effects of interventions.

Drug users are largely a hidden population due to the illegal nature of their activity, which is why identifying their true numbers is so challenging. It is not possible to give an accurate, definitive answer to the question of how many drug users are present in a community or how much of a particular drug is consumed. Therefore, we must establish an 'estimate' that will provide us with an approximation of drug use. The usefulness of prevalence estimates is dependent on the appropriateness of the method employed and the reliability of the data sources used. Prevalence figures are described as estimates because, short of surveying every person, we can only estimate the numbers involved using 'indicators' and 'estimation methods'.

For example the term 'lifetime prevalence' refers to the proportion of the population who have used a particular drug at least once, whereas 'current prevalence' refers to those who have used a particular drug in a specific period of time such as the last year/month/week. These terms can help distinguish whether the level of use was a once-off experiment or of a more frequent nature. Prevalence figures have more meaning when they are expressed as a proportion of the population (e.g. as a percentage). It may also be useful to examine drug prevalence in particular age groups such as the 15–34 year old age group, who tend to be the most frequent users of illegal drugs.

Many experts (EMCDDA, 2002; UNODC, 2002; Topp et al, 2004) now believe that no one method will give us a true picture of an illegal drug market and several methods should be combined to get the best picture possible. This use of multiple methods is often called triangulation. The most appropriate methods to be used for estimating prevalence in a community also depend on:

- why the prevalence estimate is needed
- which population group we are interested in, i.e. men, women, young adults, adolescents, students, older people, the workforce, unemployed or all of the above
- what resources and data are available.

It is important to distinguish and define the type of drug use to be investigated:

- the type of drug used
- the means by which it is taken, i.e. the route of administration
- the frequency, quantity and context of its use.

These will help to determine the extent of problems involved and the appropriate responses required.

There are traditionally two broad categories of methods for estimating the prevalence of drug use. These are:

- indirect methods – estimating, by a range of techniques, numbers from samples of known drug users
- direct methods – enumeration (counting) of known drug users, and conducting surveys.

Indirect indicator methods

Illegal drug use is a hidden activity and some patterns of drug use, for example heroin use, are of relatively low prevalence in the general population. In the absence of reliable or practical direct

estimations for some drug use, from such sources as registers of dependent consumers or from surveys, indirect measures using indicator data from a range of sources are frequently used to estimate the prevalence of drug use and change in consumer behaviour. Drug market analysis by criminal justice agencies sometimes use indicator data from health services to gain insight into changing patterns of consumption within particular areas.[11] The particular indicators used reflect the drug market regulation priorities that evolved in Australia between the early 1970s and late 1990s. The focus of these priorities has been the heroin market and reflects the perceived and actual levels of criminal activities associated with heroin use, and particularly heroin dependence.

The purpose of using health service indicators has been less about determining the actual number of illegal drug consumers, or the subset of consumers who experience severe problems such as dependence, and more about assessing short-term change in consumer behaviour that may reflect changing levels of supply in the market. The indicators used for this purpose are usually the number of patients enrolled in methadone maintenance programs or inpatient heroin withdrawal management programs. Increased demand for treatment services is perceived to be the outcome of reduced supply and/or increasing price and declining drug purity, which may force dependent heroin users to seek treatment. However, increased treatment seeking could also indicate a larger drug market leading to more consumers needing treatment, an increase in perceived effectiveness or acceptability of health interventions, or changes in public policy, e.g. drug court diversion

Indicator data on drug-related deaths and hospitalisations are also used to provide information about changing market conditions. Increasing numbers of deaths and hospitalisations for conditions such as dependence or overdose can be interpreted as indirect evidence of an expanding market in the catchment area for the relevant health service. Some other treatment service data can, to some extent, also be used for similar purposes. For example, the number of needles and syringes distributed or the prevalence of HIV or hepatitis C (HCV) acquired through sharing injecting equipment.

The sources for this routine indicator data include State and Commonwealth government health departments and agencies such as the Australian Institute of Health and Welfare (AIHW) (McKetin & McLaren, 2004). The following are the most relevant sources of routine indicator data for profiling illegal drug markets:

- data on drug-related mortality
- data on drug-related morbidity
- drug treatment data.

Drug-related deaths in Australia are recorded in two national systems: the Australian Institute of Health and Welfare Mortality Database (AIHWMD) and the National Coroners Information System (NCIS). The AIHWMD contains data collected by the Registrars of Births, Deaths and Marriages in each state and territory and is coded using the World Health Organisation's 9th revision of the International Classification of Disease (ICD). Coroners' files from each state and territory constitute the source of data for the NCIS. These files include police investigation reports, autopsy reports, supporting forensic medical reports (such as toxicology) and coroner's findings. The database contains both coded and non-coded data.

Hospital admissions data for mental and behavioural problems caused by drug use is recorded in the AIHW maintained National Hospital Morbidity Database (NHMD) and compiled from data supplied by state and territory health authorities. These data are coded with the Australian modified 10th revision of the ICD. The data is based on principal diagnosis chiefly responsible for each occasion of care, called a 'separation' as individual patients may have multiple occasions of care resulting in discharge, transfer or death. This data reported under ICD10-AM codes F10-F19

[11] Examples of this can be found in two strategic assessments of drug markets at the local government level undertaken by the QPS – Project ARKO and Project LERNA (QPS, 1999, 2000).

includes sub-categories for acute intoxication, harmful use, dependence syndrome, withdrawal state and related mental disorders. It does not include other separations for ailments to which illegal drugs may be a contributory factor; for example, in the case of amphetamines, cerebral vascular pathology, or more broadly HIV and HCV.

There are two Australian data sets that provide information on drug treatment demand. These are the national census of 'Clients of Treatment Service Agencies' (COTSA) undertaken in 1990, 1992, 1995 and 2001 (Shand & Mattick, 2002), and the Alcohol and Other Drug Treatment Services National Minimum Data Set (AODTS-NMDS)(AIHW, 2005c), which routinely collects data on clients attending government and non-government agencies. These data, however, exclude methadone maintenance, half-way houses, sobering-up shelters and correctional institution drug programs. This data may be available from the individual agencies responsible for these services in each state and territory. Other relevant sources of data that may also be accessible from individual agencies include telephone calls to drug information and counselling call centres, and ambulance attendances.

Indirect methods of estimating drug use prevalence start with data on a sample of *problem* drug users as the observed data set, and seek by a variety of different techniques to estimate the proportion of the total problematic drug-using population that are represented by these data. From this it is then possible, with some caution, to estimate the total number of drug users in a particular market. A number of indirect methods have been developed which are discussed more fully elsewhere (Hickman, Taylor et al., 2002; UNODC, 2003b).

These indirect methods of estimating prevalence of problem drug use include:

- Capture-recapture methods
- Multiplier methods
- Multiple indicator methods.

Capture/recapture

This technique is a favoured method (Hickman et al, 2004) for estimating the number of problem drug users and the prevalence of drug use on a local level, primarily for opiate use. It is a method that was originally developed for biological sciences to estimate the size of animal populations. It is based on the principle that a proportion of a sample of a given population (drug users receiving treatment), if captured, marked and released back into that population, will reappear in a second later sample. The proportion of 'marked' members caught in the second sample represents the proportion that the original marked sample was to the total population. When this technique is applied to drug users, comparisons are made between partial sets of drug users in order to establish the number of overlaps between two or more partial populations. Capture/recapture is based on the following assumptions:

- that samples are random
- that all individuals have the same probability of being sampled
- that the time period and populations are the same in each, e.g. that all are opiate users
- that identification of individuals is accurate
- that sufficient identifying information (e.g. initials, gender and date of birth) is available to avoid double counting.

The main advantage of this method is that it is relatively cheap to use, as existing data sources may be employed. The estimates derived are only as good as the data on which they are based. For example, if the capture method is based around treatment, then prevalence estimates will exclude any population that does not access treatment services. The main disadvantage is that data is not always available or accurately recorded and it takes considerable statistical skill to develop the

estimate from the samples. The capture/recapture methods have been used in Australia to estimate the number of dependent heroin users (Larson, Stevens, & Wardlaw, 1994; Hall et al, 2000).

Multiplier method

This method involves applying a 'multiplier' to a 'benchmark' (the total of a sub-group of the drug-using population) most frequently to the total number of drug-related deaths, but can also be applied to the total number in-treatment or total number arrested from police data. The benchmark is then multiplied by an appropriate multiplier to estimate the total of the whole drug-using population. For example, if this method is applied to in-treatment data then the benchmark is the total number of drug-users who underwent treatment in a given year, and the multiplier is the in-treatment rate (proportion of total drug-users in treatment).

The formula is as follows:

T – Estimated total of problematic drug-users

B – Total number of problematic drug users arrested in a given year

c – Estimated arrest rate for drug offenders

$T = B / c$

Multiplier estimates also have been widely used for estimating drug use and have been proposed as a means of estimating prevalence in rural areas (where there are insufficient data for capture/recapture (Hartnoll et al, 1985; Frischer et al, 2001) and as an option for developing countries (UNODC, 2003b).

The difficulty with this method is, firstly, establishing the benchmark, i.e. how many specific types of drug-related arrest are made, deaths attributed to a particular drug or in-treatment cases there are each year. Secondly, the 'multiplier' needs to be validated through a longer research process for each type of benchmark in a given location to determine the relevant standardised rate. Mortality multipliers are the best known examples. This approach assumes that drug-related cause of death is accurately recorded and that drug use is associated with deaths. While this is clearly the case for heroin-related overdoses and alcohol-related death, it is far less so for ecstasy and not possible for cannabis.

Multiple indicator methods

By combining information on prevalence from one-off studies – termed 'anchor points' with indicators or predictors of drug use that are nationally available – national estimates can be produced. For example, data on needle and syringe exchange or methadone maintenance treatment may indicate the number of injecting heroin users. Regression analysis is used to identify the relationship between the chosen predictors and the measure of prevalence for the anchor points. This relationship is then used to predict prevalence nationally. The key to deriving reliable estimates of prevalence is to find consistent anchor points, i.e. one-off studies that rely on the same definition of problematic drug misuse etc (Frischer et al, 2001; Hickman et al, 2004).

Hall et al. (2000) have compared three different methodologies (back projection, capture-recapture, and multiplier) to estimate the number of dependent heroin users in Australia, identifying a number of limitations with each of these methods. While a valuable contribution to validating these research methodologies with regard to heroin dependence, these tools are not applicable to estimating the number of illegal drug consumers who do not regularly come in to contact with police, specialist drug treatment agencies or the health care system in general.

The research undertaken in the EMI study clearly identifies that capture/recapture methods, multiplier methods and multiple indicator methods of determining prevalence of drug use are of limited relevance in profiling the ecstasy market. As our findings in

the following chapter detail: there are relatively few ecstasy-related deaths given volume of consumption; few hospital or specialist drug treatment attendances; little needle and syringe exchange contact; and few arrests of drug users for whom ecstasy is the drug of choice.

Indicator data from drug treatment services is a more reliable source of information on prevalence of some drug use then for others. If people using a particular drug of choice are not experiencing any significant problems with that drug, they are unlikely to come into contact with drug treatment services. This is also true, to a lesser extent for contact with criminal justice agencies. Therefore, the underlying premise of these indirect prevalence estimation methodologies is not applicable to the ecstasy market.

Direct methods

There are two methods of making direct estimates of the prevalence of drug use. The first is to count the number of unique individuals known to have drug use problems. This method has been used where the number of such individuals in a given area is small and they can be identified through their contact with health, welfare and law enforcement agencies. In some countries, registers of drug-dependent individuals have been maintained as part of integrated treatment and law enforcement programs. By collecting data from multiple agencies within a given catchment area, gathering together information from routine statistics, surveys of agencies in contact with drug users and field work among drug users, it is possible to provide a fuller picture of the nature and extent of illicit drug use, providing the following conditions are met:

- that sufficient information on each drug-user is collected to avoid double counting. It is crucial that sufficient identifying data on each user is available to ensure that the same person is not counted in each of the sources used, so as to avoid an over-estimate of prevalence
- having limited identifying information such as initials, date of birth and gender can ensure that double counting is eliminated and thus a more accurate estimate is arrived at
- that data from as many agencies as possible are involved.

This method will tell us of those drug users who have come in contact with services or who are known to us as unique individuals through surveys. They do not tell us of the hidden population of drug users who do not come into contact with either the police or with health services, or for whom unique identifying data is not readily available. There are also considerable ethical implications for the privacy of drug users and for confidentiality in treatment service provision that limit the applicability of this prevalence estimation method.

This method of estimating prevalence of drug use has some application in defined communities where problematic, and likely dependent, drug users are identifiable. As a methodology it has little to offer an analysis of the ecstasy market and is also not likely to benefit estimates where problematic drug use is hidden and stigmatised.

The second and far more common direct method of estimating drug use prevalence is surveys of the general population, school children and special targeted populations such as regular drug users, police detainees and prisoners. Population or household surveys are often considered a gold standard for measuring prevalence and can be very effective in monitoring common drug-using behaviours such as tobacco or alcohol. However, direct methods are much less effective at measuring the prevalence of rare, more covert and more problematic forms of drug use such as injecting or heroin use (Hickman et al, 2004). Between these poles of effectiveness lies the use of such surveys to estimate the prevalence of more common and less stigmatised and hidden illegal use of drugs such as ecstasy and cannabis.

Population surveys

Population surveys are based on a representative, random sample of the population of interest. They can be used to:

- provide data on the level of licit and illicit drug use
- identify the patterns of drug use behaviours
- identify groups with a high risk for drug abuse
- monitor the trends in the use of licit and illicit drugs
- measure community awareness and knowledge about licit and illicit drugs
- measure community support towards various drug policies.

There are several ways of conducting surveys, the principal being:

- face-to-face, in an interview
- computer-assisted telephone interviews (CATI)
- on a self-completion basis.

National Drug Strategy Household Survey

In Australia, the relevant principal population survey is the National Drug Strategy Household Survey (NDSHS) that has been conducted in 1985, 1988, 1991, 1993, 1995, 1998, 2001 and 2004. The NDSHS has progressively enlarged its sample size. The 2001 sample (26,744) was two-and-a-half times larger than the 1998 sample (10,030) and around seven times larger than the 1995 and 1993 samples (3,850 and 3,500 respectively). The 2004 survey (AIHW, 2005a) sample size was 29,445, slightly more than that of the 2001 survey (AIHW, 2002a). Sample size is an important feature of how representative a survey of the population can be. The larger the sample size the more accurate the estimates produced from the survey data.

Equally important to sample size is how, when and where the survey instrument is administered. This will affect who is within the sample frame and who is excluded. It will also influence who responds to which questions and how accurately they do so. How the questions are worded and interpreted will also influence what answers are provided and how these are interpreted.

The NDSHS is conducted by the Australian Institute of Health and Welfare (AIHW) and is funded principally by the Australian Government Department of Health and Ageing and in part by the Queensland Department of Health. Market research companies such as Roy Morgan Research undertake the actual fieldwork for the survey. Fieldwork has comprised combinations of three modes of collection, face-to-face interview, drop-and-collect self-report interview and Computer-Assisted-Telephone-Interview (CATI). The information collected in this survey is confidential, and there is no way that any respondent can be identified from individual responses. The results of the NDSHS are published in three waves with the initial results (AIHW, 2005a) followed by a state and territory supplement (AIHW, 2005b). The detailed finding of the 2004 NDSHS were published in late 2005.

The design of questions can influence the survey results. There was a minor change in the wording of questions used to determine 'ever use' of illicit drugs. In 1993, 1995 and 1998, the questions were in the form 'ever tried' whereas in 2001 and 2004 the questions were in the form 'ever used'. In addition, the 1998, 2001 and 2004 surveys used comprehensive logic and edit checks to increase the reliability of estimates of ever use of drugs. This may have produced marginally higher prevalence estimates when compared with the 1995 and 1993 estimates. Any survey, no matter how well designed, will only ever provide an estimate of drug use patterns.

The prevalence and patterns of ecstasy use among Australia's general population have been measured on a triennial basis since 1991 in the NDSHS and the detailed findings of the 2004 survey is currently undergoing analysis. The 2001 survey detailed results describing the patterns, correlates and context of ecstasy use among Australia's general population have been systematically analysed by Degenhardt, Barker & Topp, (2004).

CMC QLD household survey

The Crime and Misconduct Commission (CMC) has commissioned an annual study of illicit drug use in Queensland since 2002. The study samples Queensland households and recruits 3000 respondents aged 18 and over each time the survey is fielded. The following information is collected:

- the prevalence and use of various illicit drugs including cannabis, amphetamines, ecstasy and heroin
- attitudes towards the risks involved in using illicit substances and patterns of consumption
- perceptions about the illicit drug market
- the prevalence of criminal activity.

The project's reliance on Computer-Assisted Telephone Interviewing (CATI) methods for collecting data means that a certain level of under-reporting is expected and acknowledged. The key benefit of this research program is the frequency with which the survey is fielded, its capacity to explore the drug–crime nexus and its ability to measure changes over time.

These results are discussed in detail in the following chapter. Where available the results of the 2004 NDSHS have been used in the EMI study. The detailed unit level data from this latest survey was not available for the development of the market size model presented in Chapter five and the unit level data from the 2001 survey has been used to demonstrate the potential for consumption-based estimates of ecstasy market size. A future update of the market size model using the 2004 data is planned.

> *Illicit drug users, by definition, are committing illegal acts. They are, in part, marginalised and difficult to reach. Accordingly, estimates of illicit drug use and related behaviours are likely to be underestimates of actual prevalences (AIHW, 2005a).*

Limitations of population surveys

While surveys can yield valuable information, they have limitations:

- They focus on the individual and provide little insight into the social context of drug use.
- They depend on honest responses about the participant's drug use.
- Not all the population may be included.
- Responses vary depending on the way surveys are conducted.
- Large-scale surveys are expensive to administer, conduct and analyse.

Sample bias – refers to consciously or unconsciously excluding some people from the sample frame. In population surveys a private household approach, such as that taken by the NDSHS, is used to contact potential participants. Whilst an efficient research process, this approach consciously excludes people who are homeless, live in non-private dwellings (hotels, motels, boardinghouses, etc.), and institutional settings such as hospitals, nursing homes, other clinical settings such as drug and alcohol rehabilitation centres, prisons, military establishments and university halls of residence.

The method of contacting people may also exclude some participants. For example, if contact with participants was established by landline telephone, those without a telephone or those using only a mobile telephone would be excluded. Similarly if the time of contacting householders was usually in the early evening, this may exclude those working in industries such as hospitality, entertainment or shift workers in a range of industries.

Response bias – refers to where some individuals may respond to some questions less frequently than other individuals, and some individuals may under or over report their drug use behaviours. For example, some participants may be reluctant to admit illegal drug use to interviewers they perceive 'middle aged and middle class', and thus judgmental. If a survey is framed as a crime survey rather than a health survey, this may again influence participant's responses. This under-reporting may be counterbalanced to a small extent by exaggeration or false claims of drug use as a form of rebellion or as disaffection with the survey process. This may be more common with school student surveys in particular.

In addition, non-response may not be random, with some non-responders such as young urban men less likely to participate in research, yet more likely to use drugs than those responding to the survey. Memory recall may also affect estimates. The level and accuracy of self report is also a reflection of cultural context of drug use, i.e. where illicit drug users feel more mariginalised (shamed, socially excluded) or threatened (fear of legal penalties, especially imprisonment) they are more likely to under report, or deny, their drug use. This may account for some variation in prevalence between different countries, or even different states, where legal sanctions are more, or less, strict.

Validity strategies – Population surveys such as the NDSHS have in place a range of strategies to minimise these aspects of sampling and response bias. Over-sampling of smaller population states is used to enhance statistical validity. Other surveys such as the British Crime Survey over-sample young men because of their acknowledged under-response rate and higher prevalence of drug use. Ensuring more effective sampling can also be achieved by multiple contact strategies and rigorous follow-up of non-response. Such strategies are used in the NDSHS.

Re-weighting data is a statistical technique that can also be extended to correct for under-representation of sub-groups whose drug use is greater than average, where there are more reliable information available on the extent of under-reporting. In essence this involves substituting preferred estimates for these sub-groups to replace unreliable survey estimates. This re-weighting is based on the assumption, perhaps only half true, that members of the under-represented sub-groups who were 'captured' in the survey are no different from those who were not. Other surveys apply weightings to correct for under-estimation in a general survey for those in prison or in treatment.

It is well established (EMCDDA, 2002; Hickman et al, 2002; UNODC, 2002a) that general population surveys by themselves have significant limitations in providing accurate estimates of more problematic drug use, particularly injecting and for dependent heroin and cocaine use. The drug-dependent, who will be significant consumers of drugs in any market, are likely to fall outside the household sampling frame for a range of reasons. This implies that such surveys are more likely to include occasional drug users and to some extent heavy users of drugs, such as cannabis or ecstasy, that are less associated with the severe problems of heavy heroin or crack-cocaine use. Certainly heavy users of these less problematic drugs may be less likely to participate (through either unavailability or aversion to the survey process) than more occasional users. However the degree of social acceptance, and non-acceptance, also influence response rates by survey participants on illegal drug use.

In the cultural context of Australia, where cannabis and ecstasy use do not carry the same social stigma as heroin or methamphetamine injecting, household surveys are more likely to be the best available tools for determining the number of ecstasy consumers and their demographic characteristics. Further surveying of known ecstasy users will provide the detail of patterns of use, ecstasy-related problems, and the social context of illicit market behaviours.

Household population surveys such as the NDSHS set the baseline for the prevalence of use and the characteristics of ecstasy consumers. This survey is the key tool in measuring consumption in Australian drug markets. Expanding the sample size, particularly among young men would enhance the value of this tool in drug market analysis. Further research on non-respondents may also assist in estimating the extent of underestimation in this survey.

School student surveys

As well as general population household surveys, population surveys of random samples of specific age groups are also undertaken to improve our knowledge of the patterns of drug use. These usually focus on school children. Many countries (Hibell & Andersson, 2002; Johnston, O'Malley & Bachman, 2002; UNODC, 2002b) carry out surveys focusing on drug use among young people for the following reasons:

- Administration of school-based surveys is relatively easy.
- Representative samples are easy to achieve.
- Repeated surveys of different age groups can describe trends in drug use.
- Indications of future levels of use may be provided by such surveys.
- Drug use is most prevalent amongst younger age groups (approximately 15–25 years).

In Australia, these drug use surveys have traditionally been undertaken using a range of methods and questionnaires at a state level; however, some studies only have an alcohol and tobacco focus. These include the triennial survey series which began in 1984 and involved the collaboration of State Cancer Councils, State Health Departments and the Commonwealth Department of Health and Aged Care (for example, Hill et al, 1987; Hill et al, 1993). To ensure more comparable data and an extension to cover illicit drugs and inhalants, these surveys were replaced by the national Australian Secondary Student Alcohol and Drug (ASSAD) survey. Conducted in 1996 (Letcher & White, 1999), 1999 (White, 2001) and 2002 (White & Hayman, 2004), these surveys have randomly sampled between twenty and thirty thousand Year 7 to Year 12 students from 300 to 400 schools on each occasion.

While some of the same limitations apply to school aged drug surveys as do those administered to the general population, and students may exaggerate or inflate their knowledge and/or use of drugs, the relative validity of prevalence estimation in these surveys are equivalent to, but not exactly the same as, those provided for the same age groups in the NDSHS over the same period.

> *Secondary school student surveys provide useful information on drug market entry and forewarning of changing drug choices among adolescents. The prevalence of illegal drug use, with the exception of cannabis, remains relatively low (White & Hayman, 2004).*

Surveys of special populations and of known drug users

General population household surveys are often criticised for measuring only recreational or occasional drug use and for missing problematic drug users who may be the most significant in terms of consumption. To counter this, some surveys are targeted at particular groups of drug users (e.g. arrestees, prisoners or drug treatment populations) and some other surveys target regular drug users to provide early warning systems of change in drug markets, by annually reporting on sentinel populations.

Australian studies of ecstasy users have been among the most timely and detailed examinations of ecstasy use in the world (Solowij, Hall & Lee, 1992; Topp et al, 1999; Degenhardt, Barker & Topp,

2004). These surveys have relied on purposive sampling, recruiting participants from locations where ecstasy use is likely to occur, or from sources where a large number of ecstasy users are likely to be drawn. Participants for ecstasy studies have been recruited directly via rave and dance parties, night clubs, from sources such as the street press and advertising targeted towards those attending these venues and sources relevant to specific populations such as men who have sex with men. Examples of these studies are discussed in more detail below.

Regular ecstasy consumers

The EDRS is a national study, coordinated by the National Drug and Alcohol Research Centre (NDARC)[12], which monitors ecstasy and related drugs (ERD) markets in Australia. ERD cover a range of drugs including ecstasy, methamphetamine, cocaine, GHB (gamma-hydroxybutyrate) and ketamine. In 2000–2001 a trial of the EDRS was conducted in NSW, QLD and SA to assess the feasibility of monitoring ERD markets. Based on the success of this trial, in 2003 the EDRS was expanded to monitor ERD markets in every state and territory across Australia. National EDRS reports are published each year (Breen et al, 2004; Stafford et al, 2005a) and each state also prepares a report for local distribution. The most recent report discussing ERD markets in Queensland was published early in 2005 (Fischer & Kinner, 2005).

The EDRS uses a methodology similar to the Illicit Drug Reporting System (IDRS) described below. Regular ecstasy users (those using at least monthly in the previous 6 months) are interviewed to provide information on patterns of ERD use, the current availability, price and purity of ERD and perceived drug-related health issues associated with ERD use. A semi-structured survey of experts in the field of ERD (e.g. party promoters, treatment providers, law enforcement personnel) is also conducted and indicator data (e.g. purity of drug seizures and overdose rates) is analysed. These data sources are examined together to identify convergent trends in ERDs use and markets.

While the EDRS provides valuable information on price, purity and availability, it addresses other aspects of the supply-side of the market and consumer transactions with suppliers in a limited fashion. For the EMI study, the 2004 Queensland PDI was expanded from the usual 100 participants recruited mainly in Brisbane, to 230 participants recruited in Cairns (n=49), the Gold Coast (n=77) as well as in Brisbane (n=104). An addendum of 99 questions was appended to the EDRS interview questionnaire. These questions addressed a range of market issues in more detail than is normally covered by the EDRS. This survey addendum is included as Appendix B of this report.

The EMI study also recruited people with extensive knowledge of the supply-side of the Queensland market from this sample of regular ecstasy consumers to participate in further qualitative interviews. These consumers were asked about broader market issues and, in some cases, provided access to a number of for-profit ecstasy suppliers who also participated in interviews. Details of these methods are provided below.

The EDRS is a key tool in monitoring the Australian ecstasy market. It provides valid, timely intelligence about ecstasy market trends and the market behaviour of regular ecstasy consumers; this information is not currently available from any other source in Australia. The experience of the EMI study suggests that the coverage of a number of supply-side issues in the PDI could be improved and that this would increase the value of this important tool for Australian law enforcement agencies.

[12] For more detail about the EDRS, see the NDARC website at http://ndarc.med.unsw.edu.au/ndarc.nsf/website/IDRS.erds

Regular injecting drug users

The Illicit Drug Reporting System (IDRS)[13] is Australia's national illicit drug monitoring system, with surveys of regular injecting drug users conducted each year in every state and territory by participating research institutions throughout the country. The project is coordinated by the National Drug and Alcohol Research Centre (NDARC). The IDRS monitors the price, purity, availability and patterns of use of the main illegal drugs, as well as acting as an early warning system for emerging trends in illicit drug markets, through a triangulation of three data sources:

- a quantitative survey of injecting drug users (IDU), who act as a sentinel group for the detection of emerging trends in illicit drug use
- a qualitative survey of key experts (KE) who work in the field of illicit drugs
- a synthesis of extant indicator data sources such as Customs data, seizure purity data, arrest data and so on.

The IDRS commenced as a trial of the methodology in NSW in 1996 (Hando et al, 1998). After the successful piloting of the methodology, it was expanded to three states (NSW, VIC and SA) in 1997, and continued in these three states in 1998. In 1999, a truncated version consisting of two methodological components (the survey of KE and the synthesis of indicator data) was expanded to the remaining jurisdictions, while NSW, VIC and SA continued the complete methodology, including the IDU survey. In October 2000, the IDU survey was extended to the five jurisdictions that did not implement this component in 1999, (QLD, the ACT, the NT, TAS and WA) and the KE survey and the synthesis of indicator data were also undertaken in these jurisdictions, to enable the full IDRS to be conducted for the first time in every jurisdiction.

Nationally, for the first time in 2000, comparable data on drug purchase prices, drug use patterns, availability, health, criminality, and policing were obtained from 910 IDU in 2000, 961 in 2001, 929 in 2002, 970 in 2003 and 948 in 2004. The benefits of collecting standardised, comparable data from IDU in every jurisdiction over time has been demonstrated by the IDRS in the past few years (Breen et al, 2004; Stafford et al., 2005b).

The IDRS contributed valuable data on patterns of drug use over time during a period of decreased availability of heroin in Australia in 2001/02. The IDRS has also provided information on the different forms of methamphetamine being used across the country and has shown the recent increase in the availability and use of crystalline methamphetamine (ice). The IDRS has also provided valuable information on the misuse of prescription drugs including benzodiazepines, morphine, methadone and buprenorphine. In particular, investigation into the injection of Temazepam capsules contributed to the evidence base supporting the removal of this drug from the pharmaceuticals market.

The IDRS is a valuable tool in drug market monitoring in Australia. While ecstasy is rarely the drug of choice for regular injecting drug users, the IDRS does provide insight into overlapping drug markets in which ecstasy is one of a range of illegal drugs used in patterns of increasing poly-drug use.

Regular amphetamine users in Queensland

The Amphetamines in Queensland (AIQ) research project was undertaken in 2002 in response to growing concerns of law enforcement and health agencies about the increased use of amphetamines in Queensland. This study is an example of research that is not intended as an ongoing monitoring system, but rather a more detailed investigation that may be replicated on a periodic basis. The project used a peer research model to collect information on the views and

[13] For more detail about the IDRS see the NDARC website at http://ndarc.med.unsw.edu.au/ndarc.nsf/website/IDRS

experiences of amphetamine users in Queensland. Peer researchers interviewed 690 respondents at 17 sites in both rural and urban areas throughout Queensland users (Lynch et al, 2003).

A modified social network recruitment strategy was used by the peer researchers to maximise representativeness of the sample and limit bias caused by sampling from primarily treatment or custodial populations. The use of peer researchers also reduced response bias that is a common feature of surveys among regular illegal drug users. Experience of ecstasy was common among this population, but there were substantial differences in participant characteristics compared with the population of regular ecstasy users sampled by the EDRS.

Police detainees

The Drug Use Monitoring in Australia (DUMA)[14] program is a quarterly collection of information from police detainees in seven sites (police stations or watchhouses) across Australia (Makkai & McGregor, 2003; Milner, Mouzos & Makkai, 2004; Schulte, Mouzos & Makkai, 2005). The DUMA program was established in 1999. There are two parts to the information collected: a questionnaire, which is conducted by a trained interviewer, and a urine sample that is tested for six different classes of drugs. Information collected from the questionnaire includes basic demographic data, drug use history, drug market information, treatment history and information on prior contact with the criminal justice system.

DUMA enables self-reported information on recent drug use to be cross validated with the results of urinalysis testing. Urinalysis testing has been identified as a major strength of the program, as it shows objectively whether selected drugs had been consumed by the detainees within a specified period and allows for comparisons across time (Makkai, 1999). DUMA is not a representative sample of police detainees, rather a frequent and detailed census.

The initial three years of the DUMA program, from 1999 to 2001, were a pilot study at the four original sites of Southport Watchhouse (Gold Coast, Queensland), Perth Watchhouse (Western Australia), and Bankstown and Parramatta Police Stations (Sydney, New South Wales). DUMA was extended on these original sites along with the addition of three more sites at the Brisbane City Watchhouse (Brisbane, Queensland), Elizabeth Police Station Cells and Adelaide City Watchhouse (Adelaide, South Australia). The seven DUMA sites represent a range of different community configurations: two sites represent the conurbation of a major state capital city; three cover a metropolitan city area; one the outer suburbs of a major state capital; and the last covers a major tourist and retirement destination.

DUMA is a highly valuable component of the drug market monitoring system in Australia. The ability to validate self-reported drug use with urinalysis and the quarterly reporting cycle are important aspects of the program. Results to date, however, indicate a relatively low prevalence of recent ecstasy use among detainees.

An important limitation with targeted surveys of special interest groups is to acknowledge that the sample is not representative of all drug users and may not be representative of the targeted population. The sample size of such surveys is often much smaller than for general population samples. The confidence we can have in responses that are few in number is, therefore, much less than in surveys with larger samples. Issues of response bias are also amplified in smaller samples.

[14] More detail of the DUMA program can be found at the Australian Institute of Criminology website www.aic.gov.au/research/duma

EMI project methodology

As the above discussion has illustrated, there is a wide range of tools available for monitoring illegal drug markets. Decisions regarding which tools to employ, and how to combine the information from these tools, depend on a number of factors including the particular market being studied, the geographical location(s) of the market in question, and the goal or purpose of the market monitoring exercise. One purpose of the EMI study was to provide law enforcement with an improved understanding of the ecstasy market in Queensland. Accordingly, and in recognition of the strengths and limitations of the market monitoring tools discussed above, the EMI project collated data from three domains:

1. a quantitative survey with ecstasy consumers
2. collation of existing (quantitative and qualitative) indicator data from health and law enforcement agencies
3. qualitative interviews with individuals participating in the Queensland ecstasy market, this includes (a) consumers, (b) suppliers and (c) market regulators from health and law enforcement agencies.

1. Quantitative consumer survey

Two hundred and thirty regular ecstasy consumers in Brisbane (n=104), the Gold Coast (n=77) and Cairns (n=49) participated in a quantitative survey regarding their drug use, risk-taking behaviours and understanding of the ecstasy market. The survey built on the existing PDI methodology and survey instrument and expanded the EDRS in three ways:

1. In addition to the regular EDRS survey instrument, participants completed an EMI addendum questionnaire designed to explore market-related issues, such as entry to market, supply activities and product substitution (see Appendix B).
2. In order to better understand regional differences in the ecstasy market, the geographical location for the survey was expanded from south-east Queensland to include Cairns (an identified centre for recreational drug use in far north Queensland).
3. In order to increase the reliability of findings, the sample size was increased from 100 to 230.

2. Quantitative and qualitative indicator data

Existing data sets from health and law enforcement agencies were identified, obtained and analysed. In addition to the data sets usually accessed for the IDRS and PDI projects, a number of additional data sets were included. Furthermore, whenever possible, original data were obtained and analysed, rather than relying on published summary data. Both the process of identifying and accessing relevant data sets, and comparison of published data with that provided for the EMI study, highlighted some limitations in the form and content of published indicator data. Indicator data sources used in the EMI study are listed in Appendix C.

McKetin and McLaren (2004) have also reviewed routine data resources for methamphetamine in Australia, many of which are also relevant to the ecstasy market. NDARC has a National Illicit Drug Indicators Project[15] underway to identify and monitor all indicator data sources relevant to illegal drug market analysis. An exhaustive examination of all relevant national and Victorian health and criminal justice databases has also been undertaken by the Victorian Department of Human Services in a study of the involvement of ethnic communities in Victoria with illegal drugs (DHS, 2000).

3. Qualitative interviews

Data from the quantitative EMI consumer survey and indicator data provided the framework for our understanding of the Queensland ecstasy market, however, qualitative data provided a greater and more detailed understanding of the market, within this framework. Qualitative interviews were conducted with ecstasy consumers (identified either through snowballing or as

[15] http://notes.med.unsw.edu.au/ndarc.nsf/website/Reserach.current.cp34

EMI quantitative survey participants), ecstasy suppliers (again, recruited from the EMI survey or through snowballing) and regulators of the ecstasy market. For the purposes of the EMI study, regulators were defined as individuals whose participation in the ecstasy market was primarily for the purposes of supply reduction (e.g. law enforcement officer), demand reduction (e.g. health worker) or harm reduction (e.g. outreach worker), rather than ecstasy consumption or supply. With the consent of participants, all qualitative interviews were electronically recorded and later transcribed verbatim. Particular themes based on the key research questions of the project were explored during the in-depth interviews with respondents. After data collection was finalised, the transcribed interviews were inductively analysed in order to identify any recurring patterns or common themes in relation to the key research questions. This process provided a description of the nature of the ecstasy market as understood by consumers, suppliers and market regulators.

Information from these complementary sources was combined or 'triangulated' in an approach that has proven effective in studying illicit drug markets throughout Australia (Topp et al, 2004). A key advantage of this triangulation methodology is that both consistency and inconsistency across data sources can be identified, and the reliability and validity of conclusions thereby maximised.

Multiple tools for different market issues

The use of multiple, converging methods is well established in drug market research (Shand et al., 2003). The mix of methodological tools can be adapted to the circumstance of the population or market issue under investigation. In order to develop and maintain a profile of an illegal drug markets the following blend of analytical tools is optimal:

- Consumers – surveys (incorporating both quantative and qualitative methods), ethnographic fieldwork, interviews with key experts and market observers, review of routine indicator data collected by organisations regulating marketed outcomes.
- Suppliers – surveys are usually not possible given limited numbers of potential participants and difficulties with accessing them. In attempting to access and understand supplier market behaviour, there is particular value in ethnographic fieldwork, although this is both labour intensive, costly and potentially risky. Qualitative interviews with active suppliers and past suppliers (either retired or imprisoned) arguably provide the best balance between data integrity and efficiency. Interviews with key experts from law enforcement agencies and other market observers can also assist in understanding the supply chain. Finally, indicator data such as aggregated seizures data are essential to understand product distribution.
- Regulators – interviewing key experts and market observers (e.g. in health and law enforcement agencies), reviewing routine indicator data collected by organisations regulating market outcomes (e.g. arrests, seizures, deaths, hospitalisations and treatment episodes), and reviewing documentation on policy, procedures and strategic market intelligence are the key information sources.

Research into illegal drug markets involves methodologies developed by a range of professional disciplines including criminology, psychology, epidemiology, economics and the study of public policy making. The techniques adopted by each discipline have limitations. The challenge for policing agencies in containing drug markets and limiting the extent of drug-related harm is to develop a market profiling process based on both open source information and intelligence from operational activities. With regard to the ecstasy market, perhaps the greatest challenge is in identifying the available sources of information, knowing how to access and interpret them, and recognising their inherent limitations.

The following chapters of the EMI report describe in detail the application of these multiple methods to analysis of the Queensland ecstasy market within its broader national and international context.

Chapter two: The demand for ecstasy

Summary

The UNODC reports that Australia has some of the highest levels of ecstasy use in the world. The AIHW estimates that approximately 1.2 million Australians aged 14 years or over had tried ecstasy and over 550,000 people had used ecstasy within the last 12 months in 2004.

- Both the lifetime and annual prevalence of ecstasy use has increased in the last 10 years. The NDSHS shows that the proportion of Australians reporting lifetime use of ecstasy grew from 3.1% in 1993 to 7.5% in 2004. Recent ecstasy use is less prevalent in Queensland compared to some other Australian states, however, recent use in Queensland doubled from 1.7% in 2001 to equal the national average of 3.4% of Australians in 2004.

- Patterns of ecstasy use are associated with various demographic factors including age and gender. Ecstasy use is concentrated in the younger age demographic and males are more likely than females to use ecstasy. The average age of initiation to ecstasy use is generally older than the average age of onset to a range of other illegal drugs (including cannabis, amphetamines and heroin). A recent study of drug use among emergency department attendees found that the average age of onset for females (19.9 years) is younger than the average age of initiation for males (21.9 years).

- The EMI study showed that regular ecstasy consumers are likely to consume ecstasy on a weekly basis and that a median of two tablets is consumed in a session of use. This study also found that experimentation, fun and opportunity are among the most frequently endorsed reasons for why ecstasy is first consumed. The most common location for first obtaining ecstasy is a friend's home, while the most common place of first use is a nightclub or pub.

- The EMI study found that regular ecstasy consumers generally expect to be using ecstasy in one year's time, but only one in five expect to be using in ten years time. Ecstasy consumers tend to be young, white, well educated and middle class. Furthermore, ecstasy consumers are less likely to be involved in criminal activity (other than illegal drug possession) or contact the drug treatment system than are other types of illicit drug users, although they are more likely to be involved with crime than the general population.

- Ecstasy is consumed in a range of locations including nightclubs/raves, private parties, friends' homes and consumers' homes. The practice of consuming ecstasy in a private location and then moving on to a public location to experience its effects is also common.

- Key benefits of ecstasy use identified by EMI participants included enhanced closeness/bonding/empathy, enhanced communication/talkativeness/sociability and enhanced mood. The main perceived risks associated with ecstasy use as reported by EMI respondents were depression, dependence and damage to brain functioning.

- There is increasing evidence to suggest the normalisation of ecstasy. EMI participants suggested that the seemingly innocuous mode of consumption (ecstasy is generally swallowed) has contributed significantly to the normalisation of this drug.

- Ecstasy use is generally planned and managed by most consumers. Consumers often plan their consumption to coincide with particular events and so that its effects are experienced at particular times. Various strategies are also implemented to deal with the negative effects of ecstasy including eating healthily before consuming, consuming in a supportive context and researching its effects before using.

- The consumption of ecstasy generally occurs in a context of poly-drug use. Regular ecstasy consumers surveyed in the EMI study reported the use of a range of illicit substances and often combined various substances in order to enhance or manage the ecstasy experience. The most common substances used in conjunction with ecstasy are alcohol, tobacco and cannabis.

Introduction

This chapter brings together a range of data sources to explore indicators and issues of demand relating to ecstasy use in Queensland. The chapter commences by establishing the prevalence of ecstasy use on a global and national level, in order to provide a context in which to position and interpret the prevalence and patterns of ecstasy use found in Queensland. A profile of Queensland ecstasy consumers is then provided by triangulation of quantitative and qualitative data collected in the EMI study. These data are also used to explore the social context in which ecstasy is consumed and the social meanings attached to ecstasy use. This discussion is followed by a section on the perceived positive and negative effects of ecstasy, which makes reference to issues of dependency and the drug–crime nexus. The consumption rituals associated with ecstasy use are then explored, before the normalisation of ecstasy and the strategies used by consumers to manage the use of ecstasy are considered. The chapter closes with a discussion about the implications of poly-drug use in understanding ecstasy consumption.

Defining demand

In economic terms demand is the quantity of a good or service that people want to buy. The demand function relates demand to the factors determining it. These include consumers' incomes, the product price, and the prices of competing products and of other products in general; factors affecting the demand of individuals, for example their social circumstances and personal preferences; and factors affecting demand at particular times, for example day of the week or time of the year. Demand interacts with supply to shape the contours of the market at a given time and to influence market trends. Without an understanding of demand, effective market analysis is not possible.

In open commercial markets indicators of demand are often measured by change in stock turnover rates and inventories held, lag time to delivery, the volume of sales at specific times of the day, week or year, as well as the overall amount of product consumed. In illicit, or black, markets – that is, markets for commodities that governments ration, prohibit or otherwise restrict normal functioning of (usually through price control or heavy taxation) such indicators are not readily available. The best available measures of demand in illegal markets are surveys of consumption patterns and consumer behaviour, and changing trends in consumption and price over time.

The latter, which is discussed further in the supply and market regulation chapters of this report, can indicate whether demand for a particular commodity is growing or diminishing and at what rate. More broadly, analysis of demand can shed light on the market opportunities suppliers may perceive and the potential for profitable transactions available to them in increasingly global markets. Such intelligence also provides market regulators with information to assist decision-making about where, when and with what level of intensity, to intervene to restrict market activity.

Prevalence of use

The following section provides information on the prevalence of ecstasy use at the global, Australian and Queensland market levels. The decision to present data at these three levels reflects the way in which local illegal drug markets are interconnected to broader market contexts. The results from a range of general and specific population studies that measure the prevalence of illegal drug use are offered as an indicator of demand for ecstasy. The findings of these studies show that the likelihood of using ecstasy can vary due to multiple factors including population sampled, gender and age.

Global population ecstasy use

The United Nations Office of Drugs and Crime (UNODC) estimates that more than 8 million people, or approximately 0.2% of the global population aged between 15 and 64 years, had consumed ecstasy within the last 12 months (UNODC, 2004a). More than a third of global consumption is concentrated in Europe and more than 40% in North America, a result of strong growth rates in the late 1990s. North America, Western Europe and Oceania together account for some 80% of global ecstasy use. Consumption rates significantly above the global average are reported from countries in Oceania (mainly Australia), Western Europe and North America.

Table 2-1. Annual prevalence estimate of ecstasy consumption by region, 2001–2003.

	Number of people (in millions)	% of population age 15-64
OCEANIA	0.54	2.23
EUROPE	3.02	0.56
- West Europe	2.45	0.80
- East Europe	0.57	0.24
AMERICAS	4.00	0.75
- North America	3.56	1.28
- South America	0.45	0.17
AFRICA	0.11	0.02
ASIA	0.59	0.02
GLOBAL	8.26	0.21

Abuse above global average

Abuse below global average

Sources: UNODC, Annual Reports Questionnaire data, various Govt. reports, reports of regional bodies, UNODC estimates

The UNODC has monitored the rapid increase in consumption of ATS, including ecstasy, over the last five years. Annual prevalence (use within the past 12 months) differs significantly from one country to another, as well as for different population groups. These differing levels of regional and national demand reflect both the state of local markets, and different data collection methods, contributing to the disparity in findings. There does, however, appear to have been a clear market expansion over the past few years, with consumption of ecstasy continuing to increase, particularly in Central and Eastern Europe, Australia and some countries in Asia. This has occurred despite a trend towards stabilization, and in some cases decline, among youth in established European and North American markets.

In Europe demand for ecstasy has clearly stabilised after two decades of rapid growth. Surveys of the general population and school children in both the Netherlands and the UK show a levelling off of consumption and in some cases, for the first time, declines in ecstasy use. In the United Kingdom, comparison of the 2001/2002 and 2002/2003 British Crime Surveys (Aust, Sharp & Goulden, 2002) revealed that among young people 16 to 24 years, "For last month use, ecstasy was the only drug that showed differences in levels of use, with a fall in reported use between the last two sweeps" (Condon & Smith, 2003). The rate of this decline has, however, lessened in the most recent 2003/2004 British Crime Survey (Chivite-Matthews et al, 2005). In some communities in Western Europe research has identified a shift from ecstasy to powder cocaine among nightclub goers in recent years (Gruppo Abele, 2003), however the broader population picture in Europe is a return to binge alcohol drinking (Measham, 2004a). The stabilisation or decrease in consumer use of ecstasy in these regions has important implications for manufacturers and distributors seeking to expand their markets. A saturated European market means that new markets are likely to be sought in other countries. This is significant for Australia given the high demand and established culture of ecstasy use that exists in this country.

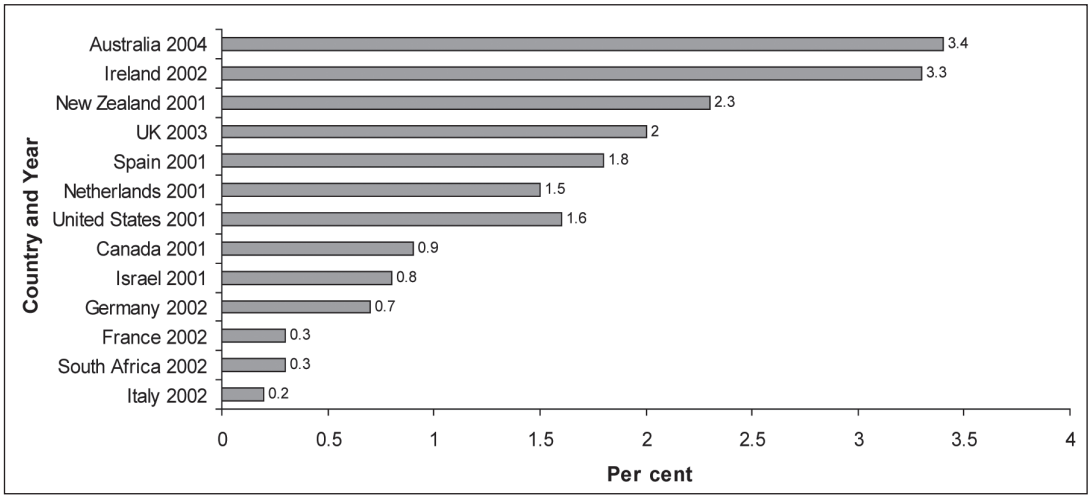
Figure 2-1 presents the annual prevalence of ecstasy use for selected countries based on the most recent data available from a range of UNODC sources (UNODC, 2003a, 2003c, 2004a). Highest levels of ecstasy use are found in Australia (3.4% of the population age 15–64 reported recent use in 2004), followed by Ireland (3.3% of the population age 18 and above in 2002) and New Zealand (2.3% of the population age 15–64 in 2001). Estimates are also provided for the UK (2% of the population age 16–59 in 2003), Spain (1.8% of the population age 15–64 in 2001), the province of Ontario in Canada (1.5% of the population age 18 and above in 2000), the US (1.6% of the population aged 12 and above, equivalent to 1.3% of the population age 15–64) and the Netherlands (1.5% of the population age 15–64 in 2001).

It should be noted that the methods used to collect data for UNODC reports vary from region to region and are, therefore, not always comparable. Survey data is also not always available for the same year for all countries. Variation in the age range of general population samples and in sample sizes and selection also impact on the stability of these estimates. These limitations are discussion in detail by the UNODC 2003c, pp. 346–347). This data should always be treated with caution and considered only as broadly indicative of national difference in drug use prevalence.

It should be noted that the higher estimated levels of ecstasy use in Australia compared to other countries is likely to be the result of:

- a lower level of under-reporting of drug use in Australia compared with other countries;
- more comprehensive data collection in Australia; and
- significant variation in study design and methodological differences between reporting countries (UNODC, 2004b, pp. 412–3).

Figure 2-1: Annual prevalence of ecstasy use in selected countries



Note: some population ranges are 15–59 or 15–64 years rather than 15 years and above.

Sources: UNODC Annual Reports Questionnaire Data; Government Reports, US Department of State, EMCDDA; UNODC estimates.

Most recent data used (UNODC 2003a; 2003c, 2004a, NDSHS 2005).

General population use of ecstasy in Australia

The prevalence of illegal drug use in Australia is measured at the state and national level by the National Drug Strategy Household Survey (NDSHS), which is managed by the Australian Institute of Health and Welfare (AIHW). The most recent NDSHS shows that that the gap between the prevalence of ecstasy and meth/amphetamine use is closing. Although a greater proportion of respondents indicated lifetime use of amphetamine use (9.1%) than ecstasy use (7.5%), similar proportions of respondents reported the use of ecstasy and meth/amphetamine in the last 12 months (see Table 2-2). In 2004 the NDSHS reported, for the first time, that recent use of ecstasy was slightly higher (3.4%) than recent use of amphetamines (3.2%). The survey also showed that cannabis is by far the most common illegal substance used, with 33.6% of those surveyed reporting lifetime use and 11.3% reporting recent use.[1] The proportion of respondents reporting lifetime use of hallucinogens and ecstasy was similar (7.5%), but comparatively few (0.7%) indicated recent use of hallucinogens. The illegal substances used by the smallest proportions of the general population are GHB, steroids and morphine, with less than 1% of those surveyed indicating that they had ever used these substances.

[1] Unless indicated otherwise, recent use is defined as used in the last 12 months.

Table 2-2. Summary of illicit drug use (ever and recent[a]): proportion of the population aged 14 years and over, Australia, 2004.

Drug/behaviour	Ever use	Recent use[a]
Marijuana/cannabis	33.6	11.3
Meth/amphetamine (speed)[b]	9.1	3.2
Ecstasy[c]	7.5	3.4
Hallucinogens	7.5	0.7
Painkillers/analgesics[b]	5.5	3.1
Cocaine	4.7	1.0
Tranquillisers/sleeping pills	2.8	1.0
Inhalants	2.5	0.4
Injected drugs	1.9	0.4
Heroin	1.4	0.2
Other opiates/opioids	1.4	0.2
Barbiturates[b]	1.1	0.2
Ketamine	1.0	0.3
GHB	0.5	0.1
Steroids[b]	0.3	-
Methadone[d]	0.3	0.1
None of the above	7.9	13.7
Any Illicit	38.1	15.3

[a] Used in the last 12 months

[b] Used for non-medical purposes

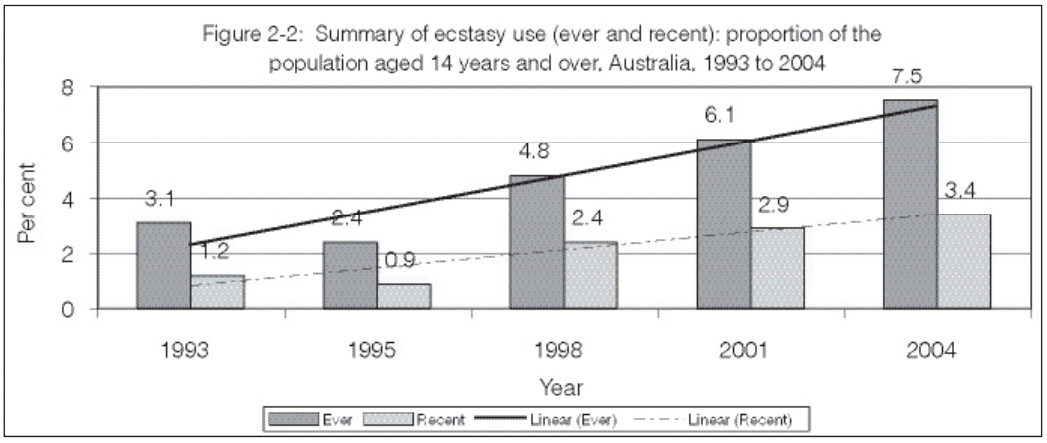
[c] This category included designer drugs prior to 2004

[d] Non-maintenance

Source: AIHW, 2005a

The results of the NDSHS also indicate that ecstasy use has become increasingly common within the general population over the past 10 years. Figure 2-2 shows that the proportion of respondents reporting that they have ever used ecstasy grew from 3.1% in 1993 to 7.5% in 2004, while the proportion of respondents stating that they had used ecstasy in the last 12 months increased from 1.2% in 1991 to 3.4% in 2004.

Figure 2-2: Summary of ecstasy[a] use (ever[b] and recent[c]): proportion of the population aged 14 years and over, Australia, 1993 to 2004



[a] This category included designer drugs prior to 2004.

[b] Ever used defined as 'tried at least once in lifetime' in 1993, 1995, 1998 survey and 'used at least once in lifetime' in 2001 and 2004.

[c] Used in the last 12 months.

Source: AIHW (2005a) The 2004 National Drug Strategy Household Survey, pp 3-4.

The prevalence of ecstasy use in Australia varies across jurisdictions. The 2004 NDSHS (AIHW, 2005b) found that recent ecstasy use was most prevalent in the ACT (6.0% and 4.8% in 2001) and WA (4.1% and 4.0% in 2001), which is considerably higher than that found in Queensland (3.4% and 1.7% in 2001). Relatively high levels of recent ecstasy consumption were also reported in NSW (3.5% and 3.4% in 2001) and Victoria (3.1% and 3.0% in 2001). Annual prevalence also increased in Tasmania from 0.8% in 2001 to 1.6% in 2004 and in the Northern Territory from 2.8% to 3.7% in the same period (AIHW 2002, 2005b). The different levels of ecstasy use found across jurisdictions may be explained in part by availability of ecstasy in these different states. An increase of ecstasy use is clearly evident in all jurisdictions, but most apparent in Queensland.

Table 2-3 shows gender and age-related differences in the prevalence of ecstasy use, from the 2004 NDSHS (AIHW 2005b). Males (9.1%) are more likely than females (6.0%) to report ever using ecstasy; similarly males (4.4%) are more likely than females (2.4%) to report recent ecstasy use. Ecstasy use is most prevalent among those aged between 20 and 29 years and least prevalent among those aged 40 or more. The relationship between age, gender and the prevalence of ecstasy use indicates that young men aged between 20 and 29 years are the group most likely to report ecstasy use. However, women aged between 14 and 19 years are more likely to use ecstasy than are men of a similar age.

The decreasing prevalence of recent use in older age groups can, in part, be explained by the trajectory often associated with its use. As consumers become older they become less likely to use ecstasy, and/or they begin to use less frequently. One EMI study participant commented:

> *I have been doing this [using ecstasy] for a while. A lot of those who I used to knock about with – they are not doing it [taking ecstasy] any more. At some time between the ages of 18 and 23 – they burnt out … We were all doing the same thing … but then they just dropped off. [Dealer/Male/Brisbane]*

Many ecstasy consumers cease and limit their use when they reach particular points in their life course. Some of the life events that can affect the frequency of ecstasy use include marriage, career advancement, or as the following quote illustrates, starting a family.

> *I haven't been out with him since he had a kid about a year ago. I've rung him going, 'Mate, come on, come on [let's go out and use ecstasy]'. But he's gone, 'Nup'. [Dealer/* Male/Brisbane]

Table 2-3. Prevalence of ecstasy use: proportion of the population aged 14 years and over by age and sex, Australia, 2004.

	Ever used[a]				Recent use[b]		
Age group	Males	Females	Persons		Males	Females	Persons
				(per cent)			
14-19	5.7	6.8	6.2		3.9	4.7	4.3
20-29	25.8	18.2	22.0		15.1	8.8	12.0
30-39	15.2	9.9	12.5		5.8	2.3	4.0
40+	2.3	0.8	1.5		0.6	0.1	0.3
Aged 14+	9.1	6.0	7.5		4.4	2.4	3.4
				(number)			
14-19	48,100	55,400	103,500		33,300	38,100	71,500
20-29	361,900	247,300	608,100		211,300	120,400	330,900
30-39	225,100	148,600	373,100		85,800	34,500	120,000
40+	99,300	39,200	138,500		24,100	6,000	30,000
Aged 14+	735,500	495,500	1,230,000		355,600	201,700	556,600

[a] Used at least once in lifetime.

[b] Used in the last 12 months.

Notes:

Caution should be used when interpreting these findings as results are based on self-reported data and not empirical testing of the substance used.

Statistical significance testing was not undertaken for this table.

Source: NDSHS 2004 (AIHW, 2005b)

Between 1998 and 2004, the prevalence of recent ecstasy use among females increased significantly, both overall and for those aged 20–29 years. Among females aged 40 years and over, however, there was a significant decline in the recent use of ecstasy.

Table 2-4. Recent[a] use of ecstasy: proportion of the population aged 14 years and over, by age and sex, Australia, 1995–2004.

	Males (%)				Females (%)			
Age group	1995	1998	2001	2004	1995	1998	2001	2004
14-19	0.9	3.3	5.7	3.9	0.1	3.0	4.3	4.7
20-29	5.1	11.9	12.5	15.1	2.9	4.9	8.3	8.8
30-39	0.6	1.9	3.1	5.8	0.4	0.8	1.7	2.3
40+	-	0.4	0.3	0.6	-	1.0	0.2	0.1
All ages	1.1	3.3	3.6	4.4	0.6	1.6	2.3	2.4

[a] Used in the last 12 months.

Source: NDSHS 1995, 1998, 2001, 2004.

Specific populations in the Queensland context

An array of specific population studies have also measured the prevalence of ecstasy use in Queensland. These include the Party Drugs Initiative (PDI), Drug Use Monitoring in Australia (DUMA), the Amphetamines in Queensland research project (AIQ), the Illicit Drug Reporting System (IDRS) and the Prevalence of Alcohol and Drug use In Emergency (PADIE) research project.[2] Table 2-5 shows the prevalence of ecstasy use found in various population samples surveyed in Queensland in a reasonably similar time period (around 2002). The results highlight the prevalence of ecstasy use is higher in particular segments of the population compared to the general population. The prevalence of lifetime ecstasy use is higher among high-risk populations such as amphetamine users (60%), intravenous drug users (43%) and police watch house detainees (43%), than in the general population. These results contrast markedly with those from general population surveys which have found that between 3% and 5% of Queenslanders report ever using ecstasy. The association between ecstasy use and particular risk factors is discussed further in the 'Consumer Group Profile' section of this chapter.

Table 2-5. Prevalence of ecstasy use (ever and recent) across various research projects.

Research project/Monitoring system	Ever use %[a]	Recent use %[b]
Amphetamines in Queensland (2002)[c]	60	37[a]
Illicit Drug Reporting System (Queensland 2002)[d]	43	18[b]
Drug Use Monitoring in Australia (Brisbane 2002)[e]	47	23
Prevalence of Alcohol and Drug Use In Emergency (Gold Coast 2002)[f]	17	9
National Drug Strategy Household Survey (Queensland 2001)[g]	5	2
Illicit Drug Use in Queensland (2002)[h]	3	n/a

Source: [c] CMC computer files; [d] Kinner and Fischer, 2003; [e] DUMA computer files held by CMC; [f] Krenske et al (2004); [g] NDSHS computer files held by CMC; [h] CMC computer files.

[a] Used in the last 12 months unless indicated.

[b] Used in the last 6 months.

Note: EDRS data are not included here as by definition 100% of participants have used ecstasy recently.

[2] Refer to Chapter one and Appendix A for a detailed description of these surveys.

A relationship between ecstasy use and gender and age is also evident in the specific population studies discussed above. For example, in the PADIE study of Emergency Department attendees, men (19.7%) were significantly more likely than women (13.4%) to report lifetime use of ecstasy; men (10.7%) were also more likely than women (5.9%) to indicate recent use of ecstasy (Krenske et al, 2004, p. 24). The same study found a significant relationship between age and the prevalence of ecstasy use – those aged between 25 and 29 years were more likely to report ever or recent use of ecstasy compared to other age groups, and those aged 40 and above were least likely to report ecstasy use (Krenske et al, 2004, p. 20 and 25).

Among police detainees in Brisbane, the prevalence of recent use within the past twelve months was 18% in 2002. This should not infer that ecstasy use is related to their detainment. The national DUMA program for 2004 (Schulte, Mouzos & Makkai, 2004. p.15) found that the use of MDMA immediately prior to detainment is uncommon in all DUMA data collection sites across Australia. Four per cent of detainees tested positive in urinalysis to MDMA in Southport and two per cent tested positive in Brisbane. This monitoring system has observed an increase in the proportion of detainees testing positive to MDMA. Nationally in 2000, 0.5 per cent of the total DUMA sample tested positive to MDMA, this increased slightly to 0.7 per cent in 2001, 1.1 per cent in 2002, 1.3 per cent in 2003, and in the most recent year, 2004, two per cent. While there appears to be an increasing trend, the overall numbers testing positive are relatively small and may relate to aberrations in the data collected. On average across the DUMA sites, nine per cent of detainees in 2004 said they had used MDMA in the past 30 days, compared with eight per cent in 2003. The highest rates of use in the past 30 days were found in the two Queensland sites (16% in Southport and 11% in Brisbane), compared with ten per cent reported use of MDMA in Adelaide, eight per cent in Bankstown, seven per cent in East Perth and Parramatta and six per cent in Elizabeth.

Importantly as an ecstasy market indicator, there is a greater discrepancy between the urinalysis results and self-report data for MDMA than there is for methylamphetamine. Fifty per cent of detainees who stated in 2004 they had used MDMA in the past 48 hours did not test positive to MDMA. In 2003 it was higher at 63 per cent. Of those who did not test positive to MDMA, but self-reported using MDMA in the past 48 hours, 64 per cent tested positive to methamphetamine, suggesting that a substantial proportion of detainees, who believe they have taken MDMA, may have actually consumed methamphetamine. This indicates a high, though declining, level of consumption of tablets that contain methamphetamine but not MDMA, sold as ecstasy.

A small proportion of Australian secondary school students have used ecstasy. While Queensland specific data is as yet unavailable, in the 2002 Australian Secondary Students Alcohol and Drug survey (ASSAD), of all students only 5% had ever had some sort of experience with ecstasy. Although use of ecstasy was not common among students in any age group, the proportion of students who had ever used ecstasy increased significantly as students progressed through secondary school. Self-reported experience of using ecstasy was most common among 16 to 17 year old students, with 7% having ever used this drug. Use in the past year ranged from 1% of students aged 12 years to 5% of 16 to 17 year olds.

These results also suggest that, among older students, males and females were equally likely to use ecstasy occasionally, but males might be more likely to use it more regularly. The authors reporting this research found a slight increase in ever use from 4% to 5% between 1999 and 2002 but use within the past month has remained the same at 2% of 12 to 17 year old secondary students. These results suggest that use of ecstasy among secondary school students was mainly experimental (White & Hayman, 2004a, pp. 34–36).

The findings discussed in this section show that ecstasy use is becoming increasingly common in Australia and is more likely to occur within certain segments of the population. Although not as prevalent as cannabis use, the 2004 NDSHS (AIHW 2005a) results clearly illustrate a high demand

for ecstasy, with an estimated 1.2 million people in Australia reporting lifetime use of ecstasy, with nearly half of this number using within the previous 12 months. The high level of this demand was recognised by one of the dealers interviewed for the EMI study, who observed that "you can't keep up with the market, 'cos they'll take as much as you got", [Dealer/Male/Brisbane]. This section of the report has also highlighted the relationship between gender, age and ecstasy use. Men are generally more likely to use ecstasy than women, and young people aged between 20 and 29 years are more likely to report using ecstasy than other age groups. Patterns of ecstasy use among those who use are discussed further in the following section.

Patterns of use

Patterns of ecstasy use provide valuable indicator data for calculating and exploring demand. The results presented in this section illustrate the varied nature of ecstasy use and show the frequency of ecstasy use in different populations. Detailed results on the frequency of ecstasy use from the 2004 NDSHS were not available at the time of publication. Analyses of the 2001 results on the frequency of ecstasy use are provided here.

Frequency of use – general population

The 2001 NDSHS (AIHW 2002a) found that the majority of recent ecstasy users[3] consume once or twice a year (45.8%) or every few months (28.9%) (see Table 2-6). Only 6.2 per cent of recent ecstasy users report using daily or weekly, while 19.0 per cent report using about once a month.

The frequency with which recent consumers used ecstasy varied in terms of gender and age. The results show that ecstasy use is used more frequently by males compared with females – with 6.9 per cent of males reporting daily or weekly use compared with 5.1 per cent of females. Males were also more likely than females to indicate 'about once a month' or 'every few months' consumption patterns of ecstasy. Although those aged 14 to 19 years of age are less likely than those aged between 20 and 39 to report ecstasy use, recent consumers in this age group are more likely to report daily or weekly use of ecstasy than recent consumers in the later age group. However, those aged between 20 and 29 years will make the most significant contribution to overall consumption levels of ecstasy, given the relative size of this group and the frequency with which they consume.

Table 2-6. Frequency of ecstasy/designer drugs use, recent users aged 14 years and over, by age and sex, Australia, 2001

	Age group				Sex		
Frequency	**14-19**	**20-29**	**30-39**	**40+**	**Males**	**Females**	**Persons**
				(per cent)			
Daily or weekly	10.4	6.9	0.1[a]	-	6.9	5.1	6.2
About once a month	20.7	20.3	16.2	4.3[a]	20.2	17.2	19.0
Every few months	22.8	30.7	25.8	42.7	31.4	25.1	28.9
Once or twice a year	46.1	42.2	57.9	52.9	41.5	52.7	45.8

a. Relative standard error greater than 50%

Note: Base equals recent users (i.e. the subset of the general population who have used ecstasy in the past 12 months).

Source: NDSHS 2001.

[3] Recent ecstasy users include those who have used ecstasy or other designer drugs in the past 12 months.

Frequency of use – specific populations

The EMI consumer survey provides detailed information on the consumption patterns of regular ecstasy users.[4] These results are presented in Table 2-7 by location, to allow comparison across the three research sites.

Regular ecstasy users are likely to consume ecstasy on a weekly basis. The results of the 2004 EMI showed that, in the preceding six months, ecstasy was used about once a week (24 days; range: 6–173), with Brisbane respondents reporting fewer days of use (median: 19 days; range: 6–72) than those from the Gold Coast (median: 26 days; range: 6–80) or Cairns (median: 20 days; range: 6–173).

Respondents reported typically consuming two ecstasy tablets (range: 0.5–10) in a session of use, with those in Brisbane (44%) and the Gold Coast (43%) more likely than those in Cairns (27%) to report typically using two tablets. It was interesting to note, however, that respondents from Brisbane and Cairns were more likely to go 48 hours or more without sleep than were Gold Coast respondents. The reasons for this regional difference are unclear, and warrant further exploration.

Table 2-7. Patterns of ecstasy use by Queensland region, 2004

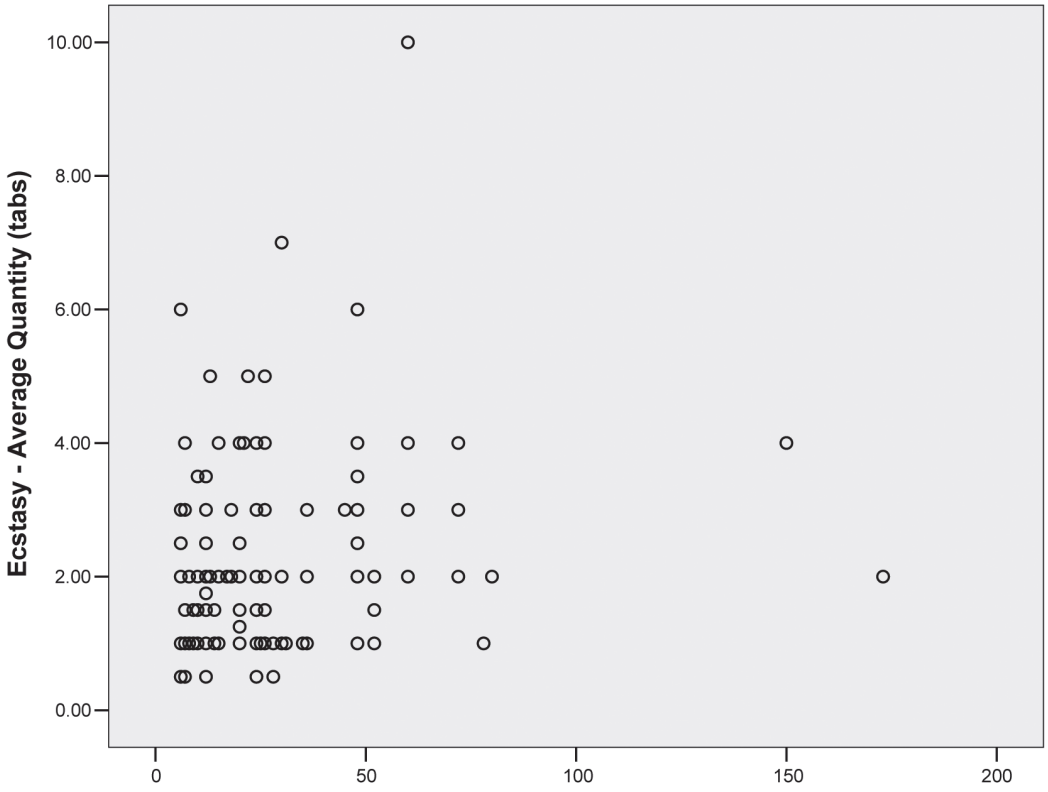
Variables relating to use	Brisbane n=104	Gold Coast n=77	Cairns n=49	Total N=230
Number of days used last six months (median)[b]	19 (6-72)	26 (6-80)	20 (6-173)	24 (6-173)
Quantity (median)				
Average[b]	2.0 (0.5-10)	2 (0.5-4)	1 (0.5-5)	2 (0.5-10)
Most[a]	4.0 (0.5-13)	4 (1-12)	2 (1-12)	4 (0.5-13)
Typically use 2 tablets (%)[b]	44	43	27	40
Main recent route of administration (%)[b]				
Swallowing	91	79	100	89
Injecting	2	10	0	4
Snorting	5	9	0	5
Shelving/shafting	2	1	0	1
48 hours without sleep on ecstasy (%)[c]	55	19	53	42

[a] $p < .05$, [b] $p < .01$, [c] $p < .001$.

Among EMI participants there was a small but significant correlation between usual quantity and frequency of ecstasy use in the last 6 months ($r = 0.211$, $p = 0.001$). This relationship is illustrated graphically below in Figure 2-3, which shows that those who reported using ecstasy more frequently (horizontal axis) also tended to report typically using larger quantities of ecstasy (vertical axis).

[4] Regular ecstasy users are defined for the PDI and EMI study by ecstasy use at least monthly in the previous six months to interview.

Figure 2-3: Association between frequency and quantity of ecstasy use in the last 6 months



Note: There was no significant relationship between either age of first use or age of initiation to regular use, and either frequency or quantity of recent use (all p > .05).

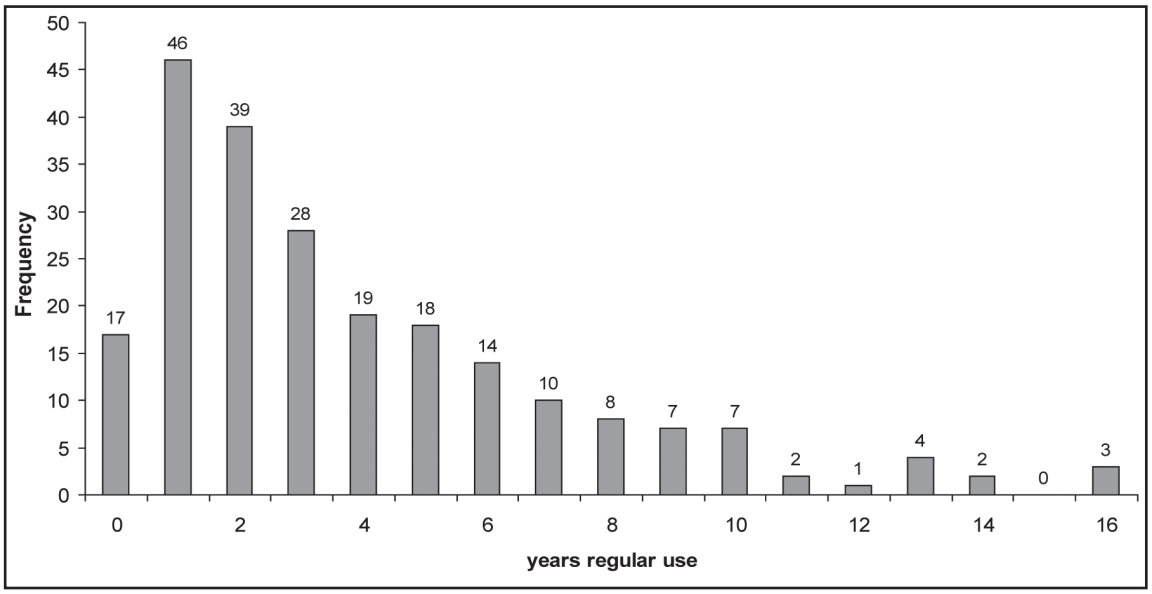
EMI respondents also completed the Severity of Dependence Scale (SDS) with respect to ecstasy. The SDS is a five-item measure of symptoms of psychological dependence. There was a significant, positive association between SDS score and frequency of use (r=0.486, p <0 .001), average quantity of use (r=0.187, p =0.005) but not largest quantity used (r=0.114, p = 0.086). In other words, as one would expect, more dependent consumers tend to use a larger quantity of ecstasy each time, and to use ecstasy more often.

It is also worth noting that patterns of ecstasy use are seasonal and vary in relation to different times of the year and the occurrence of particular events. This seasonal variability is recognised by law enforcement that expects an increase in ecstasy use and distribution during the end of year festive season. The following quote from one of the EMI participants interviewed for the study also demonstrates how dealers acknowledge this variability:

> *Yeah, usually after Australia Day, people put the handbrake on, they realise that they have been out partying hard. You have got the whole Christmas, New Year, Big Day Out, things like that…March and April are kind of leaner months…winter's consistent, but summer time, with the warmer weather, people want to go out and get high. [Dealer/Male/Brisbane]*

The results of the 2004 national EDRS survey indicate that consumers commence regular (monthly or more) use about a year after market entry. The median duration of ecstasy use to the point of interview among national EDRS participants is four years (Stafford et al, 2005a). Among Queensland users interviewed for the EMI study, the median duration of regular use was three years, although this ranged from less than one to as many as 16 years of regular use (assuming no periods of abstinence). The distribution of 'time in market' among 2004 EMI respondents is shown below in Figure 2-4.

Figure 2-4: Time in market: years of regular ecstasy use



Source: EMI 2004.

This section has illustrated the different consumption patterns observable in ecstasy consumers. Consumers vary in terms of the frequency with which they consume ecstasy, the amount of ecstasy they consume on any one occasion and the length of time spent in the ecstasy market. Consumers also vary in terms of the additional drugs they may have tried and the types of substances they combine with their ecstasy use. See the 'Poly-drug use' section in this chapter for a more detailed discussion regarding the prevalence of poly-drug use and its implications for understanding the ecstasy market.

Commencing ecstasy use

The following section explores some of the factors contributing to market entry for ecstasy consumers. Various data sources are used to provide an overview of the average age of initiation to ecstasy use, to outline some of the reasons why people commence using ecstasy and to show the context of initiation to use. Anticipated use of ecstasy in the future is also discussed.

Age of initiation – general population

Although ecstasy is the second most widely used illegal drug in Australia, after cannabis, initiation to its use generally occurs later than initiation to a range of other illicit substances. The 2004 NDSHS found that the average age of initiation to ecstasy is 22.8 years (Table 2.8). This is later than the mean age of initiation for inhalants (18.6 years), cannabis (18.7 years), hallucinogens (19.5 years), barbiturates (19.6 years), amphetamine (20.8 years) and heroin (21.2 years). The mean age of initiation to other substances associated with the 'dance/party scene' is also likely to occur later than most other substances – this includes cocaine (23.5 years), ketamine (23.7 years) and GHB (23.7 years).

Initiation to illegal drug use is generally governed by the availability of various substances, demand and the social characteristics of different user groups. Availability is determined by the ease of obtaining and the cost of particular substances. The prohibitive cost of cocaine compared with

other substances, for example, partly explains why the average age of initiation to this drug is older than that of other substances, while the late mean age of initiation to GHB and ketamine may in part be explained by their relatively recent appearance on the illicit drug scene. Furthermore, ecstasy consumers are less likely than other types of illegal drug users to be characterised by certain risk factors or social characteristics associated with illegal drug use (see 'Consumer group profile' in this chapter). This may in part explain why initiation to ecstasy use occurs later than initiation to other, arguably more problematic, drugs such as amphetamine and heroin.

It is worth noting that the NDSHS has shown that the mean age of initiation in 2004 (22.8 years) was similar to that of 1995 (22.7 years) (AIHW, 2005a). This suggests that in the general population the commencement of ecstasy use is not being established earlier for new initiates – despite the increased prevalence of its use.

Table 2-8. Mean age of initiation to illicit drug use by drug type, Australia, 2004

Drug/behaviour	2004
Inhalants	18.6
Marijuana/cannabis	18.7
Hallucinogens	19.5
Barbiturates[a]	19.6
Meth/amphetamine (speed)[a]	20.8
Heroin	21.2
Ecstasy	22.8
Painkillers/analgesics[a]	23.4
Cocaine	23.5
Ketamine	23.7
GHB	23.7
Methadone[b]	24.8
Tranquillisers/sleeping pills [a]	25.2
Steroids[a]	25.2
Injected drugs	21.7
Any illicit	19.4

[a] For non-medial purposes.

[b] For non-maintenance purposes.

Source: AIHW (2005a:p.5)

Age of initiation – specific populations

Table 2-9 shows the average age of initiation to ecstasy found in various specific population studies on illegal drug use. The results indicate that the age of onset to ecstasy use is slightly lower in populations characterised by relatively high rates of drug use.

Table 2-9. Mean age of initiation to ecstasy use across various populations

Research project	Mean age of initiation (years)
Amphetamines in Queensland (2002)[a]	22.2
Drug Use Monitoring in Australia (Brisbane 2002)[b]	21.6
Prevalence of Alcohol and Drug Use In Emergency (Gold Coast 2002)[c]	21.2
National Drug Strategy Household Survey (Australia 2004)[d]	22.8
Party Drugs Initiative (Queensland 2004)[e]	21.4

Source: a. AIQ data files held by CMC; b. DUMA data files held by CMC; c. Krenske et al (2004); d. AIHW, (2005a); e. Fischer & Kinner (2005).

In an analysis of two age cohorts of regular ecstasy users Breen et al, (2004) found that those younger than 23 years commenced drug use on average five years earlier than regular ecstasy users over 23 years. The younger cohort also used a broader range of illegal drugs at an earlier age.

Age of initiation – gender differences

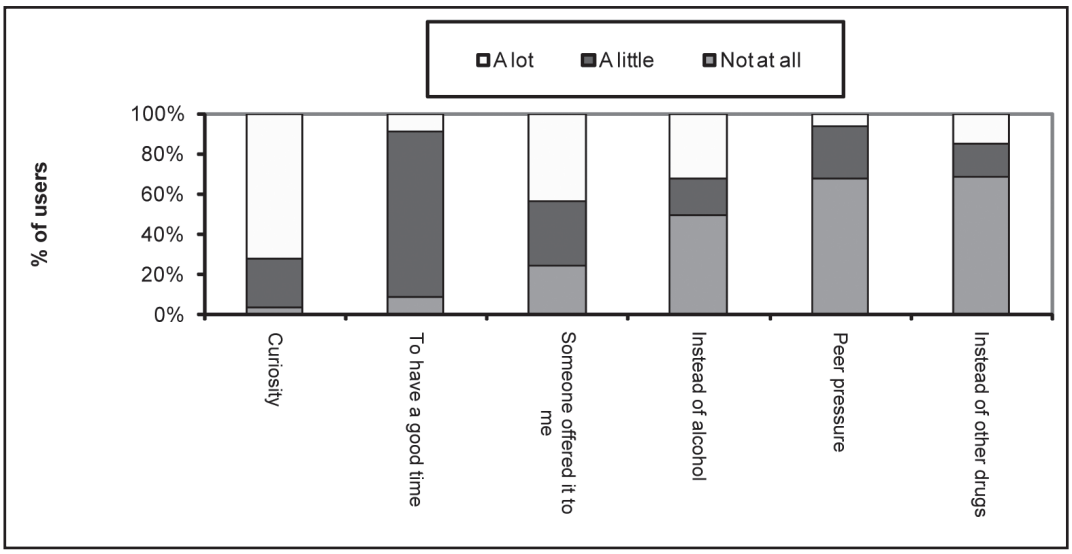
Among regular ecstasy consumers (White, et al, 2004) females on average appear to initiate ecstasy use slightly more than a year earlier than males, 19.2 years compared with 20.5 years. The results of the PADIE research project indicate that age of initiation to various illicit substances does not vary significantly as a function of gender except in the case of ecstasy (Krenske et al, 2004). Despite the fact that women are less likely to use ecstasy than men, the results of this project found that the average age of initiation to ecstasy for women is 19.9 years, compared with 21.9 years for men. This difference may be explained by the social context in which ecstasy is used – see 'Context of use' sections below for further information.

Context of initiation

The EMI survey asked participants to respond to a series of statements regarding the onset of ecstasy use in order to gain a sense of why people commence using ecstasy and where and how this experience occurred. Figure 2-5 shows that experimentation, fun and opportunity are the most frequently endorsed reasons to explain why ecstasy was first consumed. Nearly all participants (96.8%) agreed a little or a lot that curiosity first led them to use ecstasy, a similar proportion (96.8%) agreed a little or lot that they first used ecstasy because they wanted to have a good time and 75.7% agreed a little or a lot that their first ecstasy experience occurred because somebody offered it to them. These results suggest that the desire to try ecstasy in search of a good time, in combination with the opportunity to obtain ecstasy, essentially sets the scene of initiation for most consumers. Fewer participants agreed a lot (6.3%) or a little (26.1%) that peer pressure played a role in initiation or agreed a lot (15.3%) or a little (16.2%) that they first tried ecstasy instead of using other drugs.

These results are similar to those collected by the AIQ research project which showed that initiation to amphetamine use was generally about experimentation and opportunity (Lynch et al, 2003). The majority of those surveyed (96%) stated that they first used amphetamines because they wanted to see what the experience was like, while 80.1% reported that they first tried amphetamine because their friends were using and 73.7% indicated that they first used because someone gave amphetamines to them. The unavailability of their usual drug of choice was one of the least likely reasons to first use amphetamines.

Figure 2-5: Reasons for first using ecstasy

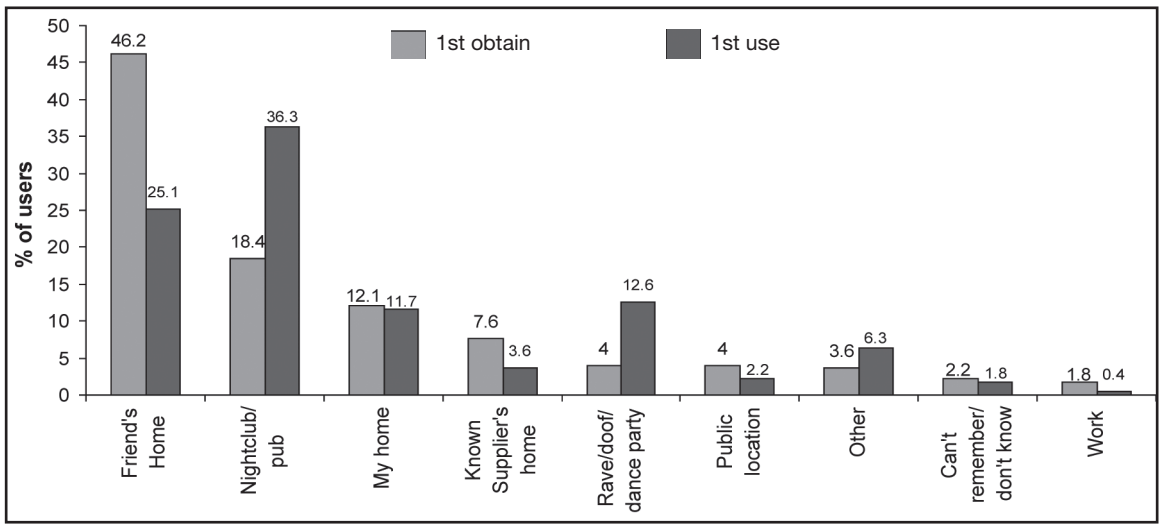


Location of first obtaining and using ecstasy

EMI participants were also asked where they obtained the ecstasy they first used, and where they actually consumed this ecstasy. The most common location for first obtaining ecstasy was a friend's home (46%), however, the most common location for first using ecstasy was a nightclub or pub (36%). Over half of all users (58%) reported first obtaining ecstasy either in their own home or a friend's home (Figure 2-6).

Overall, these findings indicate that the majority of users first obtained ecstasy from a friend in a private setting, although almost half first used ecstasy in a nightclub, pub or rave setting. Furthermore, the large number of consumers who report obtaining and using the drug in different locations suggests an element of planning in this first use of ecstasy (see 'Managing use' section in this chapter for more information on the planning involved in the consumption of ecstasy).

Figure 2-6: Location of first obtaining and using ecstasy

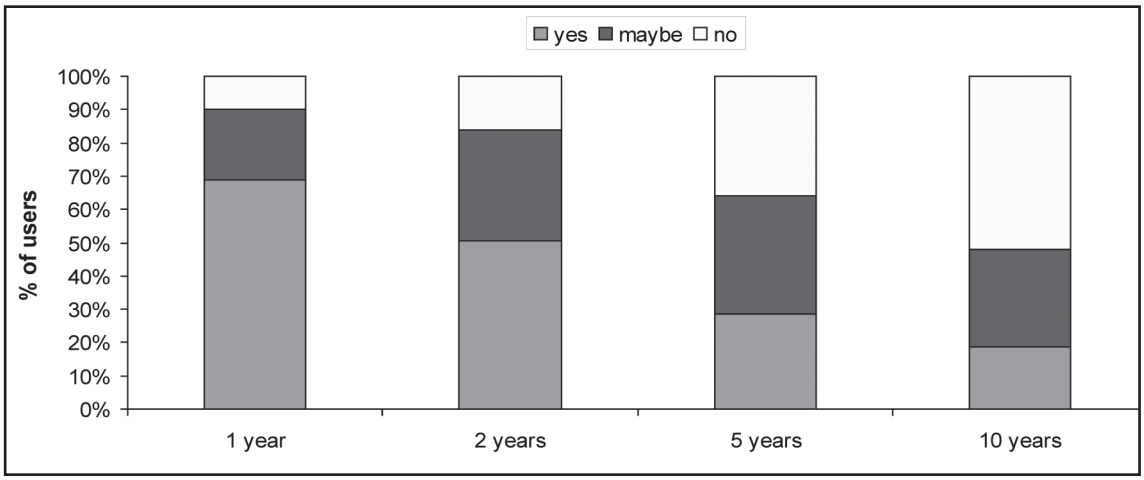


Anticipated future use

Consumers in the EMI survey were asked to state whether they thought they would still be using ecstasy in one, two, five and ten years time. Figure 2-7 shows that the majority of participants expected that they would still be using ecstasy in one year (69%), with an additional 21% reporting that they 'might' still be using in one year. Progressively smaller proportions of participants reported an expectation that they would still be using ecstasy in two years (51%), five years (29%) or ten years (19%), suggesting that the majority of ecstasy users intend to use the substance for only a limited period of time. Further research is needed to establish whether these intentions are indeed borne out in practice – a longitudinal study of ecstasy users is needed to understand the natural history of ecstasy use.

Somewhat surprisingly, there was no relationship between age, gender or 'time in the market' and intention to use ecstasy in one, two, five or ten years (all $p > 0.05$). Participants who reported using ecstasy more frequently were, however, more likely to state that they would not be using ecstasy in one year[5] or two years[6], however they were no more or less likely to state that they would be using ecstasy in five or ten years ($p > 0.05$). Evidently, those who are using ecstasy more moderately perceive less of a need to cease use in the near future.

Figure 2-7: Expected use of ecstasy in the future



Understanding why people first try ecstasy provides important information for the development of policies aimed at reducing the demand for ecstasy. The results in this section suggest that the onset of ecstasy use is generally structured around opportunity, curiosity and the desire for fun. The initiation to ecstasy appears to be a planned event supported by a peer group and often occurs after other illicit substances have been tried. This is apparent in the average age of onset to ecstasy which is higher than the average age of onset to a range of other substances including alcohol, cannabis and amphetamines. This suggests that onset of ecstasy use needs to be conceptualised in the context of poly-drug use and considered in relation to the subsets of the population drawn to the use of ecstasy.

[5] $F(2,218) = 5.13$, $p = .007$

[6] $F(2,218) = 4.63$, $p = .011$

Consumer group profile

Although ecstasy is likely to be used by a diverse range of people (DCPC, 2004), previous research has shown that ecstasy users tend to be young, well educated, and either employed or involved in full-time study (Stafford et al, 2005a). Ecstasy use is also often associated with participation in the dance scene. A profile of ecstasy users from the EMI survey is presented in the following section in order to further explore issues of consumer demand and identify the types of individual most likely to consume ecstasy.

Table 2-10 presents the demographic characteristics of those surveyed for the EMI study and where possible, compares these results with the demographic characteristics of general population and other specific population samples selected to measure illicit drug use. Although the data presented in this table are not directly comparable given (a) the varying prevalence of illegal drug use in the different samples, and (b) the different methodological strategies used to collect data across the various projects, it does provide some indication of the general demographic differences apparent between ecstasy users and other populations.

The results of the EMI study support previous research and depict ecstasy consumers as typically young, white and middle class. The median age of EMI respondents, for example, is 24 years. This contrasts with the most recent census data which shows the median age of all Queenslanders to be 35 years.[7] EMI respondents were also much more likely than respondents from other samples to have completed secondary and tertiary education. Just over 60% of EMI participants reported that Year 12 was the highest level of education achieved, compared with 23.8% of Illicit Drug use in Queensland (IDUQ) participants, 20.9% of AIQ participants and 19.8% of DUMA participants.[8] EMI respondents (18.3%) were also more likely to report completing a university or higher degree, than IDUQ (12.8%), AIQ (7.5%) and DUMA (4.3%) respondents. Although EMI participants (39%) report lower levels of full-time employment than that indicated for Queenslanders in general (63.9%), by the 2001 census (ABS, 2003) they were considerably more likely than AIQ (25.8%) and DUMA (21.5%) respondents to be involved in full-time employment.

The higher levels of education and employment rates among EMI respondents compared with other samples measuring illegal drug use is reflected in reported income level – with EMI respondents reporting a median fortnightly income of $800 compared to $650 for AIQ respondents. Although not directly comparable, EMI respondents appear to earn similar levels of income to that of Queenslanders in general (median weekly income of $300–$399) as measured by the 2001 census.[23] The relatively similar earning capacity reported by EMI respondents and the general Queensland population may reflect the younger median age, lower full-time employment rate, yet higher education levels of EMI respondents.

Although the information provided on prison history in Table 2-10 varies in comparability, there is some evidence to suggest a link between drug use and crime among ecstasy users, although this is less evident than among amphetamine users. Only 6% of IDQ participants reported that they had been arrested for breaking the law, while 9.3% of EMI and 13.8% of AIQ respondents indicated that they had spent time in prison.

[7] Source: ABS, 2002, 2001 Census: Basic Community Profile and Snapshot: www.abs.gov.au.

[8] It is worth noting that the IDQ results have not been weighted by education. The 2001 ABS census data shows that 39.0% of Queenslanders report Year 12 or equivalent as highest level of schooling completed (OESR: Census 2001 Profiles). The difference between education levels in the general population and the EMI sample, however, is still significant.

Table 2-10. Demographic characteristics of different research populations .

Characteristic	Research Population			
	EMI (N=230)[1]	AIQ (N=665)[2]	DUMA – Brisbane 2000 (N=701)[3]	IDUQ - Queensland general population 2004[a4]
Male %	55.2	55.2	87.2	43.9
Median age (range)	24 (16-52)	27 (15-57)	27 (17-80)	n/a
Current accommodation				
Own house/flat	10.0	7.6		n/a
Rented house/flat	65.2	57.6		n/a
Parents/Family house	16.1	22.1		n/a
Other[f]	8.6	12.8	16.7	n/a
Own house/apartment			44.4	n/a
Another's house/apartment			38.9	n/a
Identify as ATSI	8.3	9.1	3.6	2.1
Heterosexual	80.7	70.7	n/a	n/a
Characteristic	EMI (N=230)[1]	AIQ (N=665)[2]	DUMA – Brisbane 2000 (N=701)[3]	IDUQ - Queensland general population 2004[a4]
Highest level of education				
Completed secondary school	61.3	20.9	19.8	23.8
Completed uni or higher degree	18.8	7.5	4.3	12.8
Median fortnightly income[b]	$800	$650	n/a	n/a
Employment				
Not employed	21.7		49.2[c]	3.0
Full-time	39.1	25.8	21.5	32.6
Part-time	22.6	20.1	12.6	12.7
Full-time student	10.4			3.6
Self-employed	2.1			8.4
Other	2.8		16.7	39.7
Government benefits		55.3		
Still in university		5.4		
Ever in prison	9.3	13.8	25.1[d]	6.0[e]
Ever in drug treatment	--	25.9	40.1	n/a

[a] Data presented in table has been weighted by persons

[b] After tax

[c] Includes those identifying as unemployed either looking or not looking for work

[d] Only includes those in prison during the previous year

[e] Only includes those arrested for breaking the law

[f] Other = board; boarding house/hostel; NFA; backpackers hostel

Source: 1. EMI data files; 2. AIQ data files held by CMC; 3. DUMA data files held by CMC; 4. IDUQ data files held by CMC.

The demographic differences between ecstasy consumers and injecting drug users are demonstrated by Topp et al. (2004) in a study comparing two samples of regular ecstasy consumers recruited in 2000 and 2001, with a sample of injecting drug users recruited between 1996 and 2000. The ecstasy consumers were younger (25 years versus 29 years); better educated (median 13 years versus 10 years); more likely to be employed or studying (86% versus 20%); and less likely to be in drug treatment (1% versus 29%); or to have been incarcerated (4% versus 50%) (Table 2-11).

Table 2-11. Demographic characteristics of ecstasy users recruited in 2000 and 2001, and a comparison sample of IDU recruited between 1996 and 2000.

Variable	2001 sample (n=163)	2000 sample (n=94)	IDU 1996-2000 (n=788)
Mean age (years)	25	25	29
Male	58	69	65
Median number years school completed	13	13	10
Employed full-time (%)	48	33	6
Full-time students (%)	20	12	4
Unemployed (%)	9	21	80
In treatment (%)	1	0	29
Previous imprisonment (%)	3	6	50

Source: Topp, et al, (2004).

A study by Degenhardt, Barker & Topp (2004) compared a general population sample, recent ecstasy consumers, and those who had used ecstasy but not in the previous 12 months for two age groups (14–19 years and 20–29 years) from the 2001 NDSHS. The findings of this analysis were that no discernable demographic characteristics were identified as different between the three groups. The only significant difference was that recent ecstasy users were more likely to have used a range of other drugs. A related study (Topp, Barker & Degenhardt, 2004) compared recent ecstasy consumers with regular consumers (at least monthly for the preceding three months) from a NSW sample of the NDSHS 2001 with the purposive sample of regular ecstasy consumers recruited for the 2001 EDRS in NSW. Again no discernable demographic characteristics were identified. Patterns of ecstasy use were similar among the three samples, although compared to recent users, regular users were likely to report more frequent use of ecstasy. Again regular ecstasy users reported more poly-drug use.

Data collected by the qualitative interviews undertaken for the EMI study generally supports the notion that ecstasy consumers are often young, well educated and financially secure, dance scene participants. As one participant commented:

> *It's not the dole bludgers that take it…with ecstasy it's just a totally different ball game. Usually it's people with really good jobs, like their parents think they're really good and it's all hidden, they don't look like users. [Consumer/Female/Brisbane]*

The above quote reinforces the idea that ecstasy consumers are socially and financially secure. They are capable of managing their consumption and remaining highly functional (see 'Managing use' in this chapter for further information). There is a general perception among ecstasy users that ecstasy use does not necessarily lead to severe health and social problems. As indicated above, ecstasy consumers are able to remain 'respectable' and 'don't look like [stereotypical drug] users'.

Ecstasy consumers are also often characterised as possessing a strong interest in music and the dance scene. The following EMI respondent, for example, defined ecstasy consumers in terms of the music they listened to. This demonstrates the importance of music within the ecstasy subculture and highlights how experimentation and use of illicit substances is linked to certain youth subcultures.

> *I suppose one of the bigger demographics would be your Triple J listeners…and some Triple M'ers as well, but not so many B105s. [Dealer/Male/30/Cairns]*

While there is evidence to suggest that ecstasy consumers can be generalised to a certain degree, it is important to acknowledge that ecstasy is consumed by a diverse array of people in a range of social contexts. The practice of conceptualising 'ecstasy consumers' as a monolithic category somewhat circumvents the prevalence of poly-drug use and does not fully recognise the different types of ecstasy users. The inability to definitively define ecstasy consumers is apparent in the following comment made by a regulator interviewed for the EMI project:

> *That is one of the issues. They [ecstasy consumers and suppliers] don't come to the attention [of law enforcement] because of the fact that use is so widespread. The user group is not specific by any shape or means. [Market Regulator - Law Enforcement/Male/Brisbane]*

The prevalence of ecstasy use across diverse social groups is apparent in the results of the AIQ research project. Participants of this study reported relatively high levels of ecstasy use, despite being characterised overall by limited education and financial security (Lynch et al, 2003). Just over 60 per cent of AIQ survey participants reported that they had used ecstasy at least once and 61.6% of these respondents had used ecstasy within the previous 6 months. Furthermore, the use of ecstasy in contexts outside of the dance scene was also apparent. Only 23.8% of ecstasy consumers identified in the AIQ study associated themselves with the rave subculture, while 15.9% of self-identified ecstasy users reported that they had never been to a night club or rave. Having said this, AIQ participants who reported affiliations with the rave subculture were more likely than the overall sample to report ever using ecstasy – 78.2% compared to 60.2%; and more likely to have used in the last 6 months – 56.3% compared to 36.8%.

Although ecstasy is used by a diverse array of people, the data reported in this section has shown that ecstasy users can be characterised as holding relatively high socio-economic status – especially when compared with other types of illicit drug users. The following section on 'Context of use' provides a greater understanding of the different social contexts in which ecstasy is consumed and offers further insight into the different types of ecstasy users.

Context of use

Ecstasy use is a social activity that generally occurs with other people in a range of settings. EMI quantitative data is presented below to show the different locations in which ecstasy is consumed. A greater understanding of consumption within the dance scene is then provided by the inclusion of EMI qualitative data.

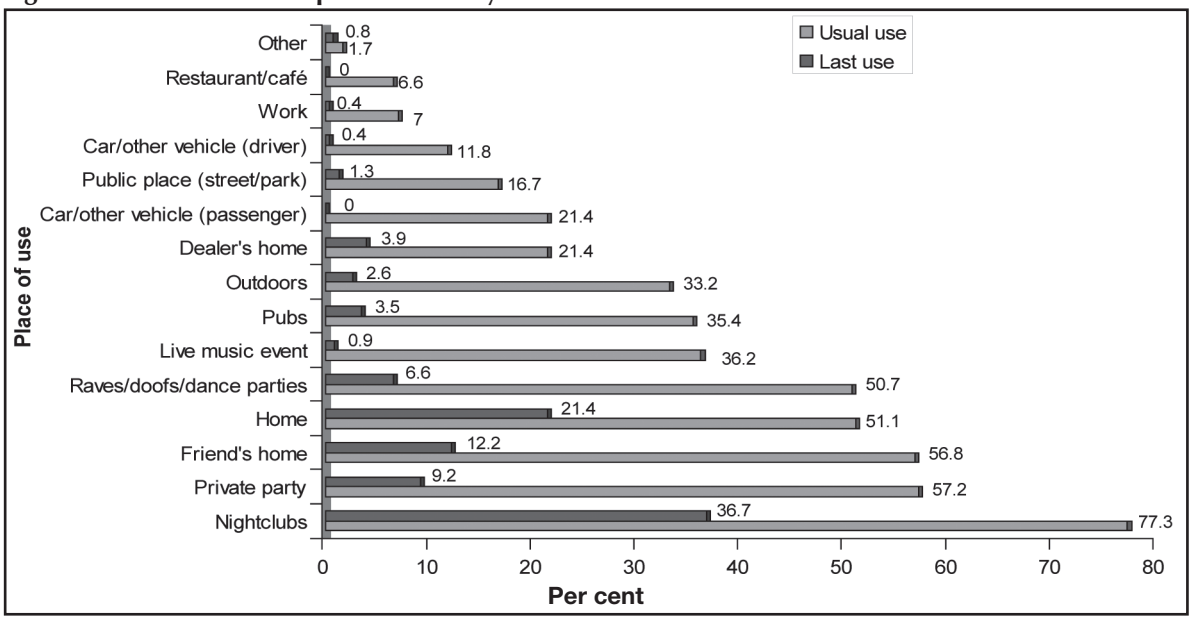
The results of the EMI survey showed that 43.0% of respondents indicated that most of their friends use ecstasy, while 32.6% reported that about half of their friends use ecstasy, 18.7% had a few friends who use ecstasy and 5.2% reported that all of their friends consume ecstasy.

Although ecstasy use is often associated with the dance scene, the results shown in Figure 2-8 indicate that ecstasy is used in a diverse array of public and private locations. The most usual place of use is nightclubs (77.3%), followed by private party (57.2%), friend's home (56.8%), personal home (51.1%) and raves/doofs/dance parties (50.7%). Participants also reported usually

using ecstasy in restaurants/cafes (6.6%), work (7.0%) and vehicles (11.8% as drivers; 21.4% as passengers). These later results suggest the ecstasy is sometimes used by workers involved in the hospitality industry – since it is unlikely that consumers will choose to eat food while using ecstasy. The practice of first consuming ecstasy in a private location and then moving on to a different location is also evident. Indeed, 44.8% of those surveyed by the EMI study reported that they usually consumed ecstasy in a different place to where it's effects are experienced – which implies the use of transport to move between locations for at least some consumers.

The most common places of usual use generally coincide with the most common places of last use. Participants tended to indicate nightclubs (36.7%), personal home (21.4%), friend's home (12.2%), private party (9.2%) and raves/doofs/dance parties (6.6%) as the last place of their ecstasy use.

Figure 2-8: Usual and last place of ecstasy use



Source: EMI 2004.

'Other' includes shopping, beach, gay beats, hotel room and wedding.

The varied context of ecstasy use was acknowledged by participants interviewed in-depth by the EMI study. As one participant commented:

> *The market itself is pretty broad…Because of the way in which MDMA is accepted, you are not looking at people that are only going to take the substance at a nightclub, they could take it at a pub, take it at a party, at home in a different environment. [Market Regulator - Health/Male/Brisbane]*

Use of ecstasy in the dance scene

Previous research on ecstasy use has highlighted the relationship between ecstasy use and the 'clubber' (Saunders, 1993, 1997; Measham, Aldridge & Parker, 2001). The association of ecstasy with the dance scene has largely been explained by the stimulant and euphoric effects of ecstasy which act to enhance the dancing experience and the way it is supported by the concomitant subculture. The following discussion provides a brief overview of how EMI participants view nightclubs and other dance events as places of ecstasy use.

Although there was mention of ecstasy use in private homes or private parties, most of the participants interviewed for the EMI study generally discussed ecstasy use in relation to its use

in nightclubs and other dance/music events. Participants clearly defined a difference between nightclubs and the rave or doof[9] scene and the types of users found in these differing social spaces. Nightclubs are seen to be orientated towards 'weekend warriors' – people who use ecstasy on the weekends purely for fun and escape. These types of consumers are viewed as somewhat disconnected from the 'authentic' ecstasy experiences promoted by the underground rave or doof scene which are understood to emphasise the exploratory, unifying and spiritual aspects of ecstasy use. As one participant commented:

> *People use it [ecstasy] for two different reasons. People use it to party and become less inhibited to dance. It's like a release, they live their nine to five week, and then they let go of a weekend – that's the club culture. But then you've got the doof scene, and the outdoor scene, where people use it more as a journey tool to enlighten themselves. [Consumer/Female/Brisbane]*

Nightclubs are also thought to lack authenticity because of their underlying profit motive. This is particularly apparent in the issue of water availability at such venues. Nightclubs have a reputation of charging exorbitant amounts for bottled water and promote its purchase by refusing to provide free tap water and connecting warm water only to the bathroom taps.

The different cultural contexts found in different dance spaces means that the choice of venue is strategically considered. Ecstasy consumers will generally choose a place that has an atmosphere and crowd that allows them to feel comfortable and safe while experiencing an altered state. This often means seeking places attended by other ecstasy consumers sharing the similar cultural understandings of ecstasy use. Ecstasy users also tend to prefer avoiding locations where alcohol is consumed in great quantities. As one participant remarked:

> *A group of people on E would be quite distinct from all the other people. They're not on the same level and thinking the same stuff. They will be quite noticeable. If you walk in [to a club] and there are only a few people on Es, they would be quite easy to pick out. People sort of judge, 'What's going on?' 'Are we gonna be able to fit in here?'… A bit of thought has to go into it; otherwise something that you had spent $50 on could make your night terrible. [Market Regulator - Health /Male/Cairns]*

Other factors used to measure the appropriateness of particular locations for ecstasy use include type of music played, hours of operation, transport facilities, surrounding venues, friendliness of bar staff and security guards. The strategic appraisal of public venues was especially apparent in Cairns, where it was perceived to be characterised by a limited number of nightclubs catering to ecstasy users compared with Brisbane. The nightclubs in Cairns were considered by locals to be tourist orientated and emphasised the consumption of alcohol through the provision of cheap drinking deals.[10] As noted by one participant:

> *The clubs here, I couldn't mark any of them that are known specifically for dancing. We have still got a very big culture of drunkenness. We've still got most of our clubs offering $10 for 5 drinks. [Market Regulator - Health /Female/Cairns]*

The enjoyment and prevalence of ecstasy use at nightclubs and raves is facilitated by the layout of the venues and the culture that exists within them. Venues often have dark areas that facilitate the inconspicuous consumption of illicit substances and chill out spaces that can be used for relaxing and coping with ecstasy comedown. Such venues or events also showcase high energy music and

[9] A 'doof' is an outdoor dance party usually in a remote location. The term is derived from the sound of the bass speakers outside, where with no walls, the echo is distorted.

[10] It is understood that ecstasy use occurs in both tourist orientated mainstream nightclubs and dance orientated nightclubs in Cairns. However, local residents interviewed for the EMI study suggested that tourist orientated nightclubs provided, in their opinion, a less than ideal context for ecstasy consumption.

lighting shows which can be extraordinarily captivating while under the influence of ecstasy. While nightclubs are normally open to the general public on a regular basis, dance parties and raves tend to be more exclusive and sometimes operate underground. This is especially true of smaller, community-based events which generally occur in remote locations.

> *And underneath those big ones [dance or rave events], there's smaller scenes happening. The big ones eventually sustain, because they're organised [by professionals]. The smaller ones rely on the community and sort of a big extended social circle that appear around DJs and promoters. [Market Regulator - Health /Male/Brisbane]*

There are a number of reasons for organising community-based outdoor dance or rave events. It allows users to enjoy natural settings and beautiful locations, provides a context to enjoy less mainstream or niche dance music, circumvents noise complaints by the general public and assists in the evasion of police detection. It also reduces the possibility of 'outsiders' or unwelcome attendees. As one participant commented:

> *The further the journey is [to an outdoor event], the less likelihood of getting people that shouldn't be at your party – people that are just there getting drunk and causing fights – just the wrong type of element. [Consumer/Male/Cairns]*

The limited commercial nightlife option in Cairns meant that ecstasy use occurs more frequently at privately organised events in personal homes or outdoor locations. This is most evident in the number of bush doofs or raves that take place in the surrounding areas of Cairns. These events are privately organised and maintain exclusive patronage by advertising in ways that actively target particular groups of people. The limited appeal for some people to use ecstasy in Cairns' nightclubs is evident in the following:

> *Well, I don't think it's a disenchantment, I think it's just probably not always the best drug for up here. And I think that's what people weigh up. A lot of people have been to other places, so they know that it's like, well it's much better to have it in a big club with great music, that you can spend the whole night in. And if there are not enough people in the club [in Cairns], the club will close. [Market Regulator - Health /Male/Cairns]*

Although the use of ecstasy is aligned with a variety of activities and locations its consumption is generally purposeful and planned. Its use tends to be organised in advance and often coincides with particular social occasions. As one participant stated: "It's not like…people…are using E and walking around the streets…they usually have a destination in mind and they go". [Market Regulator - Health /Female/Cairns]. The ways in which ecstasy is obtained and consumed is discussed in more detail in the section, Retail supply within Queensland.

Effects of ecstasy

The following section provides an overview of some of the positive and negative outcomes associated with ecstasy use as perceived by the regular ecstasy users surveyed by the EMI study.

Positive effects

It is important to understand why people use ecstasy in order to develop and implement effective demand reduction strategies. An essential component of this is appreciating the pleasurable experiences gained from the consumption of ecstasy. Individuals derive enjoyment from the pharmacological properties of the drug itself, as well as the social and physical context in which it is consumed. How the effects of ecstasy are experienced and interpreted will also depend on the individual and their emotional state at the time of consumption. The stimulant, hallucinogenic

and entactogen properties of ecstasy can enhance experiences in a variety of ways. Ecstasy can provide energy for dancing, increase the perceived aural effects of light and the auditory properties of sound, reduce inhibitions and heighten confidence. It also creates a sense of empathy thereby improving communication with others and promoting a sense of unity and community. Ecstasy also has the professed advantage of allowing users to maintain a sense of control while being under its influence (Measham, 2004a).

The EMI survey asked participants to comment on the positive benefits of ecstasy use. Somewhat surprisingly, 7.4% of those surveyed reported that they did not associate taking ecstasy with any benefit, while 3.9% did not know whether they had experienced benefits when consuming ecstasy. Those respondents indicating associated benefits (88.7%) were then asked to list the three main benefits associated with ecstasy use. Table 2-12 shows that respondents appreciated the enhanced social experiences promoted by ecstasy the most – 29.1% mentioned enhanced closeness/ bonding/ empathy first as the biggest benefit of ecstasy, while 22.2% nominated enhanced communication/talkativeness/increased sociability and 21.7% nominated enhanced mood as first order of mention when commenting on the benefits of ecstasy. Having a different effect to alcohol, being inexpensive and feeling in control were not rated particularly highly by participants.

Table 2-12. Perceived benefits of ecstasy.

Type of benefit associated with ecstasy use	Order of mention (%)		
	1st	2nd	3rd
Enhanced closeness/bonding/empathy	29.1	0.0	0.0
Enhanced communication/talkativeness/more social	22.2	8.9	0.0
Enhanced mood	21.7	15.6	2.6
Fun	5.4	15.1	10.5
Enhanced appreciation of music/dance	4.9	8.3	7.2
The high/rush/buzz	4.9	6.8	2.6
Increased energy/stay awake	3.0	10.4	5.9
Enhanced sexual experience	2.5	4.2	13.8
Relax/escape/release	2.0	8.9	15.1
Increased confidence/decreased inhibitions	2.0	8.3	4.6
Different to effects of alcohol	1.5	3.1	5.3
Other benefit*	1.0	3.6	12.5
Drug effects	0.0	4.7	6.6
Cheap	0.0	0.5	9.2
Feeling in control/focused	0.0	1.6	3.9
Total (n)	203	100	152

*Other benefits include 'alternative to drinking', 'facilitates sex work', 'weight loss due to not eating and increased activity', 'chance to stop thinking' and 'feeling safer'.

Source: EMI 2004.

Some of the positive effects measured by the EMI survey were also reflected in the qualitative data collected for the study. The following quote highlights how the ecstasy experience allowed users to suspend reality and enjoy the moment in which they found themselves while dancing:

> *You had a pill, you blocked out the world man. You just enjoyed the pill. You shut your eyes [while] dancing. You, you know, you just weren't on the planet, you're just really enjoying every micro-nano drop of that drug. You were just there, really present, you know? [Dealer/Male/Brisbane]*

The sense of escape, empathy and enhanced communication that ecstasy can provide is also evident in the following interview excerpt collected by the EMI study:

> *It [ecstasy] makes you feel really good! I think you just relax and you just forget about your everyday mundane bullshit – work, money, stress and all that. It's a release for people, it just makes 'em feel at ease and detached from the mundane restrictions of society…[P] eople become more open they talk to their children more, they talk to their friends more – they are not so closed in.* [Consumer/Female/Brisbane]

Ecstasy also has a perceived functional or self-medicating role for some users. One respondent who was sceptical about conventional medical interventions indicated that she used ecstasy to return her to a state of normalcy given her bipolar condition. She believed that:

> *It [using ecstasy and candy-flipping[11]] actually does help the brain chemistry, you actually feel more control of your mind. And I become very, very artistic…[A] lot of people that are going to psychiatrists have actually been taking E, coke and stuff because they've got issues from when they were children and it is helping them deal with stuff. [Consumer/Female/Brisbane]*

The way in which ecstasy is used to facilitate creativity is also apparent in the above quote. The use of illicit substances has a long history in artistic communities and alternative subcultures, and is often posited as a means of exploring alternate states and perceptions of reality. The prevalence of illicit drug use in such communities is also evident in the AIQ study, which found a relatively high proportion of amphetamine users identifying with creative factions such as artist (18.2%) or musician (16.9%); or counter-culture groups such as hippie (15.9%).

While it is important to acknowledge the positive effects of ecstasy in order to understand demand for ecstasy, it is noted that consumers are aware, and report negative experiences connected to ecstasy use.

Negative effects

Ecstasy is associated with a range of short-term negative effects. The most common unfavourable side effects of ecstasy use include sweating, jaw-grinding or clenching, intermittent paranoia, general fatigue (when coming down), loss of appetite, occasional bouts of nausea and vomiting, skin rashes, anxiety, and blurred or 'glassy' vision (Moore, 1992). It can also cause dry mouth, increased body temperature, an inability to sleep (Topp et al, 1999), mood swings (Williamson et al, 1997), decreased sexual function and libido, and increased blood pressure and heart rate (Gowing et al, 2002). One EMI participant spoke of the following negative effects associated with the use of ecstasy:

> *In the short-term you come down as much as you come up. So for a couple of days afterwards you're gonna be coming down and all that loved-up feeling is gone, you'll be remembering how good it was and how much fun you had…Another side effect is feeling*

[11] "Candy flipping" is concurrent use of ecstasy and LSD.

nauseous because you're body's not used to it…Stomach muscles tighten up, so therefore your bowels tend to let go, so a quick trip to the toilet is often required to release some things. And paranoia can also be a thing for the beginning user. Even looking at a mirror, you see yourself as a different person. You're looking through different eyes. Long-term use, you become a lot more bipolar, you seem to have really high highs and really low lows…you tend to get a lot more frustrated, angry, and disappointed than you normally would and your moves [reactions to situations] seem to be a lot quicker and a lot harsher. [Dealer/Male/Cairns]

Approximately 80% of those surveyed by the EMI study acknowledged that ecstasy use was associated with risks. Table 2-13 shows that the main risks mentioned by participants in association with ecstasy use are related to psychological and physical harm.

Table 2-13. Perceived risks of ecstasy.

Perceived risks associated with ecstasy use	Order of mention		
	1st	2nd	3rd
Depression	18.0	3.8	0.0
Addiction/dependence	10.9	0.0	0.0
Damage to brain function	9.8	8.1	0.8
Other psych harm	7.7	1.3	0.0
Dehydration	6.6	5.6	3.2
Paranoia	6.0	1.9	0.8
Other harm (general)[a]	4.9	6.3	17.7
Psychosis	4.4	1.9	2.4
Other physical harm	3.8	5.0	4.8
Memory impairment	3.3	7.5	0.8
Long-term physical problems	3.3	2.5	1.6
Unknown drug strength/purity	3.3	6.3	8.1
Body temperature regulation	2.7	5.0	2.4
Unknown drug contaminants/cutting agents	2.7	9.4	6.5
General acute physical problems	2.2	3.1	1.6
Legal/police problems	2.2	5.6	8.1
Anxiety/panic	1.6	3.1	0.0
Fatal overdose	1.6	5.6	3.2
Lack of motivation	1.1	1.3	0.8
Cognitive impairment	1.1	1.3	0.0
Non-fatal OD	1.1	3.8	2.4
Financial problems	1.1	3.1	5.6

[a] Other harm (general) includes sleep deprivation

Table 2-13 continued.

Perceived risks associated with ecstasy use	Order of mention		
	1st	2nd	3rd
Increased vulnerability	0.5	0.0	0.8
Over-hydration	0.0	0.6	1.6
Impaired decision-making/risk taking	0.0	0.0	4.0
Driving risk	0.0	0.0	0.8
Aggression/violent behaviour	0.0	0.0	0.8
Taking more drug than intended	0.0	0.0	3.2
Impaired decision-making/risk taking	0.0	1.9	0.0
Driving risk	0.0	1.3	0.0
Taking more drug than intended	0.0	1.3	0.0
Social/relationship problems	0.0	1.3	1.6
Employment problems	0.0	0.0	0.8
Unknown long-term harm	0.0	2.5	12.9
Lack of knowledge	0.0	0.0	2.4
Total (n)	183	160	124

The issue of dependency

There is currently not a reliable body of evidence to support the existence of an ecstasy dependence syndrome. This does not, however, mean that such dependence is not possible. Jansen (1999) argues that for individual cases where ecstasy consumers have had difficulty controlling their ecstasy use, experienced a tolerance effect in dosage, and withdrawal symptoms on cessation of use, these consumers are likely to experience some degree of dependence. While consumers' patterns of drug use are typically weekly or less frequently and their dosage less than two or three tablets on these occasions, dependence is not likely to occur in the same manner as it does for regular, heavy use of methamphetamine or other drugs.

In a study of 187 regular ecstasy users, Topp, Hall & Hando (1997) argued that the DSM-IV[12] criteria for ecstasy dependence were too liberal for this class of drug and that ecstasy dependence, if it exists, takes a different form to that of other drugs. 50% of their sample met dependence criteria including some consumers who used only one tablet per fortnight using the DSM-IV criteria.

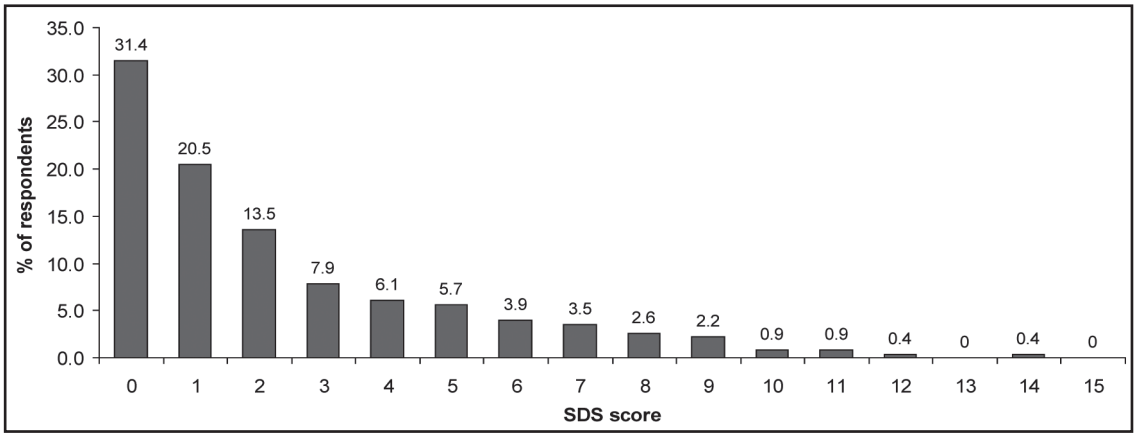
The above table (table 2-12) indicates that a small, but significant proportion of EMI participants believed that dependence was a risk associated with ecstasy use. The issue of dependency was explored to some extent by the EMI study via the inclusion of the Severity of Dependence Scale (SDS) in the survey instrument. The SDS is a five-item self-report measure of psychological substance dependence, developed by Gossop, Darke & Griffiths (1995). Although a cut-off score for dependence has not been established for ecstasy (Topp et al, 1998), if a similar cut-off score to

[12] Diagnostic and Statistical Manual of Mental Health Disorders (DSM-IV). American Psychiatric Association (1994)

that used to measure amphetamine dependence is applied (Topp & Mattick, 1997) 20.5% of EMI participants could be considered dependent on ecstasy according to the SDS.[13]

No significant difference was found between males (M = 2.35) and females (M = 2.51) in their level of dependency (p = 0.661). Figure 2-9 shows the distribution of SDS scores across the sample and reveals that despite some evidence of dependency in some participants, nearly one-third (31.4%) of the EMI sample scored zero on the SDS, signifying relatively stable and controlled patterns of ecstasy use.

Figure 2-9. Distribution of SDS scores (EMI sample)



Source: EMI 2004.

The level of ecstasy dependence among EMI participants is substantially lower than that found among amphetamine users by the AIQ research project. This study found that 39.3% were dependent on amphetamines; female respondents (43.0%) were also more likely than male respondents (35.5%) to be dependent (Lynch et al, 2003).

Table 2-13 provides the responses to the five SDS items in detail. The results reveal that a substantial proportion of respondents (71.2%) never or almost never believed that they would have difficulty in stopping ecstasy use. Furthermore, 69.4% indicated that they never or almost never wished they could stop using ecstasy and 65.9% never or almost never became anxious at the prospect of missing a dose. In contrast, 12.2% reported that they often or always/nearly always worried about their ecstasy use and 11.4% believed that they often or always/nearly always thought their ecstasy use was out of control.

[13] Cut-off point used to determine dependency is a score of 5 or above.

Table 2-14. Responses to Severity of Dependence Scale measures.

Severity of dependence scale measure	Never or almost never	Sometimes	Often	Always or nearly always
Ecstasy use out of control	57.6	31.0	9.6	1.7
Prospect of missed dose makes anxious	65.9	26.6	4.4	3.1
Worry about use of ecstasy	48.5	39.3	10.9	1.3
Wish could stop	69.4	23.1	5.7	1.7
Difficulty in stopping	71.2	21.0	7.0	0.9

(n=229)

Source: EMI 2004.

The ecstasy dependence levels measured among EMI participants need to be interpreted with some caution. Ecstasy often contains substances (including methamphetamine) other than MDMA and as such, some participants may have in fact been reporting symptoms of methamphetamine dependence, rather than MDMA dependence. Nevertheless, consumers interviewed in the EMI study also identified a range of other risks and harms associated with ecstasy use; some of these issues are considered further in Chapter six.[14]

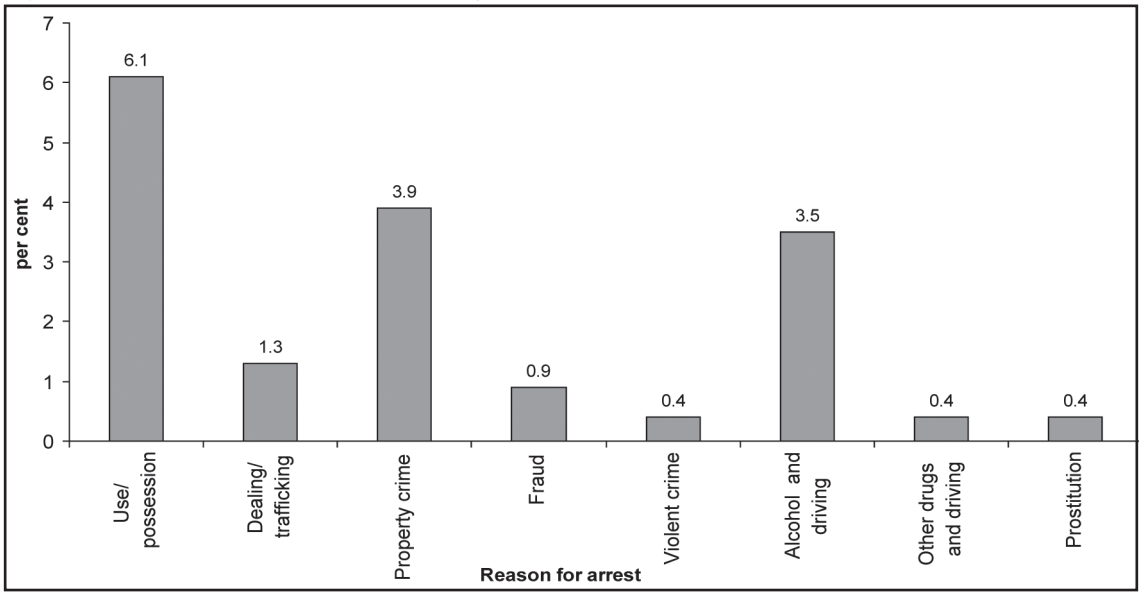
Drug–crime nexus

One of the major concerns regarding illegal drug use is its association with criminal activity (Makkai & Payne, 2003). Further information detailing EMI participants' involvement in criminal activity is profiled in the following section.

The EMI study found that 14.3% of participants had been arrested in the previous 12 months. Figure 2-10 provides information on the types of crimes resulting in arrest committed by the EMI survey respondents. The most common crime was use or possession of illegal drugs (6.1%), followed by property crime (3.9%) and driving under the influence of alcohol (3.5%). Only 1.3% of respondents had been arrested for dealing or trafficking illegal drugs, despite the fact that 61.4% reported that they usually bought ecstasy for both themselves and others, and 21.1% reporting that they had sold illegal drugs for cash profit in the last month (see below). It is noted that some participants had been arrested for more than one criminal offence.

[14] These issues are also considered in more detail in the 2004 State and National EDRS reports. URL: http://notesmed.unsw.edu.au/NDARCweb.nsf/page/EDRSreport

Figure 2-10: Arrested for criminal activity in the last 12 months



n=228

Note: 'Other drugs and driving' includes: drunk and disorderly behaviour, public nudity, suspicion of drugs, unsafe disposal and resisting arrest.

Source: EMI 2004.

Table 2-15 shows the frequency of various crimes committed in the previous month by EMI participants. The results show that dealing illegal drugs for profit was the most common criminal activity. Approximately one in five participants (21.1%) indicated that they had dealt drugs in the preceding month – with nearly half (9.6%) dealing less than once a week, 3.9% dealing once a week and 5.7% dealing more than once a week, but less than daily. A small, but significant proportion of respondents also indicated that they had been involved in property crime (9.2%). There was little involvement in violent crime or fraud reported by ecstasy consumers.

Table 2-15. Involvement in criminal activity in preceding months

Type of criminal activity	None	Less than once a week	Once a week	> once a week, < daily	Daily	Total (n)
Property crime	90.8	7.0	0.9	1.3	0.0	228
Dealing for cash profit	78.9	9.6	3.9	5.7	1.8	228
Fraud	98.7	0.9	0.4	0.0	0.0	228
Violent crime	96.9	2.6	0.0	0.4	0.0	227

Source: EMI 2004.

This section has demonstrated that ecstasy provides consumers with a range of positive and negative outcomes. The positive effects of ecstasy are enjoyed by consumers and are used to rationalise the known and unknown risks accepted when using ecstasy. Although the long-term consequences of ecstasy use are still under debate, it is clear that ecstasy use is associated with a range of short-term adverse effects and risks that can affect consumer's health and social being. This can include psychological dependency and involvement in criminal activity. It is important

to note however, that the results presented in this section do not establish a causal link between ecstasy use and involvement in crime beyond the purchase and possession of illegal drugs. The association between ecstasy use and an increased risk of criminality is a complex relationship involving a range of factors. Regular ecstasy consumers are less likely than regular injecting drug users to be involved in criminal activity, however the prevalence of some types of criminal activity (e.g. dealing) is greater among regular ecstasy users than in the general population.

Mode of administration and consumption rituals

The following section discusses the ways in which ecstasy is consumed. Qualitative data collected by the EMI study highlighted the importance of consumption rituals often associated with the use of ecstasy. These rituals are developed around the sociability of ecstasy use and work to minimise the negative effects of ecstasy. Information on the way in which ecstasy is consumed provides a greater understanding of ecstasy use and how it may be different from the use of other drugs.

Table 2-16 reveals that the main route of ecstasy administration for EMI participants is swallowing – only 5% of those surveyed favour snorting and 4% prefer injecting. The preference for the oral consumption of ecstasy is also evident in other research samples. For example, although the AIQ sample is characterised by high levels of amphetamine injection, ecstasy was not commonly injected by AIQ participants (Lynch et al, 2003). Approximately, one in five (18.3%) AIQ participants reported that they had ever injected ecstasy and 5.7% had injected within the last six months. Although the prevalence of ecstasy injection is relatively low, the 2004 Queensland IDRS (Kinner & Fischer, 2005) has shown a recent increase in the prevalence of ecstasy injection among intravenous drug users, with 38% of IDU reporting recent use of ecstasy and 16% reporting recent injection of ecstasy, albeit only rarely. The injection of ecstasy is rarely identified in the national survey of needle and syringe programs (Thein, Maher & Dore, 2004).

Table 2-16. Main recent route of administration

Variables relating to use	Brisbane n=104	Gold Coast n=77	Cairns n=49	Total N=230
Main recent route of administration (%)				
Swallowing	88	79	100	87
Injecting	2	10	0	4
Snorting	5	9	0	5
Shelving/shafting	2	1	0	1

Source: EMI 2004.

While ecstasy is generally consumed with other people, the ritual of consumption for ecstasy is slightly different than that found for drugs such as cannabis, amphetamine and heroin. This can largely be understood in terms of the different modes of consumption often associated with various drugs. Cannabis, for example, is usually smoked, amphetamine is often injected and heroin is almost always injected. All of these methods are amenable to the ritual of sharing. Ecstasy on the other hand, is usually swallowed; and while tablets may be split for distribution among more than one person, the actual consumption of ecstasy is primarily individualistic.

It's not a shared drug either. [L]ike if you were going to buy pot or a bag [of speed] or something like that, you usually have enough to share with a friend…whereas you're not going to buy three Es in case you have two friends coming over. [Market Regulator - Health /Female/Cairns]

The participant in the above quote also alludes to the economic imperative behind different rituals of consumption. The comparatively low cost of cannabis means that consumers can sometimes be in a position to share with others, while the relatively high cost of amphetamine and heroin may lead to consumers (heavy users especially) combining resources in order to obtain a supply of these drugs. The relatively secure financial position of many ecstasy consumers on the other hand means that there is less economic imperative to combine resources to obtain ecstasy. The individualistic consumption pattern of ecstasy use compared to other illegal drugs is apparent in the following quote:

First time users, they might chip in and share an E (half each or something), but generally once they have been using for awhile, they'll be taking one for themselves. Whereas people that use speed, they will often put in together to get a gram, or something like that, so that way they're pooling their money so they can afford it. [Market Regulator - Health /Male/Cairns]

Ecstasy purchase patterns are discussed further in Chapter five.

A night using ecstasy can be very ritualistic. Most consumers have certain patterns of planned behaviour they associate with the consumption of ecstasy – and some of these behaviours involve the implementation of harm-reduction strategies. For instance, consumers may prepare for a night out by eating well, drinking lots of water and making sure they get enough sleep during the days leading up to time of consumption. One EMI participant noted that:

…certain foods will really help the comedown, and help you be healthy before you do it as well. Like I always make sure I eat really well before I go partying. [Consumer/Female/ Brisbane]

Other rituals of consumption include fasting which may be practiced just prior to consumption, with the belief that an empty stomach facilitates the absorption of ecstasy if administered orally. The custom of meeting at a private location before going out together also often occurs. As one participant stated:

A typical scenario would be that we catch up at one mate's place and we might have a couple of lines of coke each, and then have a few beers or bourbons, or whatever. We will just sort of chill and then we'll pop a pill and we'll probably wait about half an hour before we hop in the car and go into the Valley. [Dealer/Male/Brisbane]

The above quote highlights a number of issues relating to ecstasy use. Its consumption is highly social and embedded in patterns of poly-drug use. Meeting prior to going out allows users to consolidate the group and prepare for the series of events expected to follow. Entering a venue already intoxicated later in the night, rather than earlier, allows users to immediately connect with the event's proceedings.

The comedown associated with ecstasy can also be an important component of the ritual of consuming ecstasy. Consumers may utilise the 'chill out' spaces often provided by venues/events or return to the comforts of home to attend to 'coming down'. The custom of at least commencing the initial stages of comedown in the presence of others provides a supportive context in which to experience the psychological and physical effects of the comedown. The following quote

demonstrates how the effects of the comedown are eased or managed by the use of other drugs within a sympathetic environment:

> *It's sort of like, once your peak has gone, they'll have a bit of alcohol in the morning, like the champagne will come out, or the scotch will come out, and everyone will have a drink and that's breakfast. And we'll eat fruit as well. There's always someone in the crew who will go around with a fruit platter and look after everyone – even at house parties. [Consumer/Female/Brisbane]*

This section has shown that the consumption of ecstasy can be somewhat ritualistic. Ecstasy is generally consumed with other ecstasy users who provide a supportive context for use. The common practice of swallowing ecstasy provides a highly accessible mode of consumption that is not associated with the risk of blood-borne viruses. The mode of consumption generally practiced with ecstasy consumption, however, has been nominated as one of the factors promoting the normalisation of ecstasy use in Australian society. This issue is explored further in the following section.

Normalisation of ecstasy use

The increased prevalence of ecstasy use over the past 10 years has led to a growing concern that the use of ecstasy is progressively becoming normalised or accepted as an ordinary part of everyday life for some Australians (Duff, 2005). Representations of ecstasy consumers are increasingly found in mainstream culture, and subcultural codes and signifiers of use are frequently used by the advertising industry to sell products to the general community. The increasing prevalence of ecstasy use also means that more people are becoming either directly or indirectly exposed to its consumption. The following section explores the normalisation of ecstasy via a range of data sources including the NDSHS and EMI studies. Indicators of normalisation include acceptability and perceived risk of consumption of various substances. The concept of normalisation was also discussed by participants interviewed in-depth by the EMI project.

One possible indicator of the normalisation of ecstasy is the perceived acceptability of this particular substance. A measure of acceptability is provided by the NDSHS which asks respondents to comment on the acceptability of regular use of a range of drugs by adults. Although the regular use of ecstasy by adults was not seen as acceptable by the majority of respondents, it was more acceptable than the regular use of other illicit substances including heroin, amphetamine, cocaine and hallucinogens (See Table 2-17). A slight increase in acceptability of ecstasy between 2001 and 2004 is also apparent; and males, more than females, were more likely to perceive the regular use of ecstasy by adults acceptable.

Table 2-17. Acceptability of regular drug use by adults by gender (NDSHS, 2001 and 2004)

Drug	Males		Females		Persons	
	2001	2004	2001	2004	2001	2004
	(per cent)					
Tobacco	42.5	42.1	36.8	36.5	39.7	39.3
Alcohol	81.4	82.7	68.0	71.4	74.7	77.0
Marijuana/cannabis	27.4	27.4	20.1	19.0	23.8	23.2
Painkillers/analgesics[a]	6.7	9.0	5.8	7.0	6.3	8.0
Tranquillisers/sleeping pills[a]	4.5	5.9	3.2	4.2	3.8	5.0
Steroids[a]	2.8	3.2	0.9	1.2	1.8	2.2
Barbiturates[a]	1.6	1.6	0.7	0.8	1.1	1.2
Inhalants	1.1	1.1	0.5	0.5	0.8	0.8
Heroin	1.5	1.2	0.6	0.5	1.1	0.9
Methadone[b]	1.7	1.5	0.9	0.7	1.3	1.1
Meth/amphetamines (speed)[a]	4.1	4.1	2.3	2.1	3.2	3.1
Hallucinogens	na	3.8	na	1.6	na	2.7
Naturally occuring hallucinogens	5.3	na	2.4	na	3.8	na
LSD/synthetic hallucinogens	3.4	na	1.6	na	2.5	na
Ecstasy[c]	5.3	5.9	2.6	2.5	4.0	4.2
GHB	na	1.3	na	0.5	na	0.9
Ketamine	na	1.3	na	0.6	na	1.0

[a] For non-medical purposes.

[b] Non-maintenance.

[c] This category included substances known as 'Designer drugs' prior to 2004.

na = not applicable

Note: Statistical significance testing was not undertaken for this table. Source: AIHW 2005a.

The acceptability of consuming illegal drugs is influenced by a range of factors including the perceived risk of using a particular drug (Parker, Williams & Aldridge, 2002). The NDSHS (AIHW, 2002 and 2005a) provides a measure of perceived risk by asking respondents to indicate which drugs they consider to be associated with a 'drug problem'. Table 2-18 shows that ecstasy was rarely nominated as a problematic drug in the first instance. Heroin (39.4%), marijuana/cannabis (29.2%) and alcohol (10.0%) were the primary drugs nominated in 2004. Only 2.6% of participants nominated ecstasy first in 2004; however, this represents a slight increase to the 2001 result of 2.3%. The acceptance of ecstasy use based on its perceived risk is apparent in the following quote from one of the EMI participants who believed that ecstasy is "…really safe…one of the safest ones that you can take" [Consumer/Male/23/Cairns].

Table 2-18. Drug first nominated when thinking about 'drug problem' by gender, NDSHS, 2001 and 2004

	Males		Females		Persons	
Drug first nominated[a]	2001	2004	2001	2004	2001	2004
			(per cent)			
Tobacco	2.8	4.1	2.6	2.5	2.7	3.3
Alcohol	7.9	10.2	7.7	9.8	7.8	10.0
Marijuana/cannabis	23.8	29.3	23.5	29.1	23.7	29.2
Painkillers/analgesics[b]	0.5	0.4	0.5	0.5	0.5	0.5
Tranquillisers/sleeping pills[b]	0.3	0.3	0.6	0.6	0.4	0.5
Steroids[b]	-	0.2	0.1	0.2	-	0.2
Barbiturates[b]	0.1	0.2	0.2	0.3	0.1	0.2
Inhalants	0.3	0.4	0.4	0.4	0.3	0.4
Heroin	50.6	39.7	49.6	39.1	50.1	39.4
Meth/amphetamines (speed)[b]	4.3	5.2	5.0	5.8	4.6	5.5
Cocaine	5.5	6.3	5.7	7.2	5.6	6.7
Naturally occuring hallucinogens	0.1	-	0.1	0.1	0.1	0.1
LSD/synthetic hallucinogens	0.4	0.5	0.5	0.5	0.4	0.5
Ecstasy[c]	2.2	2.2	2.5	2.9	2.3	2.6
GHB	n.a.	-	n.a.	-	n.a.	-
Ketamine	n.a.	-	n.a.	-	n.a.	-
Kava	-	-	-	-	-	-
Tea/coffee/caffeine	0.1	0.3	0.3	0.2	0.2	0.3
Drugs other than listed	0.3	-	0.2	0.1	0.3	-
None/can't think of any	0.7	0.5	0.6	0.7	0.7	0.6

[a] Respondents were allowed to nominate up to two drugs.

[b] For non-medical purposes.

[c] This category included substances known as 'Designer drugs' prior to 2004.

Note: Statistical significance testing was not undertaken for this table.

Source: AIHW 2005a.

The process of normalisation

The normalisation of ecstasy was a key theme identified during the analysis of qualitative data collected by the EMI study. The following section discusses the processes involved in the normalisation of ecstasy and highlights some of the reasons why ecstasy use may be more acceptable than the use of other illegal drugs.

Participants in the EMI study suggested that mode of administration played a significant role in the initiation and normalisation of ecstasy use. It was believed that the simple process of oral consumption facilitates the use of ecstasy, since the custom of swallowing pills is a familiar practice in Western society. Oral administration is simple – it does not require special equipment or involve acquiring specialised knowledge about injecting procedures. Oral consumption also

evades the stigmatisation sometimes associated with injecting drug use and avoids the risk of blood-borne viruses. The following quote illustrates how mode of administration may influence initiation to ecstasy use:

> *Ecstasy provides a simple mode of entering into a world of drug use – because it is in tablet form…Everybody has been taking aspirin since they were kids…I usually see a group of people that are really totally against drugs until they have used ecstasy – and then they are totally into them [drugs]. Which is an interesting paradigm shift. [Consumer/Male/23/Cairns]*

The participant quoted above not only refers to the way in which the administration of ecstasy in tablet form assists in the normalisation process, but also suggests that the acceptance of ecstasy use by individuals may lead to experiment with further drug use.

Experience with ecstasy also forms an important part of the normalisation process. Exposure to enjoyable ecstasy experiences reinforces the likelihood of future use (especially if occurring in the context of a supportive peer group) and provides an alternative framework for the social interpretation of its use. As one respondent stated:

> *The general thought about drugs is that they will be detrimental to your health, they'll change the way you think irreparably, you'll become detached from society, you'll have all these failings. When people do experience a drug, especially something like ecstasy… when basically all it is, is you just going, "Oh, I feel great!" and bouncing off the walls… they realise that it isn't this huge great big evil…[Consumer/Male/23/Cairns]*

The realisation that ecstasy is not necessarily damaging (as suggested in the above quote) is linked to the experiences it generates and how these experiences compare to the use of other substances. The use of ecstasy for example, was often compared and contrasted with the use of alcohol. Consumers weighed up the advantages and disadvantages of ecstasy in comparison to those associated with alcohol. This information was then used to rationalise their use of ecstasy. A night on ecstasy was often perceived to be less expensive and more exhilarating than a night on alcohol, yet was associated with more tolerable negative side effects (e.g. less severe hangover). As one participant stated:

> *You don't have a hangover the next morning [when using ecstasy]. You are coming down, [but] you don't get a shocking headache, a nauseous feeling, and everything else that comes with it [using alcohol]. You're just not quite there for a while – but you can still get up and do things if you want to. [Dealer/Male//Cairns]*

Another participant agreed that ecstasy was superior to alcohol since it allowed you to dance and was not associated with the same hangover effects.

> *I'll never go back to alcohol. I don't rate it as a drug. To me, if I have a few beers or bourbons, when I start feeling a bit tipsy – stop! That's it. Anything after that it's all bad. It's no dancing material. It's slurring words material. It's hangover material. [Dealer/Male/Brisbane]*

Ecstasy use was also considered less risky than alcohol in terms of exposure to violence. Female ecstasy users in particular stated a preference for venues associated with ecstasy use, given the relatively high level of violence associated with venues associated with alcohol use. The fact that ecstasy is often credited with superior qualities to alcohol by consumers forms another important component of the normalisation of ecstasy.

The preference for ecstasy over alcohol (a legal drug) helps to position ecstasy use as socially acceptable and assists in the rationalisation of its use. The distinction between licit and illicit

substances becomes blurred in the eyes of consumers, during this process. The normalisation of ecstasy is also facilitated by some nightclubs and by the attendant dance subcultures. The existence of 'chill out' or 'cool down' areas, special lighting effects and dance-orientated music all contribute to the normalisation process by catering to ecstasy consumers. The promotion of the benefits of ecstasy and the sanctioning of its use is apparent in the views of dance scene participants (Measham, Aldridge & Parker, 2001).

This association between particular drugs and specific modern youth subcultures has been evident in the declining popularity of LSD (which is arguably perceived as a more risky drug) and the continuing popularity of cannabis as well as in the increasing use of ecstasy. Where consumers perceive low levels of risk and experience few negative consequences of any severity, such patterns of drug use are likely to continue until another subculture, with attendant drug use, becomes the new fashion or an 'old' fashion is re-discovered. Some consumers within older age cohorts cling to at least the memory of these youthful experiences, while others forget or deny them.

The results discussed in this section provide some evidence and understanding of the normalisation of ecstasy. The regular use of ecstasy is perceived to be as acceptable as cannabis and more acceptable than the regular use of other illegal drugs. It is rarely associated with a 'drug problem' by the general community. Factors influencing the normalisation of ecstasy include prevalence of use, mode of administration, perceived benefits of use, positive experiences and the social codes of affiliated subcultures.

Managing use

The lack of control over the content of ecstasy means that some consumers may emphasise the management of factors that can be controlled. Such factors may include the physical and social environment in which it is consumed, when and how the ecstasy is consumed, how much ecstasy is consumed and the implementation of coping strategies to deal with the side effects of ecstasy. The following section focuses on some of the ways in which ecstasy use is managed by consumers.

> *The nature of the drug [ecstasy] means that you never know the exact effect of each ecstasy, it varies…[S]peed you basically know what it's going to do, and coke, you know what it's going to do…whereas with ecstasy…it might be a real smacky E that you wanna lie down with, or it might be a real speedy E that you wanna dance with. But there's the unknown denominator [sic] with ecstasy. [Market Regulator - Health /Male/Cairns]*

As the above quote demonstrates, consumers expect the effects of ecstasy to vary and actively respond to this diversity. However, the varied effects of ecstasy occur within a relatively predictable sequence of events. The ecstasy experience trajectory generally involves a period of onset, followed by a coming up and plateau period, which is then followed by a coming down and post-effects period. The length of each period is influenced by 'drug', 'set' and 'setting' (Zinberg, 1984). That is, the pharmacological content of the ecstasy and other drugs consumed, the person who has taken the ecstasy and the place in which it has been consumed. Knowledge about what to expect from the ecstasy experience is socialised within the peer group, the mass media and gained from actual experience. The importance of developing knowledge about ecstasy via experience is evident in the following interview excerpt from the EMI study:

> *After using ecstasy for a while you seem to get a little more appreciative as to where it is going to take you. [Dealer/Male/Cairns]*

The element of 'order within chaos' characterising the ecstasy experience means that managing use relates to when ecstasy is actually consumed on any particular occasion. Consumers generally

plan their ecstasy consumption and administer the drug so its effects are experienced at particular points in time. For consumers using at dance or rave events, such points generally coincide with the appearance of their favoured DJs. As one EMI participant suggested:

> *Usually we plan it [taking ecstasy]. Or it will rely on what DJ is coming on. You'll pace yourself, like you don't want to go too hardcore early on in the night when there's shit music…[P]eople are really aware and controlled about how they take it, when they take it and where they are going to take it, and they pace themselves too. Usually they'll have one, most of us drop around 12.30, one o'clock and that's when the good DJs are coming on, and then you'll probably have another one in the morning at an after party. [Consumer/Female/Brisbane]*

For many consumers managing the effects of ecstasy also entails making sure that they use ecstasy with people that they can trust to look after them if something goes wrong. The following quote illustrates at length some of the strategies used to 'bring someone back' from a bad ecstasy experience.

> *Risk management…generally comes down to the people that you are with. In my group of friends it is usually me. I've done a counselling course, I know how to talk to people easily in a calm voice, and bring them back to where they need to be…I have an appreciation of where they are and what they're going through. I have used myself and I know what's going on. I'll have a listen. I don't have any fear in my voice to suggest that I am worried, so they don't go further down, because by that stage, they've lost it a fair bit…If it is something that starts going further, then I'm certainly more than happy to get medical assistance. Usually we're playing with something dangerous, and we respect that.*
> [Dealer/Male/Cairns]

The above interview passage demonstrates that users are aware of risks and have developed strategies to deal with them. The quote also implies that you can turn a bad ecstasy experience into a more enjoyable one by altering a person's mindset. By using a calm voice and providing reassurance a person can be 'bought back' from a bad experience. Taking responsibility for the welfare of others using ecstasy was a recurring theme in the in-depth interviews with regular consumers. This sense of community was more apparent in the underground context of ecstasy use. As the following quote illustrates, commercialised dance or music events were less renowned for providing a peer-based supportive context for ecstasy use.

> *[P]eople really look out for each other in that sort of scene. You don't let people take too much and if you know someone's only just experimenting with it, you make sure they only have one. It's very controlled…I notice that we get a lot of people dropping at things like Adventjah and Big Day Out and that's because it's not as close knit as other venues. At outdoor festivals way out woop woop, you don't get people dropping because everyone looks after one another. [Consumer/Female/Brisbane]*

The perceived greater prevalence of people 'dropping' at large organised events such as the Big Day Out was explained by the greater likelihood of alcohol being used in combination with ecstasy at these events. It was also suggested that people at these events had a greater chance of losing their friends due to the high number of people who attend. This in effect increased the risk of persons not receiving support or medical attention in the event of a negative ecstasy experience.

Researching ecstasy and its effects is also a common method of managing the ecstasy use. This generally involves seeking information from other ecstasy users and the Internet. These sources of information provide knowledge about specific brands of ecstasy pills and ecstasy in general. This knowledge allows ecstasy users to determine and prepare for anticipated outcomes and endows users with a sense of informed choice with regard to their drug use. As one EMI participant stated:

You go through a stage of finding out about the drug and what is doing [to you]. You tend to really do your research. You get on the net, read books, talk to a lot of people, and you tend to retain a lot of information. [Dealer/Male/30/Cairns]

Another component of managing ecstasy use involves the presentation of 'self' while experiencing the effects of the drug. There is a subcultural onus on ecstasy consumers to maintain an image of control and being able to cope with the altered state caused by ecstasy use. This is especially the case in situations that may lead to contact with law enforcement or requesting entry into particular venues. One EMI participant also referred to the way in which participants in the dance scene can censor those who readily appear outwardly intoxicated by ecstasy as follows:

It's really ironic or hypocritical. At a club, if you are off your rocker, people will look at you funny. [They'll go,] 'hang on a second mate, leave!'…Therefore, in order to not get people to look at you funny, you've got to be dancing, having a good time, but somehow look a bit lucid. You've got to look [in a way] that doesn't make people go, 'Look at you, you drugo'. [Dealer/Male/30/Cairns]

The above quote demonstrates that a certain stigma can be attached to those seen to be not coping. One of the ways of maintaining this sense of control is to deal with the negative effects of ecstasy in private. As one EMI participant suggested:

If I feel sick [when using ecstasy], I'll go and do it discreetly, I'll do it with etiquette…I'll make sure I'll go around the back, if it's a house, and spew so nobody can see me, or I'll go out in the bush. [Consumer/Female/Brisbane]

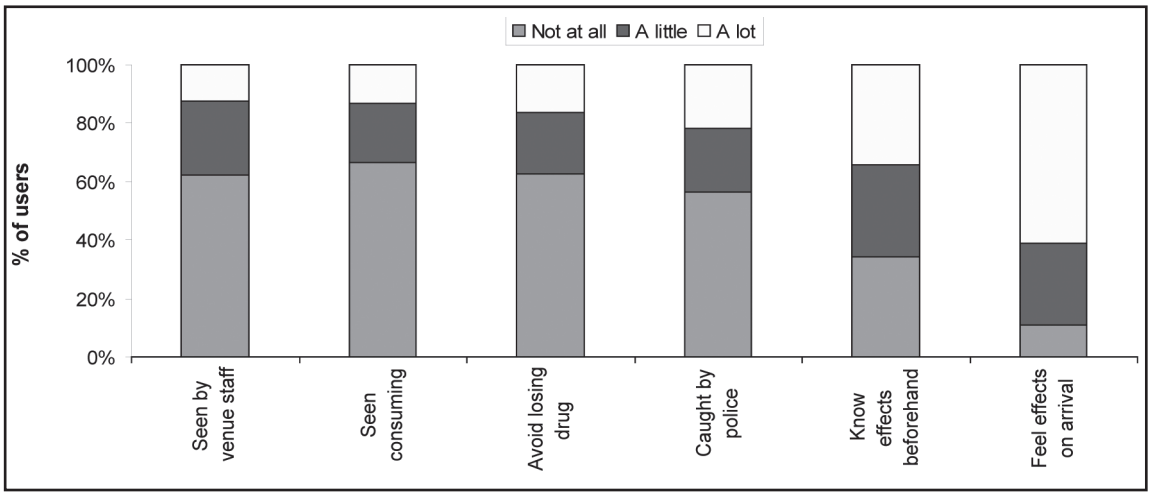
It appears that consumers do not expect to be attended to by unknown persons in the event of a bad ecstasy experience. This point reinforces the importance of consuming ecstasy within the context of a supportive peer group.

These strategies of risk management are framed by researchers such as (Measham, 2004a; Measham, 2004b) in terms of 'controlled loss of control'. She argues that:

Drinking and recreational drug use occur at specific times and in specific places. The counter balance to the control, stress and performance of our work lives, is the distinct physical, social and 'head' space we mark out to facilitate a 'controlled loss of control' in leisure time and in the consumption of a range of legal, prescription and illicit drugs to medicate for the problems and maximise the pleasures in an increasingly stressful world. …. The desire to lose control, to lose oneself is, therefore, within the bounded settings of certain leisure locations and certain leisure activities which include the pursuit of the 'controlled loss of control' through the recreational use of legal and illegal drugs in pubs and clubs. (Measham, 2004a, pp. 343–344)

The management of ecstasy use also relates to where the substance is consumed (see Figure 2-11). The EMI survey asked respondents where they consumed ecstasy and found that almost half (44%) reported that they consumed ecstasy in a different place to where they experienced its effects. The most common reasons for doing so indicated a desire to manage the effects of ecstasy and included (a) 'To feel the effects of the ecstasy when arriving at an event' (89%), and (b) 'To know the effects of the ecstasy before going out' (66%). Smaller proportions of respondents reported doing so 'To avoid being caught by police' (44%), 'To avoid losing the ecstasy before using it' (37%), 'To avoid being seen taking ecstasy by other people' (33%), or 'To avoid being caught by staff at venue' (38%).

Figure 2-11: Reasons why ecstasy users consume ecstasy at a different venue to experiencing its effects



Source: EMI, 2004.

The use and management of ecstasy is also coordinated in relation to the consumption of other drugs. Additional stimulant substances (e.g. amphetamines or LSD) may be consumed in association with ecstasy to enhance or prolong the ecstasy experience, while depressant substances (e.g. alcohol, cannabis or benzodiazepines) may be consumed to self-medicate and assist in the comedown. The issue of poly-drug use is discussed further in the following section.

This section has highlighted the importance consumers place on planning and making informed choices regarding ecstasy use. Certain strategies are implemented by ecstasy consumers in order to manage the effects of the drug. These include consuming in a supportive context, maintaining a healthy body, consuming ecstasy at particular points in time, gaining knowledge about the drug from various sources and using other substances to self-medicate the comedown.

Information sources for ecstasy risks

Assertions that ecstasy consumers would cease using if they were fully aware of the risks involved are not sustained in the research literature. Previous studies of various populations, including recent drug users and adolescents in several nations, also failed to support claims of the perceived safety of ecstasy. Epidemiological surveys from Australia, the USA and UK consistently report high proportions of young people who perceive considerable risk in using ecstasy. Studies in ecstasy consumers show that they are aware of a number of short- and long-term risks of ecstasy use, although, in the absence of actual problems themselves, they evaluate the personal significance of these risks as low.

Gamma et al. (2005), based on an online survey of over 900 ecstasy consumers, argue that these consumers are well aware of the risks in ecstasy use but they do not perceive these risks as being likely to effect them individually. Seventy-three percent of the participants in the online survey viewed ecstasy as carrying at least 'some risk'. The claim of ecstasy's perceived safety is plausibly based on researchers' assumptions that the continued widespread use of the drug indicates that consumers are unaware of the associated risks, and that informing them about these risks would lead to a reduction in drug use. It can equally be argued that these assumptions are inadequate and that drug information and harm reduction strategies should focus on more affective and personally significant aspects of risk perception.

Three sources of drug-related knowledge that served to inform and contribute to the use of harm reduction practices among illegal drug users have been identified. These include 'experiential learning' (user gradually increases dosage of substance in order to gauge quantity that will produce

the maximum effect), 'observational learning' (direct observation and reported drug experiences of others) and, least influential, 'database sources', arising from academic research, parental advice, the education system and the media (Gamble & George, 1997).

A recent study of 40 ecstasy users in Australia (Panagopoulos & Ricciardelli, 2005) identified a broad range of self-directed harm-reducing strategies that were primarily preventative and executed within the ecstasy-using peer group. The importance of the peer group in minimising harm was further illustrated in the reported 'group' or 'shared' decision-making that takes place in the event of a dangerous situation. The types of harm-reducing strategies and practices reported were predominantly preventative, most of which were drug-specific (e.g. to pace dosage, to buy from a known dealer) and behavioural (e.g. taking breaks, having an exit plan). Thus, given the largely preventative strategies reported, predominantly involving physiological and behavioural practices, it appears that some of the ecstasy consumers feel they have a degree of control over their ecstasy experience, in particular their ability to manage harms. These types of strategies are consistent with those reported by other ecstasy users (Shewan, Dalgarno, & Reith, 2000; Hansen, Maycock & Lower, 2001; Gascoigne, Dillon & Copeland, 2004).

Poly-drug use

The prevalence of poly-drug use means that the ecstasy market cannot be comprehensively conceptualised, measured and understood as an isolated market. The ecstasy market is highly interconnected with other drug markets and effective responses to ecstasy use need to address the complex issue of poly-drug use. As one of the regulators interviewed for the EMI project noted:

> *One should also consider poly-drug use as well. And that's a big issue right across the drug market. When I started working [in the drug field] you could clearly identify – somebody is a cannabis user, somebody is an amphetamine user and someone is a heroin user. But then, they started to blend. For example, cannabis is used to ease the crash after speed, and coke and heroin. Poly-drug use is a real issue. [Market Regulator - Law Enforcement /Male/Brisbane]*

The prevalence of poly-drug use is evident in the results of the EMI study which show that regular ecstasy consumers tend to have a history involving the consumption of a range of illegal drugs and often combine drugs while using ecstasy in order to manage or enhance the ecstasy experience. The average number of drug classes (including alcohol and tobacco) ever used by EMI participants is 9.5, while the average number of drugs used recently is 6.5.

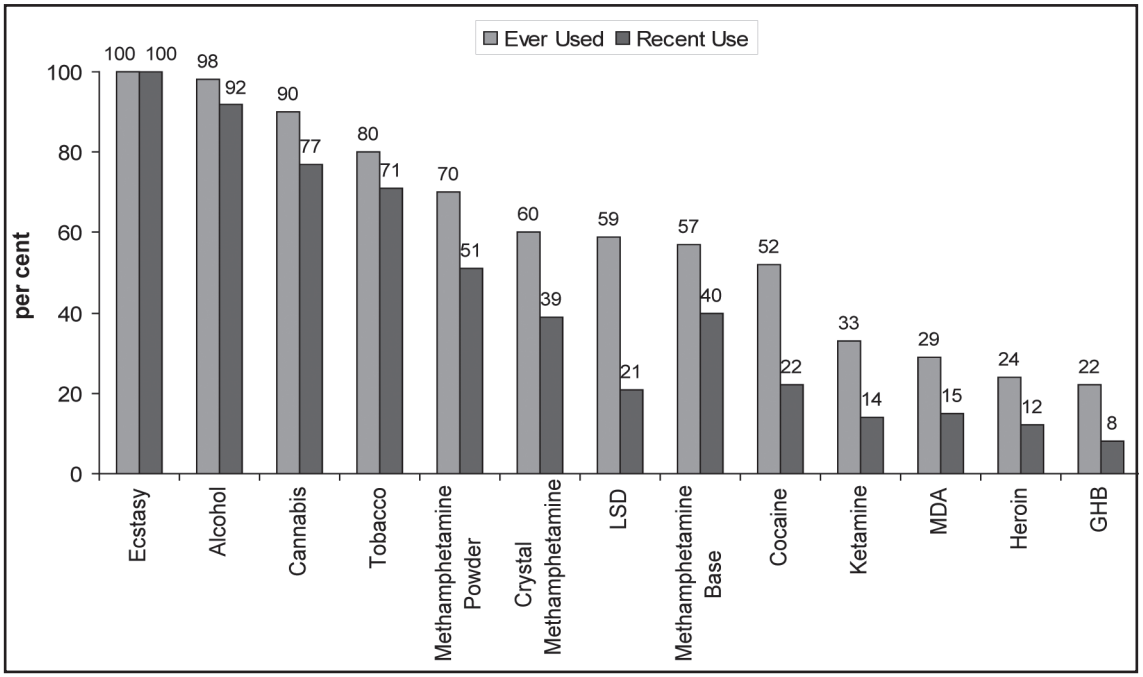
Figure 2-12 shows the prevalence of drug use by drug type found among regular ecstasy consumers by the EMI study. After ecstasy, the most common drugs ever used by respondents are alcohol (98%), cannabis (90%) and tobacco (80%). About nine in ten respondents had recently used alcohol (92%), over three-quarters (77%) had recently used cannabis and 71% had recently used tobacco. Over half of all respondents had ever tried methamphetamine powder (70%), methamphetamine base (57%) and crystal methamphetamine (60%). About half of the participants (51%) had used methamphetamine powder recently, 40% had recently used methamphetamine base and 39% crystal methamphetamine.

Over half of respondents had ever used cocaine (52%) and nearly a quarter had done so recently (22%). Almost six in ten (59%) respondents had ever used LSD and 21% had done so recently. A third of respondents (33%) had ever tried ketamine and 14% had recently used it, while over a quarter of respondents had ever used MDA (29%) and 15% had recently used.

The prevalence of poly-drug use varied between the research sites. Most notably, Brisbane respondents were more likely than respondents in Cairns and the Gold Coast to report ever using amphetamines, MDA, ketamine and GHB, while respondents in Cairns were more likely than the

respondents in Brisbane and the Gold Coast to report ever using cocaine and heroin. Given that the heroin market in Cairns is limited, these results may reflect sampling bias due to recruitment of consumers with experience of heroin outside of Cairns. [15]

Figure 2-12: Prevalence of poly-drug use by regular ecstasy users[a]



[a] N=229. Source: EMI 2004.

The results of the EMI survey also show that the use of other substances in conjunction with ecstasy use is common among regular ecstasy consumers. Nine out of ten (90.4%) EMI participants reported that they use other drugs in combination with ecstasy, while 80.3% reported they use other substances while coming down from ecstasy. Figure 2-13 shows that the most common drugs used in combination with ecstasy are alcohol (68.0%)[16], tobacco (59.8%) and cannabis (56.3%). The use of other amphetamine type substances in combination with ecstasy is also relatively common, with 29.7% using methamphetamine powder, 27.5% using base methamphetamine and 20.5% using crystal methamphetamine. Similarly, the AIQ research project showed that a considerable proportion of amphetamine users (23.5%) usually use ecstasy in combination with amphetamine to 'come up' (Lynch et al, 2003).

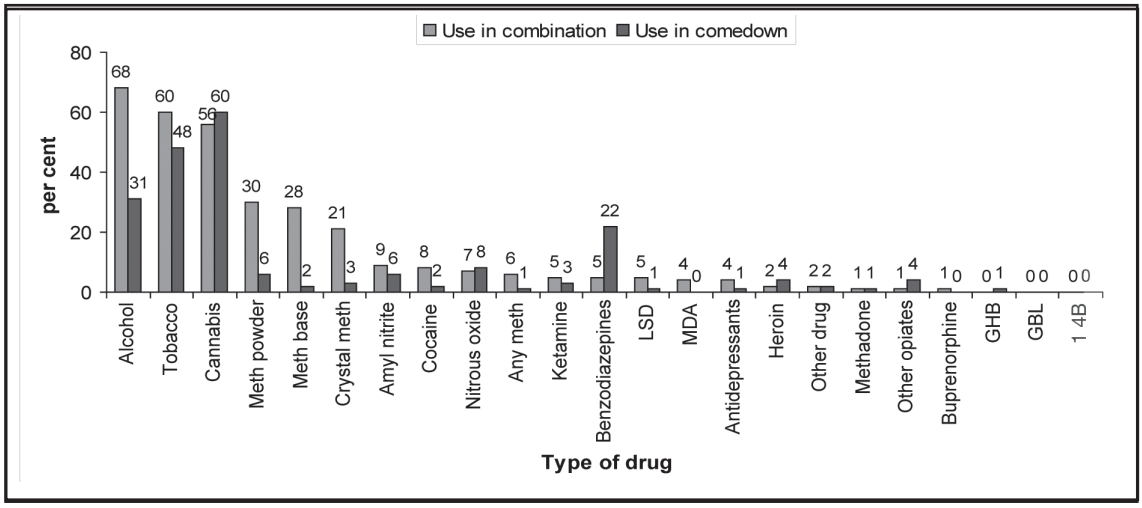
Cannabis (60.3%), tobacco (48.0%) and alcohol (31.0%)[17] are the most favoured drugs used while coming down from ecstasy. The results also indicate the relatively common use of benzodiazepines to ease the ecstasy comedown (21.8%).

[15] Caution should be used when considering these results due to the smaller sample sizes associated with each region.

[16] Three-quarters (74.2%) of those reporting the use of alcohol in combination with ecstasy indicated that they consume more than 5 drinks.

[17] Three-quarters (75.8%) of those reporting the use of alcohol while coming down from ecstasy stated that they consume more than 5 drinks.

Figure 2-13: Types of drugs used while consuming ecstasy (in combination with and during comedown) by regular ecstasy users



Source: EMI 2004.

The ways in which substances are combined to enhance the ecstasy experience is evident in the data collected by the in-depth interviews held with consumers for the EMI project. The way in which ecstasy is used in conjunction with other illicit substances to enhance the ecstasy experience is evident in the following quote:

> *Say if I'm having a binge…you'll have a night on ecstasy and then you might have a little bit of speed or something to keep you going for a little bit longer…or maybe, a bit of LSD…maybe just for a different high, a different rush. [Consumer/Male/Cairns/20]*

As the above results indicated, cannabis is commonly used by regular ecstasy consumers in combination with ecstasy and during the comedown associated with ecstasy. The following quote shows how cannabis is used to bring on and extend the effects of ecstasy:

> *I'd have had eight pills that night and they were good pills. It was about 11.30am and a guy said to me, 'Trust me, if you have one suck on this joint, all those pills you had will just come rushing'… Another time I was in X [a nightclub] and I said to this guy, 'Look, I had two pills tonight and I got nothing man'. He said, 'Oh you need to have some of this [passed him a joint]'. I said, 'I don't do that'. He said, 'Trust me, this'll be your trigger'. And it did – it bought them on. [Dealer/Male/Brisbane]*

The compounding effects of poly-drug use relates to both negative and positive outcomes. EMI participants reported that the combination of ecstasy with other drugs created an experience greater than the 'sum of parts'. As a respondent noted, 'Ecstasy plus acid, is not just the feeling of ecstasy plus acid. It's multiplied' [Dealer/Male/Cairns]. The multiplied effect produced by combining certain substances is particularly attractive to experienced ecstasy users who have built a tolerance to ecstasy, and consumers in general who are interested in exploring ways to achieve heightened drug-related experiences. As one EMI participant commented:

> *[You] start to become your own personal chemist. I can have this, and these things seem to work with that, and I'll try this with this and that with that…So you might go candy-flipping which is ecstasy and acid or snowball which is ecstasy and coke. I can't*

remember the name of ecstasy and speed, but ecstasy seems to go with pretty much everything except for ketamine from what I've worked out. [Dealer/Male/Cairns]

It is evident that the practice of combining more than one drug in a single episode develops over a user's trajectory of drug use. EMI participants suggested that poly-drug use is more likely to occur with experienced users who had developed a repertoire of knowledge about the different effects of various substances and how they may interact with each other. This knowledge is used to manage or evade the potential negative outcomes associated with poly-drug use. One participant stated:

I'm involved in a poly-drug user scene. More often than not, they're quite experienced users – they've used a variety of drugs before and they understand the effects of each different drug...I'll find that we'll go to a party and we'll have a few beers in the afternoon, then someone will take some ecstasy, then coming down they'll smoke some dope and then probably take some acid after that…I think it's because people understand the substances that they are taking a lot more, they know what's reacting with what and what they can't handle and what they can handle; you know, what's good for their body, and what's…obviously none of it's good for their body, but, um, yeah, you know, what they can handle…[Consumer/Male/Cairns]

Although more research is required to establish the specific implications of poly-drug use for consumers, it is generally accepted that conjunctional use of multiple substances acts to compound their effects. Poly-drug use also means that the negative consequences attributed to certain substances are often difficult to distinguish from the negative outcomes caused by combining more than one substance at a time. It is also worth pointing out that the various combinations of substances sold as ecstasy means that poly-drug use may prevail even when only 'ecstasy' is consumed.

This section highlighted the importance of understanding ecstasy use in the context of poly-drug use. It is evident that most regular ecstasy consumers have used a range of illicit substances and often use other drugs in combination with ecstasy. Poly-drug use provides users with a means of heightening and managing the ecstasy experience, but increases the risk of adverse experiences and health outcomes for users.

The demand for ecstasy among young people in Australia has grown steadily since the early 1990s. It is now the second most popular illegal drug after cannabis. Understanding and measuring consumer demand is essential to market profiling. It is essential to determining the size of illegal drug markets and to provide a context within which to influence consumer attitudes and behaviours. Ecstasy consumers are also the most retail end of the supply chain. It is through consumer interaction with suppliers that opportunities for research into the middle levels of the supply chain in Australia are most likely to occur.

This chapter has provided a fine-grained picture of the ecstasy market in Queensland. The dynamics of this market can only be understood by an equally detailed study of the supply-side of the market. While the satisfaction of demand through consumption is an inherently local process, the supply-side of the ecstasy market in any Australian jurisdiction is an international as well as local process. The following Chapter three details the international and national levels of the supply chain and Chapter four addresses the supply chain within Queensland.

Chapter three: Supply in international and national ecstasy markets

Summary

- Tablets sold as ecstasy usually, but not always, contain MDMA, a phenethylamine of the amphetamine group of drugs, manufactured from precursor chemicals derived from safrole. There is a significant illicit international trade in these chemicals. Global ecstasy production is still concentrated in the Netherlands and Belgium, although this concentration has declined over the last decade, with some level of manufacture of tablets with mixed content now reported in many countries where ecstasy is consumed.
- The United Nations Office on Drugs and Crime (UNODC) collects international data on seizures of the drug ecstasy, as well as precursor chemicals and laboratories used in its manufacture. The UNODC estimate that 7,098 kilograms of ecstasy were seized world-wide in 2002 of which 722 kilograms (10%) was seized in Australia. Based on these data, Australia is believed to be one of the highest per capita ecstasy consuming countries in the world. These data need to be treated with caution as there are considerable differences in reporting requirements and implementation of methods between countries.
- The number and weight of ecstasy seizures have progressively increased in Australia during the past decade. Given that demand has also increased while prices have remained stable, this clearly indicates a growing market. The Australian Federal Police estimates that a total of 2,400 kilograms were seized in Australia in 2003 and 2004, however this excludes seizures by state police services.
- Australian Customs Service data show that routes of entry for ecstasy included air passengers and cargo, sea cargo and through the post. While postal and air passenger seizures are more frequent, sea cargo accounts for the majority of seizures by weight. Ports of origin of seizures are predominantly European but with some notable transit points in South East Asia.
- Evidence from ecstasy precursor and clandestine laboratory detections clearly indicates that ecstasy manufacture has been undertaken in Australia. The extent of this production has been limited until recently. Major seizures in 2005 indicate serious attempts at large-scale production using piperonyl methyl ketone (PMK) and utilising skills gained from European manufacturers.
- Mid- to high-level supply, importation and manufacturing sectors of illegal drug markets are more difficult to analyse than is the retail sector. Research subjects are difficult and potentially dangerous to access. The intelligence from the context of supply chain seizures is not readily accessible or organised in a meaningful manner for research purposes. Overall, seizure data in Australia presents a number of problems in terms of accuracy, comparability and consistency.
- The mechanisms of the supply-side of illegal drug markets can be deduced to some extent by listening to consumers, suppliers and market regulators from law enforcement and health agencies. This limited evidence base can be supported by data from seizures of drugs, precursor chemicals and laboratory equipment.
- Intelligence from seizure events is the best available source of evidence to support the opinions of market participants and regulators. When presented as a simple aggregated number and weight of seizures, these data reflect as much police activity as they do the state of the market. More sophisticated analysis of attributes and the supply-chain contexts of seizure events (e.g. tablet contents and their supply-chain context) would greatly enhance both operational and strategic intelligence for market regulation.

Introduction

This chapter addresses the international and national supply-side of the ecstasy market. To understand how ecstasy reaches consumers in a local retail market in any jurisdiction, it is necessary to understand the national and international sectors of the ecstasy supply chain. The chapter is structured around the first two of three geographical sectors of the supply chain, commencing with a discussion of the principal processes and locations of MDMA manufacture and the international trade in precursor chemicals. Evidence from global seizures of precursor chemicals, clandestine laboratories and ecstasy is presented, along with intelligence analysis of these data by the UNODC, US DEA and UK NCIS. The second sector is the middle level of the supply chain from border entry into Australia to retail markets in our States and Territories. This sector includes some local ecstasy production. The third sector, the retail market, is presented in detail in the following chapter with Queensland as an example. Evidence for these latter two sectors of the supply chain within Australia is drawn from the three types of seizure data, from the published intelligence of law enforcement agencies, and from the research data gathered by the EMI project in listening to consumers, suppliers and market regulators from law enforcement and health agencies in Queensland.

The demand and supply-sides of the ecstasy market are both local and global activities. Consumers world-wide use what ecstasy is available to them in their local market and in particular cultural settings structured by local drug use contexts. Both sides of the market are also global, influenced by international social trends and an increasingly integrated world market. This 'glocal[1] trade' in ecstasy occurs on a number of levels. Firstly, the chemical materials (precursors) required for ecstasy manufacture are diverted from legitimate industrial use and, increasingly, illegally manufactured and trafficked from Asia and Eastern Europe into the Netherlands and Belgium where manufacturing is concentrated.

The second level of the global market, the concentration of ecstasy production in the Netherlands and Belgium, has persisted for nearly two decades. This degree of concentration has diminished since the late 1990s as the size of the world market has expanded, with other manufacturing centres arising elsewhere in Western and more recently Eastern Europe. In the past few years some manufacturing has also occurred in diverse locations such as South Africa, Canada, Indonesia, and China. Despite these market changes the best evidence suggests that two-thirds of the world's production of ecstasy still occurs in the Netherlands and Belgium. It is logical to assume that some local manufacturing occurs or is attempted in most countries where ecstasy is consumed in order to reduce costs and importation risks and to improve local profits. This is a unique characteristic of the ecstasy market, particularly when contrasted with the very different global and local market processes for other ATS drugs, and the heroin and cocaine markets. Nevertheless, the potential for expanded MDMA manufacture in Asia is very high, given existing access to precursor chemicals and capacity for methamphetamine production. Many law enforcement officials consider it a question of when, rather than whether, Asia becomes an important source of MDMA, at least for the Asia Pacific region.

The third level of the global market, the distribution supply-chain for ecstasy, is a key feature of this global market, particularly for countries like Australia. To understand the Australian ecstasy market and regional markets within Australia, the precursor trade, the relative concentration of international production, and global distribution systems need to be explored and monitored. Within this global context the middle level of the ecstasy supply-chain starts with importation and proceeds through interstate and intrastate distribution systems, to the local retail markets concentrated in the major capital cities and some regional centres across Australia.

[1] The term 'glocal' has been adopted by Hobbs and Dunninghan (1998) to describe local manifestations of criminal activity organised on a global scale.

While intelligence about the retail end of the market is readily available from both consumers and market regulators, the middle level of the supply chain is considerably less well understood. As a hidden, illegal global market, the indicators available to understand market processes are limited to what intelligence can be gained by listening to consumers about the retail market, to suppliers about their supply-chain roles, and to key experts from drug law enforcement agencies charged with regulating the market.

Applying qualitative research methodologies in the retail market provides unique opportunities to detail consumer behaviour. It also provides an access point, however limited, to the middle level of the supply chain. At this point we can observe the interaction between regular ecstasy consumers, particularly those who engage in peer supply, and the range of for-profit suppliers between this market level and importation. The results of our interviews with active and past suppliers provide some insight into the various 'scenes' within the Queensland section of this distribution system, and the potential for expanding and refining research in this area.

Data to validate the opinions of market participants regarding supply is limited to analysis of seizures of drugs, clandestine laboratories and precursor chemicals. Where possible we have attempted to move analysis of this data beyond simple aggregated numbers and weights of seizures. However, to undertake such analysis at a more systematic and sophisticated level requires detailing the supply-chain context of seizure events, not just drug purity and physical form, although these are important but also the source, transit and destination, mode of transport and concealment for drugs. The prices paid for different volumes, how these funds (or goods and services) are exchanged, and the characteristics to be profiled for different supply-chain participants, are all equally important to market analysis. Such strategic intelligence can inform supply control at operational and policy levels. Where data of this sort has been made available for this project, it is reported in this chapter.

How and where is ecstasy manufactured?

The supply-side of the ecstasy market begins with the acquisition of chemical precursors and laboratory equipment for the manufacture of 3,4-methylenedioxy methylamphetamine (MDMA). This is now a global illicit trade in its own right. Understanding how and where these materials are sourced for the manufacturing process is a key intelligence resource for effective market regulation. The following section uses seizure data for ecstasy precursor chemicals and for ecstasy clandestine laboratories, together with interviews with market regulators from health and law enforcement agencies, to provide intelligence on how and where ecstasy is manufactured in the global and local markets.

How is ecstasy manufactured?

Shulgin (1986, p. 411) identifies six methods for the chemical synthesis of MDMA, all commencing with the preformed methylenedioxyphenyl ring in the form of safrole, isosafrole, or the derived aldehyde, piperonal. In the clandestine manufacture of MDMA, the most popular synthesis route is reductive amination with methylamine of piperonyl methyl ketone (3,4-MDP-2-P) or more simply PMK, an intermediary chemical derived from these more widely available safrole-based chemical products. This synthesis route is most popular because of the high yield and profit margin involved. The UNODC (2003a) estimates that from one kilogram of PMK, which can be legally purchased in China for about US$100[2], 0.8 kilograms of MDMA with a street value of US$133,600 can be produced, representing a potential profit margin, before other costs, of 3,340%.

[2] Although UNODC estimate that the illicit price in western or Eastern Europe may range from US$2,000 to US$6000 or more.

PMK is a synthesised derivative of the safrole-rich essential oils[3] from the Chinese camphor tree (*Cinnamomum camphora*), cultivated commercially in China and Vietnam. Similar essential oils, often known generically as 'sassafras' oil, high in safrole content, have in the past been cultivated in Brazil and California. Today a few Chinese chemical companies are practically the only firms to produce PMK, ostensibly for use in the perfume industry. China is the world's principal producer of 'sassafras oil', with this commercial name used to promote a historical connection with the North American sassafras tree (*Sassafras albidum*), the original source of natural safrole. Declining legitimate use and greater international regulation and monitoring of this legitimate chemical trade has made PMK more difficult for MDMA manufacturers to obtain (INCB, 2004a).

This increased regulatory pressure, evident in international activities, such as Project Prism, (detailed in Chapter six) has led to a more sophisticated diversion of the legitimate chemical through fraudulent company transactions, and also to the establishment of clandestine laboratories specifically for the purpose of PMK manufacture from the widely available chemical, safrole. Safrole is extracted from sassafras oil and can then be isomerised into isosafrole when heated with sodium or potassium hydroxide. The isosafrole can then be oxidised into PMK. Safrole and isosafrole are chemicals legitimately and widely used in the production of heliotropin (piperonal), a fragrance and flavour substance used in the food industry, piperonal butoxide (PBO), an ingredient used in some insecticides, perfumery and the production of perfumed soap.

The MDMA yield from safrole, isosafrole or piperonal is only between 40% and 50%, depending on synthesis route. However, as legitimate access to PMK has been progressively tightened by regulation, illicit synthesis of PMK from these more widely and legitimately available chemicals has become more common. Australian Customs estimates that one kilogram of pure safrole or isosafrole enables production of more than 3,000 MDMA tablets. The profit margin from this more elongated manufacturing process may not be as great as when legitimately purchased PMK is diverted for MDMA production, but it is still substantial given the relatively wide availability of safrole. Clearly the presence of PMK or chemicals with high safrole concentrations in clandestine laboratories is indicative of at least attempted MDMA manufacture (Australian Customs, 2004b). The issues of precursor control are discussed in more detail in Chapter six - Market regulation, and an example of MDMA production in Queensland is discussed in Chapter four – Supply in the Queensland ecstasy market.

The average weight of an ecstasy tablet is approximately 300 milligrams (mg). A kilogram of tablets contains about 3,000 tablets. Approximately one-third of the tablet is pure MDMA, ranging from 75 mg to 125 mg per tablet. One kilogram of pure MDMA powder can produce approximately 10,000 tablets, assuming the tablet contains 100 mg of MDMA. The following respective quantities of safrole[4] (380 kg), isosafrole (190 kg) and piperonal (210 kg) are required for the manufacture of 100 litres of 3,4-MDP-2-P (PMK). Approximately 250 litres of 3,4-MDP-2-P are required to manufacture 100 kilograms of MDA hydrochloride; 125 litres of 3,4-MDP-2-P are required to manufacture 100 kilograms of MDMA or MDEA (3,4-methylenedioxyethylamphetamine). These amounts are only estimates and actual amounts will vary with the specific chemical processes undertaken by individual manufacturers (UNODC, 2003a).

[3] The Chinese camphor tree is the same plant from which camphor oil (the lightest essential oil distilled from the plant's wood) is obtained; camphor oil is known as 'white camphor oil' and does not contain safrole. Heavier fractions, known as 'yellow camphor oil' and 'brown camphor or sassafras oil, contain from 20% to over 90% of safrole.

[4] Including safrole in the form of 'sassafras oil'. bMDA=3,4-methylenedioxyamphetamine. cMDMA=3,4-methylenedioxyamphetamine. Source: UNODC Regional Office for South Asia 1998. Chemical Control in the Fight against Illicit Drug Production (The South and Southwest Asian Scene) Regional Precursor Control Project for South and South-West Asia, New Delhi, May 1998 http://www.unodc.org/pdf/india/ccch2.pdf

This general overview of the manufacturing process for MDMA explicitly excludes any discussion of the chemical synthesis of MDMA precursors, intermediate products or MDMA itself. Such a discussion may be an offence in some jurisdictions. The intent of the above discussion is to indicate the approximate yield from some precursors and should not be interpreted in any way as either a 'recipe' or an inducement to attempt to manufacture MDMA.

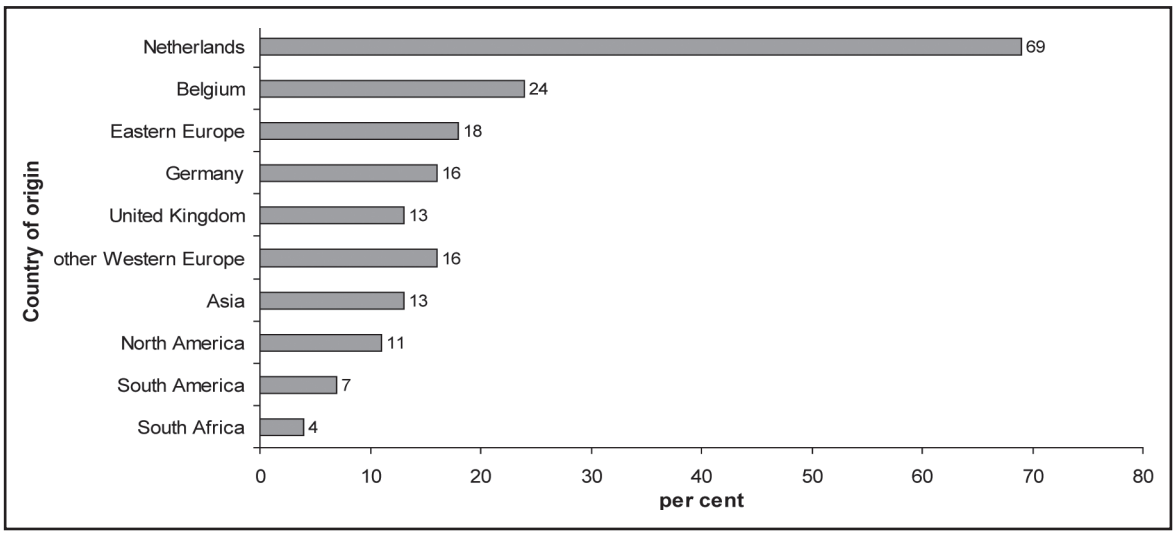
In a deliberate attempt to cultivate brand loyalty among consumers, ecstasy producers often mark their pills with a distinctive brand logo, such as a commercial symbol, animal or a positive icon. Ecstasy suppliers consistently use brand names, logos and colour as marketing tools and to distinguish their product from that of competitors. The logos are produced to appeal to young consumers, even to the extent of special logos designed to coincide with holidays or special events. Among the more popular logos are the Mitsubishi symbol, Rolex symbol, Pink Panther, Adidas symbol, butterfly, lightning bolt, and four-leaf clover. The specialist Dutch Police Unit of Synthetic Drugs (USD) has identified some 775 different logos that have been on the market since ecstasy first became available in the Netherlands. USD registered 121 logos in 2000 alone. In 2002 Europol released an updated version of its ecstasy catalogue, which contains images of over 900 ecstasy logos and over 400 punches. First published in 1995 this is now a yearly catalogue disseminated globally to relevant law enforcement agencies by the Europol Ecstasy Logo System (ELS) (Europol, 2002).

Dutch researchers believe that the Mitsubishi logo is the most common and since its introduction in 1998 has come to be interpreted as an international symbol for good quality, 'made in Holland' ecstasy (Gruppo Abele, 2003: 39). This pill pressing occurs at European manufacturing locations, although MDMA powder and pill pressing may be separate specialised functions. This reduces the potential for dilution of the product along the supply chain. In Australia there have been some reports of grinding European MDMA tablets for inclusion in locally pressed tablets that are predominantly locally manufactured methamphetamine, sometimes blended with ketamine. These Australian pressed tablets appear to use European logos to promote sales.

Where is ecstasy manufactured?

From the early 1990s until 2001, the Netherlands remained the undisputed centre of the international ecstasy market (UNODC, 2004a). According to the United States Drug Enforcement Administration, an '*estimated 80 percent of the world's Ecstasy is produced in clandestine laboratories in the Netherlands and, to a lesser extent, Belgium*'. (DEA, 2001). The Netherlands, as a centre for the international pharmaceutical and chemical industries, provides manufacturers with ready access to the necessary precursor chemicals, laboratory equipment and skilled labour for large-scale MDMA production. The Netherlands is also a major distribution hub for legitimate commercial business in Europe. It has the busiest air and sea freight ports in the world and significant passenger flows within a range of sophisticated transport systems. These economic factors partially explain why the Netherlands, and to a lesser extent adjoining countries of Belgium and Germany, have become the principle suppliers of ecstasy to the global market. The US DEA (2001) argues that the tolerant attitude of the Netherlands to the cannabis market, and the array of ethnically-defined organised criminal groups highly active in other illicit drug markets, has also contributed to this dominant role in the global ecstasy market.

Figure 3-1: Country of origin of ecstasy seizures



Source: UNODC 2004a, p. 32

Dutch police had during the early 1990s given ecstasy manufacturing a lower priority as production was mainly for export, ecstasy-related harm in the Netherlands was not apparent, and trafficking did not involve the traditional organised criminal groups that controlled the separate illegal drug markets for cannabis, cocaine and heroin. Nor were Dutch or Belgian manufacturers themselves heavily involved in international distribution (Gruppo Abele, 2003). Concerted pressure from the Dutch Government since the establishment in 1997 of a specialist law enforcement task force, Unit Synthetic Drugs (USD), in collaboration with Interpol and the US DEA, has increasingly forced clandestine manufacturing to move from its traditional location in the southern provinces of the Netherlands into neighbouring Belgium and, to a lesser extent, Germany.

Significant seizure of precursor chemicals, together with both tighter regulation of the chemical and laboratory equipment industries, and increased police seizures of existing clandestine laboratories, has recently weakened the market dominance of Dutch ecstasy manufacturers. This law enforcement activity has displaced manufacture into some Eastern European countries including Poland, Estonia and the Czech Republic. Some European law enforcement agencies estimate that Polish-produced ecstasy now accounts for a significant share of the market for the drug in Northern and Eastern Europe. These trends follow similar patterns in the amphetamine market (Gruppo Abele, 2003). MDMA manufacture has also recently spread to South and East Asia.

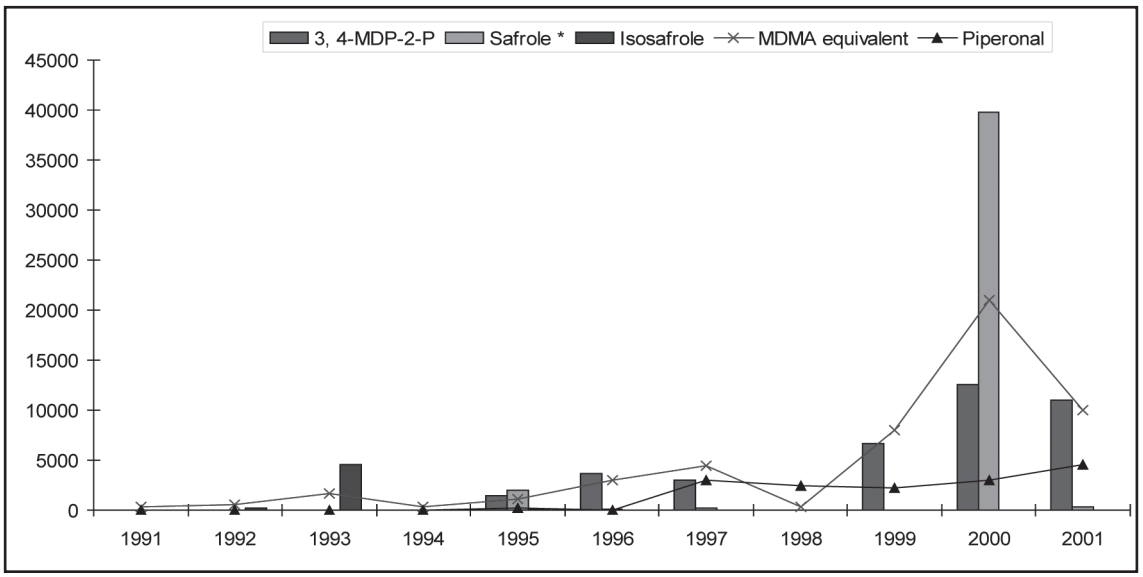
Although Western Europe and, to a lesser extent, Eastern Europe currently dominate global ecstasy production, with an estimated 60–70% of the world market (UNODC, 2004a), the proportion supplied out of Asia is growing at a rapid rate. Ecstasy consumption appears to be increasingly popular in China, especially in Hong Kong, and in Japan and Malaysia. There continues to be substantial differences in the quality of MDMA produced in these two global regions, with Asian produced MDMA tablets widely perceived as inferior (UNODC, 2003a). Indeed, the future role of Asia in the supply of ecstasy was a common issue raised by the law enforcement officers interviewed for the EMI project. The question that remains to be answered is whether Asian based MDMA manufacturers will develop the technical skills that enable them to improve the quality of their product in order to compete with the high quality MDMA produced in Europe, or whether they will simply try to capture the lower quality end of the market by offering an inferior product at a much cheaper price and in much greater volume.

Global ecstasy precursor seizures

The specific precursor chemicals used in clandestine ecstasy laboratories vary in different global regions. The main precursor for the manufacture of ecstasy in Europe (expressed in MDMA equivalents) is PMK, while safrole (mostly in the form of sassafras oil) is the main precursor encountered in North America. The four most frequently encountered substances are all manufactured from sassafras oil and can be used, with differing degrees of difficulty, in the production of ecstasy. The most striking trend in recent years has been the increase in ecstasy production in East and South-East Asia, confirmed by small seizures of piperonal and safrole, although currently on a limited scale (UNODC, 2004a).

Reported global seizures of ecstasy precursors show strong variation over the past decade (see Figure 3-2). In addition to fluctuations in amounts, ecstasy precursor seizures also varied in terms of specific substance, as well as the countries reporting seizures. In more detailed analysis, it becomes clear that seizure data typically reflect individual large seizures, or a small number of related cases, in a particular country. Reported individual cases do not necessarily reflect actual market change, and may in fact reflect changing levels and sophistication of market regulation. In terms of specific precursors, seizures were mainly of PMK (3, 4-MDP-2-P), followed by safrole (often in the form of sassafras oil). The peak in seizures of those two substances in 2000 is due to very large seizures in just two countries, Belgium and the Netherlands (INCB, 2004b).

Figure 3-2: Reported global seizures of ecstasy precursors, 1991–2001



Source: INCB, Precursor and chemicals used in the illicit manufacture of narcotic drugs and psychotropic substances, 2002 and previous years (UNODC 2003a: p. 42)

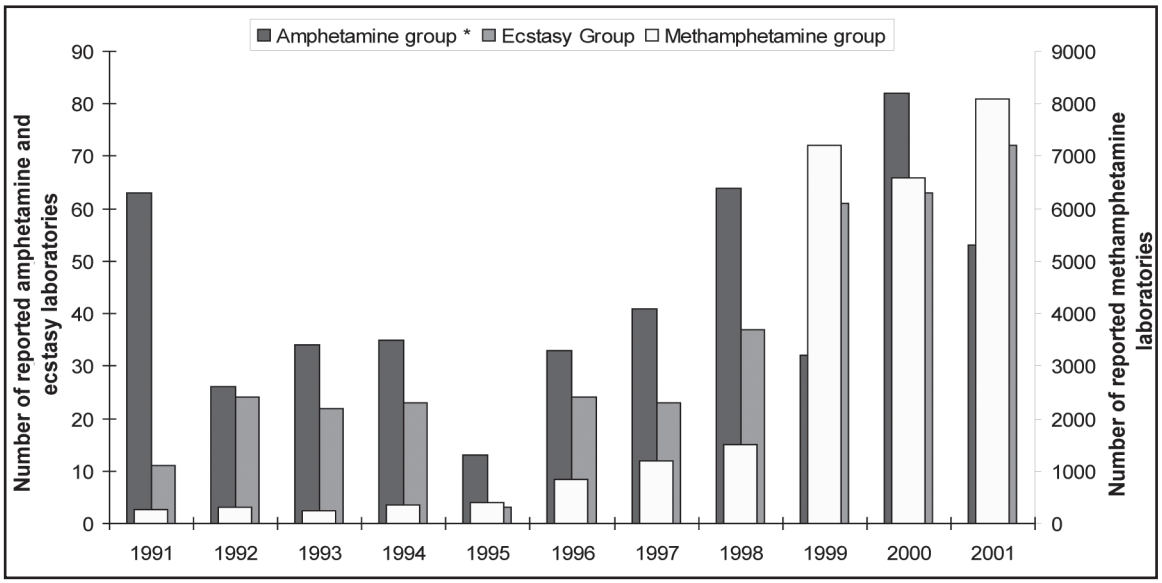
Over the 1991–2001 period, close to 90% of all ecstasy precursor seizures – sufficient for the manufacture of 4.7 tons of MDMA annually - were made in Europe. Within Europe, almost two-thirds of ecstasy precursor seizures have been reported in recent years from the Netherlands, followed by Belgium with about one-fifth of seizures. Other countries reporting seizures of ecstasy precursors include Slovakia, which made significant seizures of PMK in 1999, Germany, Spain and Lithuania. PMK accounts for 60% of all ecstasy precursor seizures world-wide. The largest PMK seizures recorded in 2001 and 2002 were by Dutch authorities, while Belgium reported the largest seizures in 2000. Internationally, a strong increase in 2002 was reported for seizures of piperonal, mainly due to large seizures reported in Mexico. Seizures of safrole also rose in 2002, although levels remained under those of 2000, when record seizures were reported by the Netherlands.

Ninety-nine percent of all safrole seizures in 2002 were made in Europe. Countries in South-East Asia (China, Vietnam, Laos and Cambodia) seem to be the main source, or transit sources, for both PMK and safrole (DEA, 2003, 2004; UNODC, 2004a). Ecstasy precursor seizures have until relatively recently been comparatively small in Australia.

Global seizures of clandestine ecstasy laboratories

Internationally, the number of dismantled clandestine ecstasy laboratories, presented in Figure 3-3, rose almost three-fold over the period 1992–2001. In the late 1980s and early 1990s laboratories produced MDA, and to a lesser extent MDEA as well as MDMA substances. Since 2000 almost all laboratories seized have produced MDMA only. Western Europe remains the location where most ecstasy laboratories were seized in the period 2000–2002. In 2002, most ecstasy laboratories were dismantled in the Netherlands (18), followed by China (11), the US (9), Canada (8), Belgium (4), the UK (3), and Indonesia (2). While the number of dismantled ecstasy laboratories declined in Europe, and remained more or less stable in North America, it increased strongly in Asia (DEA, 2003, 2004; UNODC, 2004a). The Netherlands also continues to be the country most frequently identified by other countries as the main source country for the ecstasy found in their markets (see Figure 3.1 above).

Figure 3-3: Clandestine ATS laboratories seizures reported to the UNODC, 1991–2001



Note: This Figure (3-4) presents UNODC estimates of the number of amphetamine, ecstasy type drug and methamphetamine laboratories detected. The UNODC estimates that 20% of the total number of ATS laboratories detected in Australia produce amphetamine sulphate. This may be an over-estimate.
Source: UNODC (2003a, p. 35)

There are significantly more methamphetamine laboratories seized world-wide than ecstasy laboratories, the majority of these in the United States. UNODC (2003a) estimates that many of ATS clandestine laboratories detected worldwide produce less than 100 grams per year for personal use or local supply, and that there are only a few hundred high-capacity ATS laboratories with the capacity to produce several tons per year. In terms of global regions, the most recent estimate reported to the UNODC for 2001 and 2002 is of 128 ecstasy laboratories; five in Africa, 37 in North America, 25 in Asia, 59 in Europe and two in Oceania. This compares with a total of 17,489 methamphetamine laboratory seizures world-wide in the same period (UNODC, 2004b).

Aggregate numbers of clan lab seizures need to be treated with caution since they may reflect the level and effectiveness of police activity as much as the size of the market. Furthermore, only

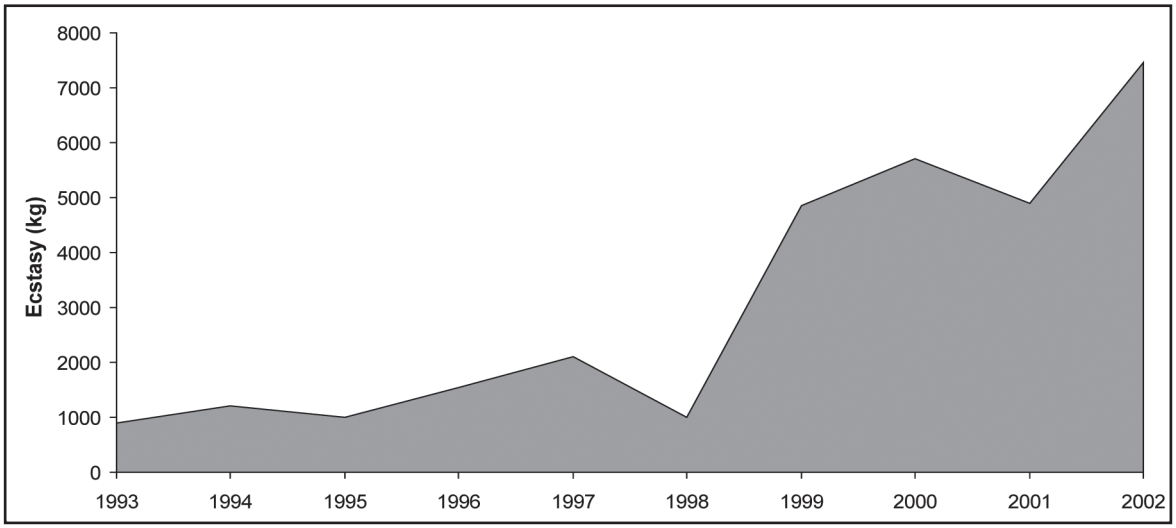
a broad indication of the trends in manufacture is presented, since the data rarely detail whether seized laboratories are active or dormant, whether they are capable of producing a significant quantity of ecstasy, or what quality of ecstasy is being produced.

Global ecstasy seizures

The following section provides national ecstasy seizure data on the global level as reported by the UNODC. The data shown reflect seizures by Australian Customs or national police agencies only, and excludes some or all of the seizures made by state police.

The upward trend in volume of ecstasy seized internationally presented in Figure 3-4 continues from an estimated 620 kilograms in 1993 to an estimated 7,028 kilograms in 2002. Ecstasy seizures remain concentrated in Europe, but the proportion has decreased from 80% in 1993/94 to 62% in 2001/02. Seizures in North America have declined since 2001, remaining at 19% of total seizures by weight. A significant change evident over the past decade is the increase in seizures in Oceania (mainly Australia), East and South East Asia and South America. Seizures increased in these regions from a negligible amount in 1993/94, to 9% in Oceania, 6% in East and South East Asia and 2% in South America in 2001/02 (UNODC, 2004a).

Figure 3-4: Global seizures of ecstasy by weight, 1993–2002

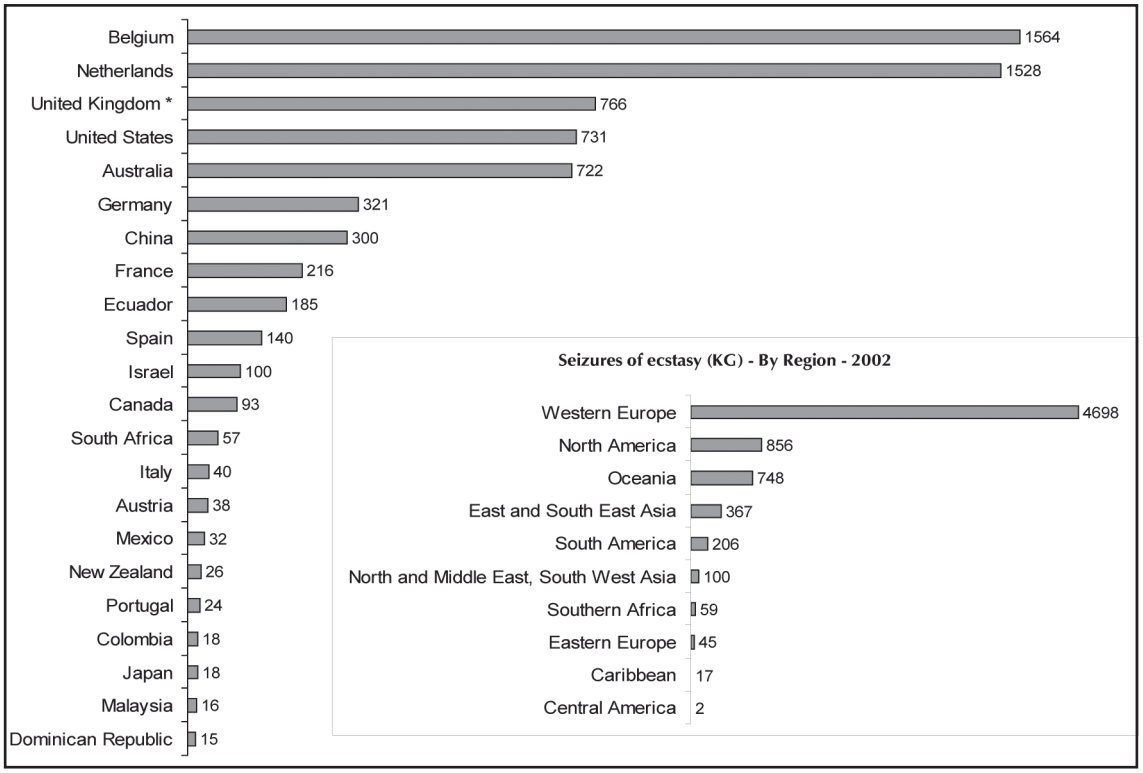


Source: UNODC 2004a[5]

The number of countries reporting seizures has increased from 20 in 1992 to 79 in 2002. This increase may be explained by the UNODC actively attempting to increase response rate to their Annual Report Questionnaire (ARQ) for the World Drug Report, as well as an increase in the global spread of ecstasy seizures. Belgium and the Netherlands remain the centres of ecstasy seizures, but significant seizures have also occurred in the UK and the US, Germany, China, France, Spain, Israel, Canada, South Africa and most recently in Australia. UNODC (2004b, p. 338-341) estimates that 722 kilograms of ecstasy were seized in Australia in 2001, representing 10% of the total world seizure weight for that year (see Figure 3-5). Figure 3-6 provides a global map illustrating trends in ecstasy seizures for 2001–2002, principal trafficking routes and countries in which ecstasy seizures have been reported between 1998 and 2002.

[5] Reporting on 'ecstasy' seizures by the UNODC only started with the new ARQ in 2001. Ecstasy seizures were previously included under the category of 'hallucinogens other than LSD'. Trends data shown above refer to this broad category. In 2002 ecstasy accounted for 95% of the seizures in this group.

Figure 3-5: Seizures of ecstasy for highest ranking countries, 2002[a]



a: Seizures are in kilograms

Source: UNODC (2004a, p.173)

The ecstasy seizure data collected by the UNODC indicates a considerable expansion of the size of the ecstasy market occurring over the past decade. However, it is important to note that global drug seizure data are, only at a very general level, indicative of the size of the market in the country reporting seizures. A high level of aggregated national seizures is possibly indicative of a range of factors including:

(a) substantial local manufacturing

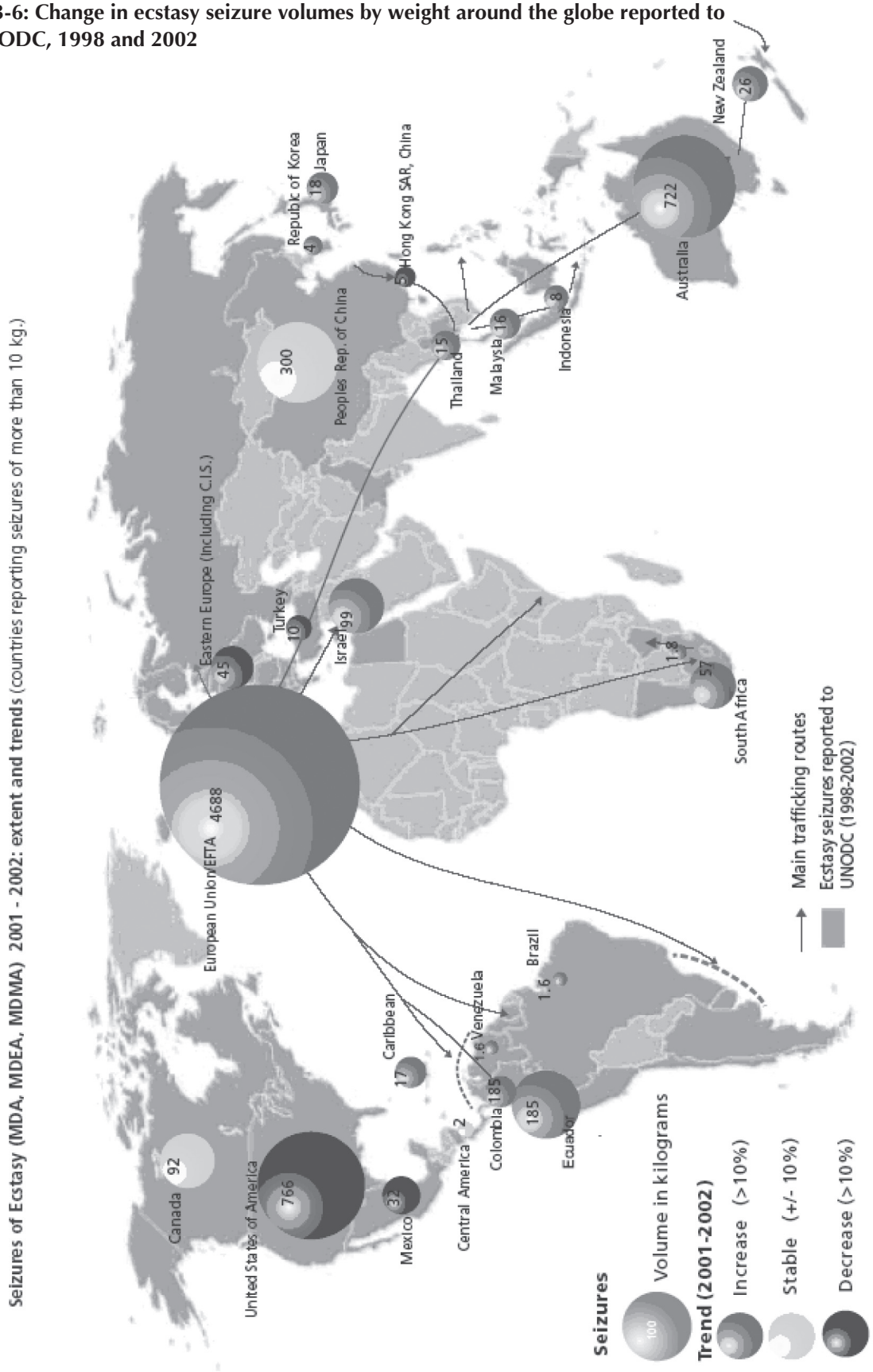
(b) a significant market for local retail consumption, with or without any local manufacturing

(c) a transit country on a supply chain to retail markets in other countries, with little local manufacture or consumption

(d) any combination of these situations.

Furthermore, there is substantial scope to build the research capacity of national law enforcement agencies by developing more useful classification systems for drug, laboratory and precursor seizures events. This could be based on agreed national and international standards, such as those set out by the UNODC in the methodology section of their World Drug Report series. Collecting and disseminating such data for strategic intelligence purposes is essential to build and maintain illegal drug market profiles. The following Figure 3-6 illustrates change in ecstasy seizure volumes by weight around the globe reported to the UNODC between 1998 and 2002.

Figure 3-6: Change in ecstasy seizure volumes by weight around the globe reported to the UNODC, 1998 and 2002



Source: UNODC (2004a; B-174)

Middle-level distribution to and within Australia

Ecstasy is primarily imported to Australia from Europe. There is limited tablet production in Australia and some importation from Asia. The distribution system involves a diverse range of people, from peer suppliers sending small amounts to associates by post, to international criminal networks concealing hundreds of kilograms in sea cargo. The supply chain within Australia is equally diverse with some consignments, both larger and small, going directly to retail sales, while other shipments are stored, re-manufactured in the case of MDMA powder and precursors, and distributed in a series of transactions of decreasing size. Evidence for the supply-chain structure within Australia is difficult to obtain. Our understanding of the middle level of the ecstasy supply chain provided below is based on seizure data and the opinions expressed by consumers, suppliers and market regulators and collected through the EMI project. This information is interpreted within the context of intelligence gathered by Australian and international law enforcement agencies

Getting ecstasy to Australia – supply chains

There is definitive evidence that high MDMA content ecstasy tablets and powder are manufactured primarily in the Netherlands and Belgium. The distribution supply chains within Europe, and internationally to North and South America and East Asia are, however, not managed by the drug manufacturers but by wholesalers. Such wholesalers are often distinct, ethnically aligned, organised crime groups (DEA, 2001; Gruppo Abele, 2003; pp. 58-60). Based on information supplied by national drug law enforcement agencies, the UNODC (2003a) reports the heavy involvement in the wholesale end of the ecstasy supply chain of Russian émigrés, particularly those with Israeli citizenship; Columbians with links in the Iberian Peninsula; and Dutch citizens from their former Caribbean colonies and the Dominican Republic.

In Asia, it is reported that much of the traffic in ecstasy is managed by ethnic Chinese, often with Dutch or Indonesian citizenship working with Malaysian and other South East Asian nationals (Gruppo Abele, 2003; pp. 56–57). The Europe-to-Asia trade in MDMA appears to be linked with Asia-to-Europe trade in a range of precursor chemicals, and at some level with the heroin trade. The importation of large MDMA tablet and powder shipments to Australia, both directly from Europe and via transit in Malaysia and Indonesia, is seen as an extension of this supply chain. There is evidence from Australian operational intelligence, and from seizures, to support this hypothesis. See below the Case Study: Australian Customs *Operation Barney*.

Gruppo Abele (2003; p. 19), in their analysis of the European ecstasy market, offers the following categorization of supply-chain levels in the Netherlands between production and consumer peer supply:

- **wholesale:** transactions at 'first hand' distribution (the first buyer from the producer) which involve quantities of between 10,000 and 50,000 to over a million pills depending on customer
- **mid-level:** the intermediaries who buy from wholesalers and distribute to retailers, involving amounts of between 1,000 and 50,000 pills depending again on customer
- **retail:** direct consumer sales, supplied by intermediaries starting at 1,000 pills.

The drug quantities presented in this categorisation do not reflect the supply chain structure within Australia, but nevertheless are relevant to our understanding of the type of relationships that may develop between Australia suppliers seeking direct contact with European supply chains. An adaptation of this categorisation is provided in the report section, Structure of the supply chain within Australia, below.

Seizure evidence provided by the Australian Customs Service demonstrates that traffickers from all levels of the supply chain move ecstasy from Europe to Australia. In terms of the number of detections (see Figure 3-8), quite small shipments comprise the largest proportion; often through

postal and courier systems. In terms of weight (see Figure 3-8) there is clear evidence of both wholesale distribution direct from producers and middle-level distribution by intermediaries, in a number of European and South East Asian countries. In recent years, significant border detections by Australian Customs of sea cargo consignments confirm this level of supplier organisation. There is also some evidence of increasing air passenger shipments; however, this apparent trend needs to be confirmed by more recent data. This data is presented in Figure 3-9 below.

There is also operational evidence of attempts to import Asian manufactured MDMA tablets, as well as methamphetamine tablets and crystal methamphetamine, directly into Queensland by small craft in conjunction with a sea cargo vessel. This is described in the case study below.

Case study: Australian Customs *Operation Barney*

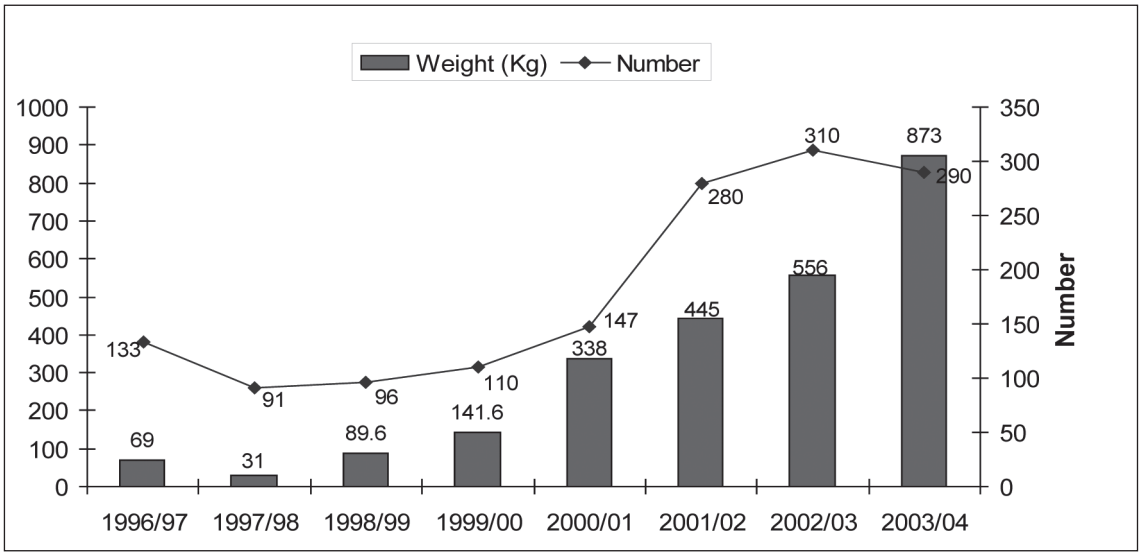
Australian Customs *Operation Barney* culminated in July 2001 in the arrest of two Malaysian nationals operating as couriers for an established South East Asian organised criminal syndicate. The couriers were apprehended with a total of 1.56 kg of ecstasy tablets (approx 40% pure MDMA), 259.2 kg of methamphetamine tablets (approx. 10% pure methamphetamine) and 152.23 kg of crystal methamphetamine (approx. 81% pure methamphetamine). The drugs had been transferred at sea from an unidentified vessel to an Australian registered yacht, crewed by the two couriers. Notable features of the operation include (a) the fact that the two couriers had no prior sailing knowledge and failed in their first rendezvous after their yacht hit a reef and sank; and (b) that the shipment included only a relatively small quantity of MDMA tablets (4,220), but a very large quantity of tablets (1,458,901), which contained a mixture of methamphetamine and ketamine. This last point may be particularly significant, given that many tablets sold as ecstasy in Australia in fact contain no MDMA, but instead methamphetamine and ketamine – so called 'fake ecstasy tablets'.

Ecstasy seized entering Australia

Australian Customs seizure data, presented in Figure 3-7, illustrate the growth in the Australian ecstasy market. Some caution must be exercised in interpreting these data as the number and weight of detections[6] are heavily influenced by available Australian Customs resources, organizational priorities, technological advances, and unplanned, opportunistic detections. Given these limitations, increasing detections may equally be associated with decreased availability in the market (i.e. effective supply reduction) or with an expanding market. Therefore, given that Australian seizures have increased, consumption has increased, while price has remained stable, an expanding ecstasy market is clearly evident (UNODC, 2004b; p. 411)

[6] Customs detect drug importations at the border; however, they only technically seize precursors and non-narcotic drugs. The responsibility for seizing illegal drugs and undertaking further investigations for these drugs is managed by the AFP. Therefore, the preferred terminology used by Customs is "detections" at the border rather than "seizures".

Figure 3-7: Number and weight of MDMA detections in Australia by Australian Customs, 1996/97–2003/04



Source: Australian Customs database files

The weight of ecstasy detections by Australian Customs has been steadily increasing since 1997/1998 and detection quantities have increased considerably from 31 kg in that year to 141.1 kg in 1999/2000, then from 338 kg in 2000/2001 to 445 kg in 2001/2002 and from 556 kg in 2002/2003 to 873 kg in 2003/2004.[7] Data for the period 1992 to 1996 indicate few ecstasy seizures and substantially less drug weight than in 1996/1997.

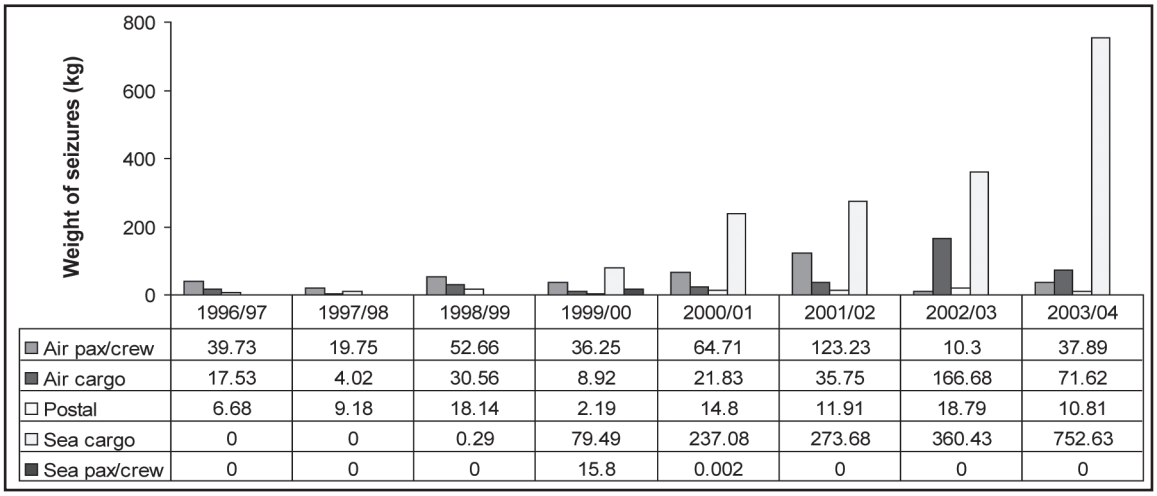
The Australian Customs Service also collects drug detection data for intelligence purposes on a number of aspects of detection events. This data includes date of seizure, drug type, total drug weight, mode of border entry, mode of concealment, embarkation point and port of entry. What Australian Customs data do not usually contain is purity, tablet content or, in most cases, physical form data.

Figures 3-8 and 3-9 below present Australian Customs Service ecstasy detections by number, weight and by means of entry from 1996/97 to 2003/04. Means of entry include postal, air passengers/crew, air cargo, sea cargo, and sea passenger/crew. While postal entries represent the greatest number, they represent the lowest weight. The proportionally high number and weight of entries by air passengers has been significantly overshadowed in recent years by the substantial increase in weight of relatively few consignments entering Australia as sea cargo. Such large-scale importation directly from Europe indicates that criminal groups in Australia, with considerable capital and organisational skill, are active in supplying the ecstasy market.

Figure 3-9 below also shows the total number of MDMA (ecstasy) detections by Australian Customs from 1996/97 until 2003/04, by means of entry. Though with less detail than Figure 3-8 and Figure 3-9 above, Figure 3-7 above shows that the amount of ecstasy being detected by Australian Customs has increased markedly over this time, from approximately 69 kg in 1996/97, to just under 873 kg during the 2003/04 financial year – a fourteen-fold increase in seven years. Consistently, the vast majority of ecstasy detections have involved sea cargo or postal articles.

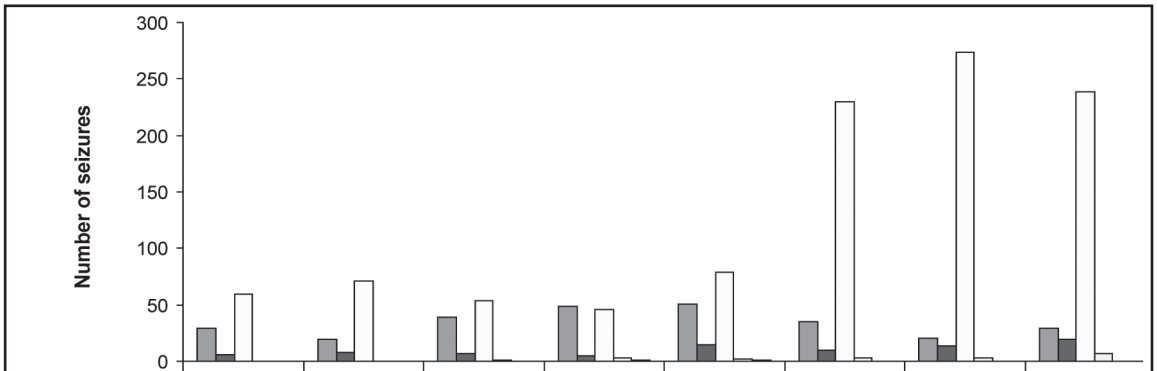
[7] Australian Customs states that 'Figures may vary from those previously published due to adjustments for administrative corrections, subsequent chemical analysis and further information from Australian Federal Police. Also, detections subject to ongoing investigation (including controlled delivery) might not initially appear' (Australian Customs 2004).

Figure 3-8: Australian Customs ecstasy detections by weight and means of entry 1996/97–2003/04



	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04
Air pax/crew	39.73	19.75	52.66	36.25	64.71	123.23	10.3	37.89
Air cargo	17.53	4.02	30.56	8.92	21.83	35.75	166.68	71.62
Postal	6.68	9.18	18.14	2.19	14.8	11.91	18.79	10.81
Sea cargo	0	0	0.29	79.49	237.08	273.68	360.43	752.63
Sea pax/crew	0	0	0	15.8	0.002	0	0	0

Figure 3-9: Australian Customs ecstasy detections by number and means of entry 1996/97–2003-04



	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04
Air pax/crew	29	19	39	49	51	35	20	29
Air cargo	6	8	7	5	15	10	14	19
Postal	59	71	54	46	79	230	274	239
Sea cargo	0	0	1	3	2	3	3	7
Sea pax/crew	0	0	0	1	1	0	0	0

In addition to number and weight of ecstasy detections, Australian Customs are able to identify from where different 'consignments' of ecstasy originated or transited; how it was transported and concealed; where it entered Australia; or where it was intended for delivery as a postal item. Country of embarkation data does, though, need to be treated with caution as passengers, crew and cargo may transit through a number of countries, over different periods of time, between the original source of drug supply and Australian ports.

A recent case confirms the continuing role of the Netherlands as a principal source of ecstasy in the Australian market. In June 2004, as a result of intelligence gathered by the AFP, Customs officers searched a shipping container in Sydney which originated in the Netherlands. Three hundred kilograms of MDMA powder was located between packaged Chinese wonton pastry sheets. A cooperative operation between the AFP (Sydney and Brisbane) and the Joint Asian Crime Group arrested and charged four people (Australian Customs, 2004a).

Embarkation of seizures from Malaysia and Indonesia may be indicative of the role of these countries as regional transit sites, or as a source of manufacture. There are a significant number of seizures of amounts less than 100 grams entering Australia, many of which arrive through the post and originate from the UK. Market regulators interviewed for the EMI project, commented that while many small quantities of drugs sent through the post were an international equivalent of domestic peer consumer supply, there were indications of systematic trafficking through the post of large numbers of small amounts of drug, particularly cocaine. Australian Customs undertakes considerable strategic intelligence analysis of embarkation and routes over time for both passengers and cargo in the development of target profiles.

Ecstasy manufacture in Australia

There is substantial domestic production of methamphetamine in Australia, particularly in Queensland (CMC, 2003). Methamphetamine is usually in the form of powder or paste and is often manufactured from diverted pharmaceuticals containing pseudoephedrine, notably Sudafed® and Telfast®. Easily available precursors, laboratory equipment and instructions for methamphetamine manufacture have led some participants in the EMI study to speculate that MDMA may be similarly easy to manufacture; however, this is not the case. Although instructions for the synthesis of MDMA are easily located on the Internet[8], the precursors required for MDMA production are not readily available in Australia. Furthermore, the level of organic chemistry skill, and to some extent, equipment required for MDMA manufacture is more sophisticated than that for most methamphetamine synthesis routes.[9]

The consensus among law enforcement officers interviewed in this project regarding MDMA production is consistent with the views of the former ABCI, expressed in past editions of the Australian Illicit Drug Report (AIDR). It was generally acknowledged that the manufacture of MDMA had occurred in Australia, but with only a limited number of cases, and on a very small scale. What has occurred, however, is a considerable production, particularly in 2000 and 2001, of 'fake' ecstasy tablets containing blends of methamphetamine and ketamine, with or without some MDMA content. These issues are discussed in this chapter, in the section, Tablet content ratios as market indicator.

The consistent view that ecstasy manufacture in Australia has in the past been on a limited scale is demonstrated by the following quotes from the Australian Illicit Drug Report:

> *The Australian Government Analytical Laboratory in New South Wales reports that attempts to manufacture MDMA are generally not successful* (ABCI, 1999).
>
> *The fact that so few MDMA laboratories were detected is probably a result of the difficulty people have obtaining the necessary ingredients for production, the difficulty of the production process and the availability of inexpensive imported ecstasy* (ABCI, 2000).
>
> *Comparatively few MDMA-producing laboratories have been detected in Australia, hence it is believed there are few, if any, operating at any given time* (ABCI, 2001).

These statements are supported by the available data on MDMA precursor and clandestine laboratory seizures made during this period. However, recent evidence presented below from both precursor importation and MDMA laboratory seizures indicate significant recent attempts at large-scale domestic MDMA production.

[8] Witheld from publication.

[9] Witheld from publication.

MDMA precursor seizures in Australia

Systematic data detailing seizures of precursor chemicals and pill presses for domestic MDMA production are not readily available. Some individual seizures have been noted, such as Australian Customs postal seizures in separate packages of approximately 4.5 kilograms and 8 kilograms of piperonal in 2001 and in 2002.[10] According to the ABCI, these detections are *'significant, as imports of MDMA precursors are uncommon in Australia, whereas detections of methylamphetamine precursors are more common.'* (ACC, 2003; p. 72). Australia reported to the International Narcotics Control Board (INCB) its largest ever seizure of safrole in 2003, when an attempt was made to smuggle over 400 litres of the substance into the country by declaring it as 'white oil' (an industrial oil used in the manufacture of cosmetics). Together with the safrole, authorities found methylamine, a non-controlled substance used in the illicit manufacture of MDMA and methamphetamine. In a follow-up investigation into the interception, an illicit MDMA laboratory was identified and dismantled (INCB, 2004b: 18)[11]. Table 3-1 identifies MDMA precursor seizures reported to the INCB for Australia between 1998 and 2003. Though comparatively small, these seizures are significant, because they demonstrate that local manufacture of ecstasy has been attempted.

Table 3-1. Seizures of MDMA precursors in Australia reported to the International Narcotics Control Board 1998–2003.

	Isosafrole (litres)	3,4-MDP-2-P. PMK (litres)	Piperonal (grams)	Safrole (litres)
1998	0	0	0	0
1999	0	0	20,250	5
2000	0	0	0	0
2001	0	0	32	1
2002	0	3	16100	1
2003	0	0	0	405

Source: INCB (2004b Annex III; p. 52)

The recent seizure of possibly two tonnes of the PMK precursor piperonal in Melbourne, March 2005, supports law enforcement assessments of the potential for domestic MDMA manufacture. This seizure and the accompanying arrests clearly demonstrates that entrepreneurial drug traffickers, with substantial capital and organizational resources, are prepared to engage in ecstasy manufacture on an industrial scale.[12]

In addition to MDMA specific precursors, certain laboratory equipment, particularly pill presses with dies for logos, are key market indicators for domestic ecstasy production. State and national data for these indicators has previously been collated by ABCI, and now by ACC. This data, however, relies on state police services differentiating MDMA laboratories from the much more prevalent laboratories for other ATS drugs. It is unclear whether there are standardised descriptions or criteria against which law enforcement agencies in all jurisdictions can differentiate clan lab types, manufacturing techniques and their production capacity, in a national and systematic manner. These shortcomings are to be addressed at a national level through the National Strategy to Prevent the Diversion of Precursor Chemicals and are discussed in more detail below in Chapter six.

[10] Australian Customs Annual Report 2001 and 2002.

[11] This information was established through the review of UNODC and INCB publications.

[12] AFP Media Release 10 March 2005 http://www.afp.gov.au/afp/page/Media/2005/mr050310twotonneschemicals.pdf.

MDMA clan labs in Australia

Table 3-2 provides the number of clan labs identified as producing MDMA in each Australian jurisdiction between 1996/97 and 2003/04. This data is drawn from the Australian Illicit Drug Report and from data provided by the QPS. While there have clearly been attempts to produce MDMA in Australia, there are comparatively few confirmed MDMA clan labs, compared to confirmed methamphetamine clan labs (24 compared to 221 in 2003–2004) (ACC, 2005: p. 18). However, in this same period 107 'other' labs (all of them in Queensland) were detected containing chemicals and equipment associated with making both methamphetamine and MDMA. Some of these labs may have been associated with MDMA production. These clan labs are discussed in more detail in Chapter four. This published data does not indicate whether the laboratories were active or inactive at the time of seizure or provide an estimation of their productive capacity.

Table 3-2. MDMA clan lab seizures in Australia 1996/97–2003/04

	NSW	QLD	WA	SA	Vic	ACT	Total MDMA Labs
1996/97#							4*
1997/98							1*
1998/99	3			1	1		5
1999/00	1	2	1			1	5
2000/01		1	1				2
2001/02	-	-	-	-	-	-	0
2002/03		3**					n/a
2003/04	15	3	0	3	3	0	24

* State in which MDMA clan lab seizures occurred not identified.

All financial year reporting.

** QPS data, not available for other jurisdictions from ACC IDDR 2002-2003 or 2003-2004.

Source: ABCI, 1997, 1998, 1999, 2000; QPS 2003, 2004, 2005; ACC 2005.

National clan lab seizure data for 2002/03 were not available for this report but the ACC (2005) Illicit Drug Data Report (IDDR) for 2003/2004 clearly identifies a considerable increase in attempts to manufacture MDMA in Australia, with the detection of 15 MDMA laboratories in NSW. There have also been a number of relevant seizures reported in the media. Notable examples of pill press seizure events include a case in September 2003 in which Victorian police seized, in one event, 200,000 ecstasy tablets, three kilograms of MDMA powder, two kilograms of crystallised methamphetamine, 5,000 LSD tablets, $220,000 cash, two pill presses and various chemicals. In April 2003, Australian Federal Police arrested a number of businessmen involved with public relations, event management and freight forwarding for possession of 170 kilograms of MDMA powder believed to be originally sourced from the Netherlands and transited through Malaysia. They also seized an industrial pill press and other evidence indicating production of mixed content ecstasy tablets.

While these case studies provide useful market insights, more systematic collection and analysis of data about all such cases involving pill presses would provide valuable strategic intelligence. The separation of pill press tableting processes from laboratories producing MDMA or methamphetamine powder may indicate greater specialisation, and sophistication, in local illegal drug production. Similar specialisation has occurred in methamphetamine production

with examples of dedicated labs in Queensland solely for the extraction of pseudoephedrine from pharmaceutical drugs. The development of a National Clandestine Laboratory Database and enhancements to a National Industrial Chemicals Monitoring Scheme are two recent initiatives under the National Strategy to Prevent the Diversion of Precursor Chemicals that will considerably improve intelligence capacity in monitoring this aspect of the ecstasy and broader ATS drug markets.

Structure of the supply chain within Australia

Clearly it is evident that activity in the wholesale, mid-level and retail sectors of the ecstasy supply chain occurs within Australia. There are examples of precursor trafficking and manufacture, there is wholesale importation and distribution on a significant scale, and retail markets are found in all major urban centres. The level of activity within each of these sectors varies with the volume, and thus the value, of drugs involved. Modelling the distribution system of the ecstasy supply chain within Australia is a difficult task. Importers and distributors make every effort to remain anonymous and hidden from view. Retail suppliers limit contact with the general public and law enforcement agencies by dealing in private homes (either their own or their customers), or in more public environments such as nightclubs. Retail suppliers in the ecstasy market also deal with peer suppliers who buy on behalf of friends using pooled resources.

A framework to interpret and present the views expressed by EMI research participants about the supply of ecstasy in Queensland has been developed in relation to previous literature and the EMI consumer survey. Key themes to arise out of the EMI interviews are the organisational structure of supply chains for different drugs, the relationship drugs have to one another, typologies of suppliers, barriers to market entry for suppliers, and localised distribution processes.

Supply-chain structure and its supplier

Gruppo Abele (2003), in their analysis of the European ecstasy market, have provided a categorisation of supply-chain levels in the Netherlands between production and consumer peer supply. We adapted these categories for the Australian market, based on information gathered during the EMI project.

Supply chain levels in Australia

- **Importation/Wholesale: transactions at 'first hand' distribution (the first buyer from the manufacturer or the wholesale distributor in Europe) which involve quantities of between 10,000 and 50,000 to over a million pills depending on customer**
- **Mid-Level: the intermediaries who buy from wholesalers in Australia and distribute to retailers, involving amounts of between 1,000 and 50,000 pills depending again on customer**
- **Retail: direct consumer sales, supplied by intermediaries starting at 1,000 pills. Such suppliers sell, for profit, to both consumers directly and to consumers who peer supply**
- **Peer: consumers who buy from retail suppliers in amounts from 10 to 100 pills for their own use as well as for friends. Cash profit may be a small or no part of these transactions.**

The peer supplier category is a description arising out of our analysis of the retail market in Queensland (see Chapter four). This analysis has also indicated that attempts at ecstasy manufacture in Australia may involve suppliers active at any of these levels of the supply chain. The price per tablet will vary significantly at these different supply-chain points and may fluctuate with the volume of individual transactions and the level of cooperation between transaction participants. Discussion of this aspect of the supply chain is provided in Chapter six.

As well as this categorising of supply chain activities based on volume of drug transactions, other frameworks have been developed to describe types of suppliers based on characteristics other than the volume of their transactions. For example, the Australian Customs Service (Beyer, 2002) has provided a typology of suppliers that identifies four types of organisation for Australian drug importers, with the categories determined by the degree of planning and organisation undertaken by the individuals involved:

- Opportunists: these are sometimes drug users themselves who seek a quick return from a small investment. They act with minimal knowledge of the importing environment and usually act alone or with one or two friends. These types may be recruited by other groups and paid a flat fee on delivery (couriers). In the latter case they will have little knowledge of who is employing them.
- Amateurs: people starting out in the drug trade, either on their own behalf, or as junior members of a syndicate. They will have some knowledge of how to evade detection and will invest some time in preparations. If they are not detected and do not drop out, they may become a 'professional' importer.
- Professionals: people for whom drug importing is a life-style and continuing trade. These individuals are the central core of ever-changing syndicates, drawn from Australia's 'criminal classes'. They tend to specialise in certain drugs, are aware of the relative risks and take trouble over each import.
- Business: these importers are well financed and able to organise continuing large-scale imports, although not necessarily importing large qualities at a time. Their operations are expensive and they pay others to do the 'hands on' labour. Business importers go to considerable trouble to merge illegal imports into legitimate import traffic. They rely heavily on ethnic, family or business ties, their reputations and changed methods of operation to avoid detection.

Across these categories there may be individuals who are more risk tolerant or risk averse, depending on a range of factors including degree of capitalisation and organisational experience (Dorn, Oette & White, 1998). The ecstasy market study in Europe by Gruppo Abele (2003) indicated the involvement of very young, quite inexperienced people in synthetic drug trafficking in Barcelona, Amsterdam and Turin, moving in and out of drug trafficking and other illegal or irregular activities. These individuals do not belong to the criminal underworld, and do not use violence. Because of their low level of criminal skills and precautions, in principle they are rather exposed to law enforcement but, in practice, quite often are not detected as they are not known to law enforcement agencies before apprehension.

There is little published[13] research in Australia integrating typologies of organised crime groups involved in different illegal drug markets, at different levels of supply chains. Linking these supplier profiles to intelligence about seizure events, chemical analysis of drugs and clan lab analysis will provide a more comprehensive supply-side model of the ecstasy market.

The evidence collected through the EMI study indicates that the organisational structure of the middle-level distribution of ecstasy in Australia is decentralised and dynamic. It involves multiple

[13] There are unpublished protected reports by a number of Australian law enforcement agencies providing intelligence analysis about organised crime groups and supply chains. While these reports provided tactical intelligence to support operational activity it is unclear the extent to which they inform strategic analysis of drug markets. The study has had only limited access to this material.

individuals or groups operating within an expanding market, motivated by profit and in response to high consumer demand. Although the organisation structure of the market supply-chain is characterised by different levels (measured in volume of drugs transacted), no one individual or group controls the market. As one participant acknowledged, "*it doesn't all just go up to one Pablo Escobar that dominates everything*" [Dealer/Male/Brisbane].

This opinion is consistent with the research literature, which argues that organised crime networks in the Australian drug trade are essentially a mix of opportunistic and middle level 'syndicate' activity, without any hierarchical structured crime participation (McCoy, 1980; Sutton & James, 1996; QCC, 1999; Beyer, 2002). Even assertions about the dominant role in the Australian heroin market of highly structured criminal organisations such as Chinese Triads are not sustained, although there are clearly ethnic-based networks with major market roles (Dobinson, 1993). As Beyer (2002: p. 10) states:

> *The Australian illegal drug market consists of small, relatively unrelated and diverse groups and individuals operating in a free market environment. Illegal drug importations in Australia show a mix of small and large importations across drug types and all import systems (air cargo, sea cargo, post and passengers). Further, there is no particular level of organisation able to link to any type of method, type of illegal drug or quantities brought in at one time.*

Drug market researchers have argued that individuals and syndicates move in and out of the drug trade, vary their quantities and methods of operation or cease trading altogether, as circumstances change (Dorn, Murji & South, 1992; Pearson & Hobbs, 2001). In such a fluid market place 'a cloak of legitimacy' – such as that provided by legitimate companies – may now be the more important factor in illegal drug importation than the traditional 'cloak of secrecy' (Morrison, 1997). This fluidity of organisational arrangements among suppliers may have been exacerbated by the growing importance of ATS drugs as a new area of business in the more traditionally structured arrangements for the heroin and cannabis markets. The ecstasy market in the Netherlands, within the broader ATS market, was seen as a new area of business for local organised criminal groups who have had traditional 'territories', routes and supply chains for the hashish, heroin and cocaine trades. The ecstasy market is seen as a 'free' competitive market open to entry for new suppliers (Gruppo Abele, 2003).

That the ecstasy market is driven by rising consumer demand, rather than by established supply structures, may also have contributed to this shift in organisational arrangements among suppliers. The demand-driven nature of the local ecstasy market is clearly evident in the following comment made by one market regulator:

> *At the end of the day you would have to say from the intelligence that we receive, the debriefing of sources, informants and our own sort of observations of the environment, we would say that the major criminal syndicates are responding to what sells best at the moment and what yields the highest profits in the market. And at the moment we're hearing amphetamine and cocaine and ecstasy are the commodities nominated, rather than heroin. [Market regulator/Male/Brisbane]*

The different levels of the market are tiered in relation to the volumes of ecstasy being purchased or distributed, and the number of suppliers involved at each level. A far greater number of suppliers distribute ecstasy to consumers at the retail level, than suppliers distributing to other suppliers at the wholesale level. This leads to a short funnel-shaped structure of distribution with a very broad base and an open ended top level of entrepreneur drug traffickers without dominant market figures.

Information collected from EMI participants during in-depth interviews suggests that large importations of ecstasy are organised by particular individuals or groups who have the necessary overseas contacts. The decentralised nature of the market means that there is no established

template that determines the way in which ecstasy enters Australia and who is responsible for this importation. As one participant remarked:

> *We don't see too much information that would say that a particular group is responsible for [importing] a particular type of drug, with the exception of Romanians and Chinese with the higher end of the heroin side of things. [Market regulator/Male/Gold Coast]*

The individuals and groups involved in the importation of ecstasy vary in terms of quantities being imported, level of organisation skills, range of illegal substances imported, transit routes, mode of importation (i.e. type of transport used) and ethnic background of those involved. While ecstasy is frequently imported by individuals, recent intelligence reported by market regulators suggests that local networks that include outlaw motor cycle gangs (OMCG), and Southeast Asian and Middle European ethnically-aligned organised crime groups are also currently involved in the importation and distribution of ecstasy in Australia.

Furthermore, these different groups increasingly appear to be working together. The profit motivation behind market participation means that alliances between otherwise conflicting groups or individuals are being created in order to facilitate the procurement and distribution of ecstasy. The supply of ecstasy, and other drugs, has developed into a business enterprise based purely on the tenets of free market capitalism rather than group allegiances. As one EMI participant commented:

> *Previously you had your Leb[anese], or that group, or the OMCG running separate races. Well now they have formed a nice big company…Once upon a time you would never see Asians and Lebanese talking. In fact, they would be aggressively fighting or stabbing each other. Now there's plenty of information to say that they're forming partnerships – certainly in Sydney. You see them up here just walking through Surfers. There'll be Leb[anese] with Vietnamese…[I]t's just a business concern now…we're heading away from ethnic-based crime to business-based crime. [Market regulator/Male/Gold Coast]*

The presence of OMCG in the ecstasy market was a common comment made by various market regulators, suppliers and consumers from different jurisdictions:

> *Speed and methylamphetamine is their [OMCG] main forte. But we get good intel[ligence] about them getting involved in MDMA – both importation and distribution. [Market regulator/Female/Brisbane]*

As indicated in the above quote, the involvement of OMCG in the distribution of ecstasy is less prominent than their involvement in the methamphetamine market. Their level of involvement is also likely to vary between state jurisdictions, and the views documented here reflect those found in South-East Queensland. As one market regulator commented:

> *I must say intelligence suggests that they [suppliers] are getting a lot of it from those circles [OMCG]. But based on the jobs that we've done in the past two years, we've never actually been able to say yes on that [OMCG involvement]. There's indicators, but we have never actually kicked the door of a clubhouse and found a thousand pills anywhere. [Market regulator/Male/Brisbane]*

The convergence of market participants with different backgrounds in single business ventures assists the importation of ecstasy by developing the use of different, often temporary, networks involving specific areas of expertise. It also allows participants to consolidate finances that facilitate sourcing larger quantities of ecstasy, thereby increasing profit margins. This business arrangement may also result in an improved ability to efficiently source other illicit substances in response to changing consumer demand.

There is a general consensus within the law enforcement community that there is a move away from even strategic alliances between organised middle level networks to service provision in loose, shifting and overlapping teams and networks, mediated through complex internal and inter-network relationships, that vary with the task at hand. The complexity of these supply-chain 'scenes' have been conceptualised in UK research by Dorn, Bucke and Goulden (2003: 355) as: *capitalise, purchase, recruit, prepare, import, deliver, store, distribute, sell and launder*. This framework opens the way for further qualitative research strategies using different methods and measures to be developed relevant to each 'scene'.

Although the absence of a key figure or organisation dominating the market somewhat liberates the possibility of market participation, involvement in the ecstasy market is essentially closed to unknown persons at the higher levels. Accessing overseas manufacture and distribution networks, raising capital and the logistics of trans-shipment all represent barriers to market entry for suppliers. As noted previously, ecstasy tends to be imported from Europe regardless of the persons involved in the process, a fact driven by the low cost and high quality associated with ecstasy produced in the Netherlands and Belgium. Information collected by the EMI project about importation assumed that the impetus for importation tends to commence in Australia rather than overseas. There was little discussion by retail market regulators about overseas distributors actively seeking to expand their market by establishing distribution networks within Australia. Again, this implies a demand-driven market.

International importers may, however, place people on the ground in Australia to receive an importation, and to facilitate distribution to local first-level distributors. This was the case with Australian Customs *Operation Avian/Serval*, which resulted in the seizure of 135.2 kg of MDMA in Brisbane in 2003. Overseas criminal networks are, therefore, able to import without any significant co-operation by entities within Australia beyond their willingness to purchase bulk quantities for distribution within Australia. International entrepreneurs must, nevertheless, obtain an introduction to such local wholesale distributors, in order to realise their investment without detection by law enforcement agencies.

Market regulators advised that ecstasy importers typically confirm a level of local interest from trusted persons involved in the distribution of ecstasy before arranging the importation. Those organising the importation of ecstasy do not necessarily require a financial outlay from distributors, but a small deposit may be paid in advance to secure the ecstasy. Full payment is generally not required until the product is actually exchanged or after the ecstasy has been sold on to the next supplier. A recent law enforcement intercept, discussed by one of the market regulators interviewed for the project, provides an example of a large-scale deal that involved securing the supply of ecstasy through the provision of a deposit:

> *The ninety thousand pills we seized only recently in X. There was a down payment there of two hundred and fifty thousand [dollars]. Now that's a million dollars worth of pills… they are only paying twenty-five percent cash up front. And that comes back to a standard business relationship I s'pose. No one's going to be driving round with a million dollars cash in the back of their car and they are quite happy to do the business of supply on credit and then once they're sold, because they are making, at that level, two to four dollars a pill. You know so if you are selling a hundred thousand pills, like you're making two-hundred thousand bucks in one very quick deal. And they're quite happy to deal on credit. [Market regulator/Male/Brisbane]*

This example gives some insight into profit margins within the middle-level supply chain within Australia. If ninety thousand tablets were purchased for one million dollars, this represents $11.11 per tablet. If these tablets are all on-sold with a profit margin of $2 to $4 per tablet, i.e. $13 to $15 per tablet, a total profit of $180,000 to $360,000 could effectively be realised in a few days.

One of the primary barriers to participation in the ecstasy market is raising capital to finance transactions. The above example demonstrates how the use of credit in wholesale ecstasy distribution facilitates the involvement of certain suppliers. The sizable profit margins involved in the distribution of large wholesale quantities of ecstasy means that highly organised suppliers can bear the costs of obtaining and distributing ecstasy to suppliers directly below them in the short term. The use of a deposit secures the ecstasy for a particular distributor and signifies a certain level of good faith between suppliers. A trustworthy reputation, or a known guarantor, is essential in the successful progression of transactions based on credit at this level.

> *There is a certain level of trust between the importer and the local receiver in Australia. 'We want some money to show that you are good, but you've been good to us in the past so…'. Obviously the more you do it, the more that trust is increased. [Market regulator/ Male/Gold Coast]*

Drug seizures along the supply chain within Australia

The above discussion of the supply within Australia relies on the opinions of law enforcement officers, drawing from their operational experience and intelligence gained from a wide range of sources. One of these sources is drug seizures made by the AFP between importation and the retail market. Analysis of these seizures, with significant limitations, is made below and analysis of drug seizures in the Queensland retail market by the QPS are presented in the following chapter.

The AFP can provide data on drug seizures from the PROMIS operational database. Recorded seizures include all Australian Customs seizures, seizures made by the AFP in conjunction with other state and federal law enforcement agencies, and seizures made by the AFP alone. These data are collected for AFP operational and property control purposes and it is not always possible to separate out these different types of seizure events. PROMIS content is author entered by investigative staff, rather than being coded and entered by intelligence or data entry staff. While offering some efficiency, this process may result in inconsistencies in the terminology used to describe seizure events.

Substantial analysis is therefore required to create both tactical and strategic intelligence from this raw data, and aggregating seizure data from all law enforcement agencies is likely to result in an unknown level of double counting.[14] A further limitation of the data provided for the EMI project from PROMIS is that it has been coded by AFP organisational regions, not by the state or territory in which the seizure took place. For example, the Northern Region contains both the Northern Territory and Queensland. The value of AFP data is in the purity analysis and physical form description, although there are often considerable delays in this forensic detail being made available.

AFP data provided for the EMI project indicate that approximately 2400 kg of ecstasy was seized in 2003 and 2004. This includes both Australian Customs and AFP seizures but not seizures made exclusively by state police services.

Following is a summary of the AFP ecstasy drug seizure data for all of Australia from January 2003 to December 2004, by quarter. This data includes seizures made jointly with Australian Customs and with state police services. It is not possible to separate out these different seizure events along the supply chain from the provided data. Earlier data was unavailable within the timeframe of the EMI project and thus trend analysis to the extent undertaken with Australian Customs data is not possible here.

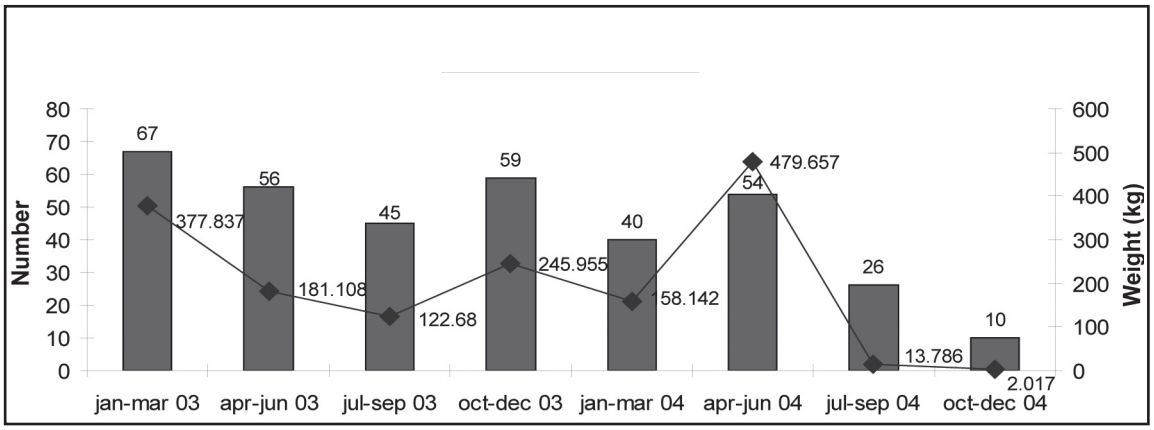
The data is presented in two formats: (a) seizure-level data, which provide a summary of each seizure, and (b) item-level data, which provide separate information about each item within a seizure. Data in each format are presented below. Note that due to on-going investigations,

[14] These shortcomings of the AFP seizure data are acknowledged by the former ABCI and ACC in the Australian Illicit Drug Report series.

including controlled deliveries and prosecutions, more recent seizure data may be subject to revision at a future date.

Figure 3-10 shows the number of AFP seizures recorded, by quarter, from January 2003 to December 2004. With the exception of the two most recent quarters, the number of seizures has been quite consistent over time. The peak in total seizure weight in the April-June 2004 quarter is largely due to one large seizure of 342.5 kg in the Eastern region. The apparent decline in seizures in the last two quarters of 2004 may be misleading; recent seizure data are subject to revision (usually upwards) once current investigations and prosecutions are complete. For example, these data do not include a very large seizure of 820 kg made by the AFP in Sydney in October 2004. This delay in the availability of representative seizure data makes it difficult to generate a timely and accurate summary of trends in ecstasy (and other drug) seizures.

Figure 3-10: Total number and total weight of AFP seizures, by quarter, 2003 and 2004

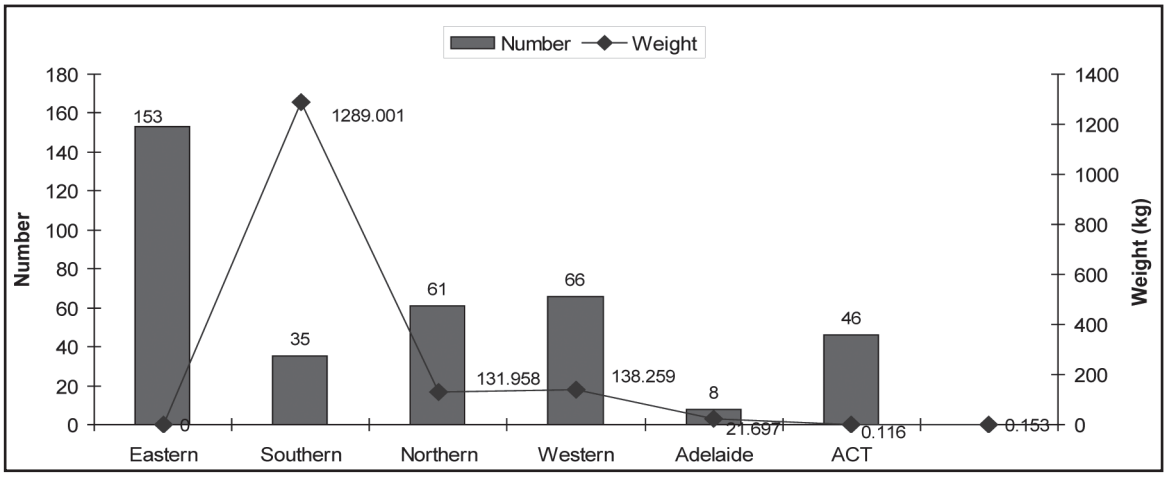


Note: Last quarter 2004 data are incomplete – excludes seizures in this quarter which have not been analysed.

Figure 3-11 shows the number and weight of seizures by AFP, by region[15], from January 2003 to December 2004. Over this two-year period the AFP made 369 ecstasy seizures in Australia, with a total weight of 1,581.2 kg. This does not include the seizure of 820 kg in Sydney in October 2004. As the figure shows, much of the seizure activity in Australia occurred in the Eastern region (i.e. NSW). During the 2003/2004 period 41% of seizures (82% by weight) were in the Eastern region, with only 17% of seizures (9% by weight) occurring in the Northern region, which includes both QLD and NT. Information from the AFP indicates that most Northern region seizures occur in Queensland. ACT seizures reflect the retail market regulation role undertaken by AFP as the Northern Territory's (NT) local police service, where the number of seizures is high for the total weight.

[15] AFP regional structure has been re-organised and no longer reflects the regions used in this data analysis.

Figure 3-11: Total number and total weight of AFP seizures, by region, 2003 and 2004



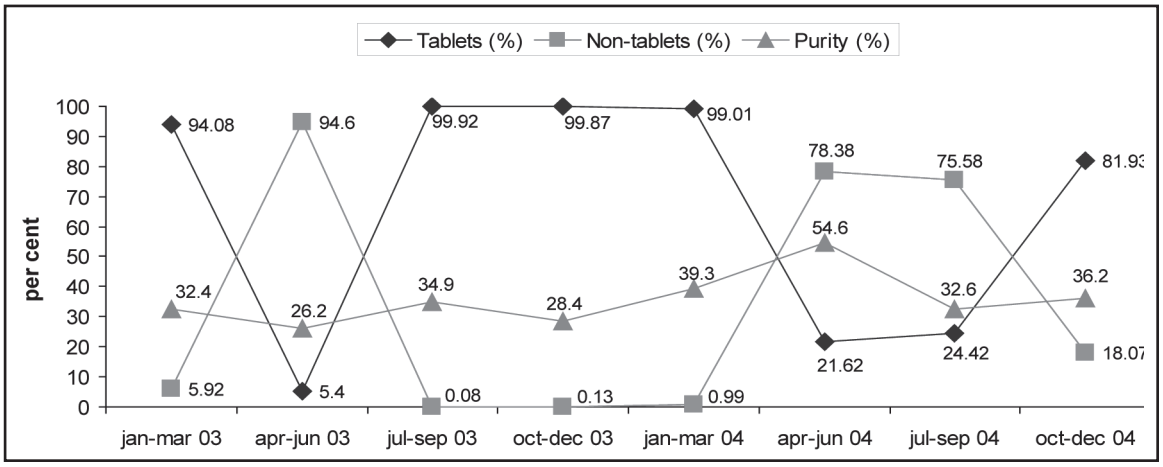
Note: ACT seizures include policing of the retail market in Canberra.

Over this period the median weight of MDMA seizures by AFP was 6.7 grams. More than one in four (27.9%) of seizures were of less than 2 grams, and over half of the seizures in this time (54.7%) were of less than 10 grams. Nevertheless, just over one in ten (10.6%) seizures was of over one kilogram, with six seizures of over 100 kg of MDMA. Aggregating small postal seizure and retail level seizures in the ACT significantly lowers the median weight, and stratifying seizures by weight and other seizure event attributes would enhance the strategic value of this data. ACT AFP maintains a separate drug seizure database to overcome some of the limitations of using PROMIS for this purpose.

Item-level data

Item-level data can provide valuable strategic information about AFP seizures, because (a) they include information about the purity of the seized drugs, and (b) they provide information about the form in which the drug was detected (e.g. pill, powder). Figure 3-12 shows the proportion of MDMA seizures by AFP during 2003 and 2004 that were of tablets, and the proportion that were not tablets. In almost all cases, these non-tablet seizures were of MDMA in powder form. Across the two-year period two-thirds (66%) of seizures were of tablets, with one-third (34%) non-tablet. The median purity of seizures across the two-year period was 35.6%, ranging from a low of 26.2% in April-June 2003, to a high of 54.6% in the April/June 2004 quarter. This was also the quarter in which the largest proportion (78.38%) of non-tablet (powder) seizures was made.

Figure 3-12: Median purity and form of MDMA seizures by AFP, 2003 and 2004

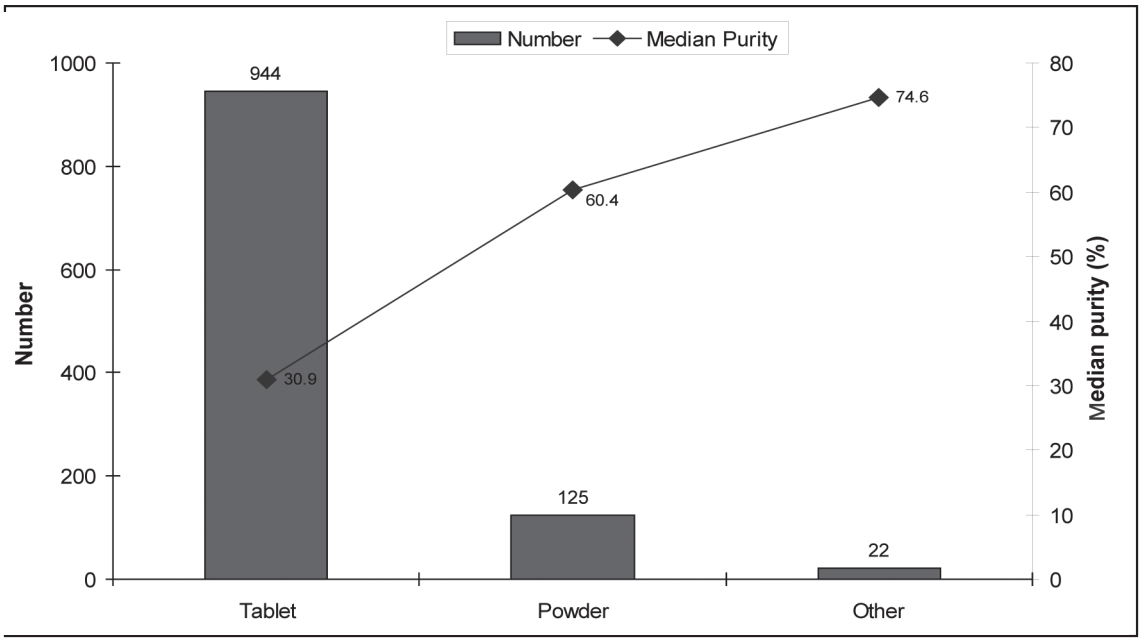


Note: ACT seizures include policing of the retail market in Canberra.

Seizure data from the AFP indicate that non-tablet (powder) seizures are typically of higher purity than tablet seizures. Figure 3-13 shows the number and median purity of tablet, powder and 'other' MDMA seizures by AFP from January 2003 to December 2004. The majority of seizures were of tablets (n=944); among the 202 for which purity was recorded, the median purity was 31%, with a range of 3.8% to 73.9%. By contrast, the median purity of powder seizures (n=125, purity available for 62 of these) was 60.4%, with a range from 3.7% to 82.5%. Finally, there were 22 seizures of MDMA (purity recorded for 15 of these) in other forms (usually liquid or capsules), with a median purity of 74.6%, ranging from 18.1% to 78.0%. As powdered MDMA use is rarely reported among consumers at the retail level, it can be assumed that this powder is blended with other substances to be pressed locally into tablets, which are typically around 30% pure MDMA. When monitoring the ecstasy market, it will be important to note any increase in the consumption of MDMA powder or capsules; as this might suggest use of higher-purity MDMA.

Another important implication of this purity differential is that aggregate seizure data can be misleading, as it combines the purity of powder and tablet seizures. An increase in the average purity of ecstasy seizures, particularly at the border, may indicate an increase in the proportion of seizures that are of powder (which is destined for cutting and pressing into pills), and have no significant bearing on the purity of the drug as it is provided and consumed on the retail level. A change in seizure purity may, therefore, indicate a change in the methods of importers, rather than a change in the average purity of the drug for consumers. In order to disentangle these two very different possibilities, it will be necessary to record and present ecstasy seizure data separately for tablet and non-tablet seizures. A similar approach has already been adopted by the UNODC (2003a), who express powder MDMA seizures in terms of their tablet equivalent (using an estimate of 30% purity per pill).

Figure 3-13: Number and median purity of MDMA items seized by AFP, 2003 and 2004



Note: 'Other' includes liquid (n=9), capsules (n=8), paste (n=1), granule (n=1), residue (n=1) and unspecified (n=1).

Tablet content ratio as market indicator

There is significant evidence from seizures of tablets containing methamphetamine and various combinations of ketamine, paracetamol and caffeine, that these are produced with the intent of mimicking the effects of ecstasy while containing little or no MDMA. These 'fake' ecstasy pills are generally believed to be manufactured in Australia, although some may be imported from Asia, particularly those containing predominantly ketamine. 'Fake' ecstasy is likely to be cheaper to supply than real MDMA and provides suppliers with a greater profit margin. The ratio of 'fake' to 'real' ecstasy is a key indicator for the Australian ecstasy market. ABCI (2002: 36-37) reported that:

> *The trend, noted over the past two to three years, for methamphetamine produced in clandestine laboratories in Australia to be incorporated into tablets continued during 2000–01. There have been instances of methamphetamine being mixed with ephedrine, ketamine, caffeine, LSD or heroin, then made into tablets and imprinted with logos matching imported product and passed as ecstasy; thus attracting a higher price.*

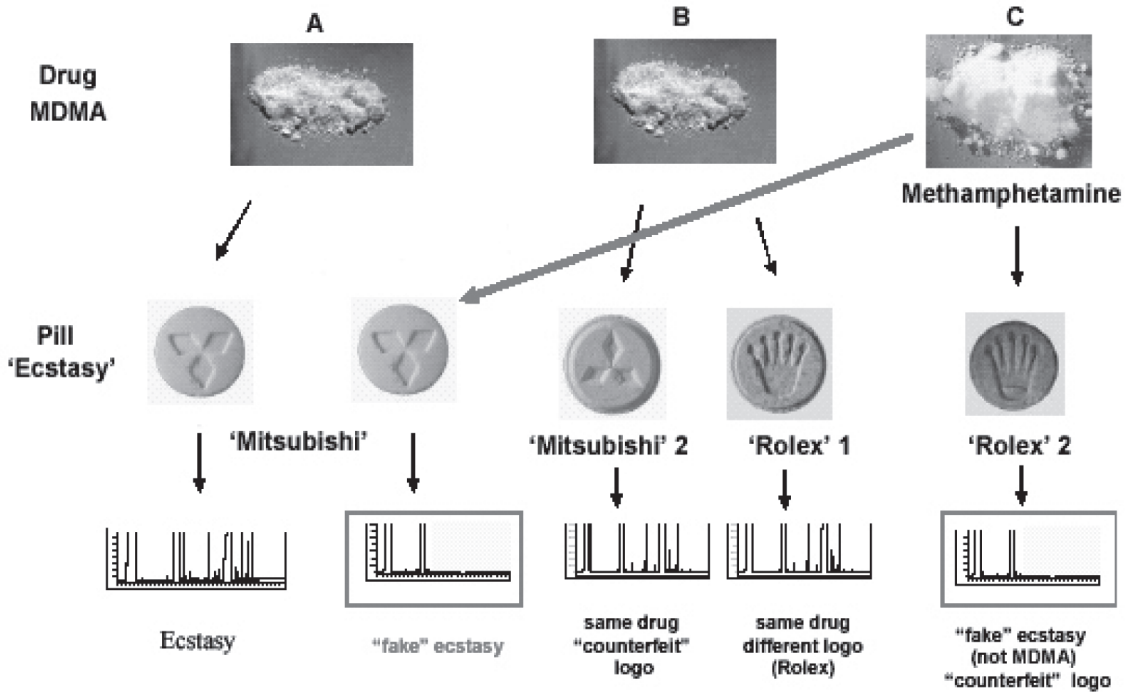
Consistent with this, in 2004 the Queensland Government Chief Chemical Analyst stated to the Victorian Parliamentary Drugs and Crime Prevention Committee that *'in 1999 almost everything was MDMA and then there was a consistent introduction of other materials to the point now where something like maybe two in three pills aren't ecstasy. We've only had probably two, three or four serious attempts…of making MDMA as opposed to methamphetamine…'* (DCPC, 2004; p. 390).

The increase in mixed content tablets could reflect opportunistic suppliers from the methamphetamine market entering the tablet market to make a quick profit from the demand for ecstasy. This market crossover may also imply that ecstasy suppliers could not source sufficient imported ecstasy to meet consumer demand and resorted to local manufacture of tablets with what substitute was at hand, i.e. methamphetamine blends.

Murtagh (2002) reported from an analysis of seizures in Sydney that, of the tablets alleged to be MDMA, only 49 per cent contained MDMA in 2000. New South Wales Police also reported that a little over half of the alleged ecstasy tablets seized during the 2000/01 period contained MDMA, an increase in non-MDMA tablets over the previous year. Previously, the ratio of methamphetamine tablets seized to MDMA tablets seized was 3:1. The 2001/02 ratio was approximately 1:1. This proportional decrease in methamphetamine tablets is supported by Murtagh (2000), who reported that, of the tablets analysed in Sydney in 2000, 55 per cent contained methamphetamine, compared to 41 per cent in 2001. Though presenting different reporting periods, these data indicate that before 2000, MDMA tablets were the norm, but that for a period in 2000 and 2001, MDMA and non-MDMA tablets were equally present in the ecstasy market. Subsequently the proportion of non-MDMA tablets has declined.

The UNODC Regional Office for East Asia acknowledges that the high street value of ecstasy relative to other ATS tablets in Asia has created a lucrative market for 'fake' ecstasy and 'counterfeit' logos[16]. One clandestine laboratory may produce tablets with the same MDMA content, but use a variety of logos, complicating identification by law enforcement authorities. In addition, different manufacturers may produce 'counterfeit ecstasy'. Tablets with logos traditionally associated with ecstasy or with a specific manufacturer can in fact contain methamphetamine or some other drug as the principal constituent. While drugs A and B in Figure 3-14 are MDMA, drug C is methamphetamine which can be pressed as tablets with a logo to very closely resemble MDMA tablets.

[16] United Nations Office for Drugs and Crime–Regional Centre (UNODC-RC) for East Asia. www.apaic.org/id.htm.



A more substantial review of the evidence from tablet seizures made in Victoria between 1998 and 2003 has been undertaken by Quinn (2004). Her results clearly identify the importance of a number of key indicators of change in illegal tablet markets. These indicators include:

- the ratio of tablet to powder seizures for the major drugs used in the illegal tablet market
- the ratio of single drug to multiple drug tablets where one drug predominates
- the relative composition of multi drug tablets
- the relative purity of single drug tablets where one drug predominates.

Quinn (2004) argues that the illegal tablet market differs from other drug markets in that market variation is not based on the form of the drug (i.e. powder, crystal or base) or the mode of use (i.e. injection, snorting or smoking) but rather on the tablet composition and product 'branding' (i.e. colour and logo). Table 3-3 provides the percentage, by weight of seizures, of relevant drug types within the total seizures of all these drug types regardless of physical form between 1998 and 2003. Emerging in the late 1990s, the illegal tablet market has expanded as a major component of the overall drug market within Victoria.

Table 3-3. Seizures of drug types in Victoria by percentage weight, 1998–2003.

	% of seizures by weight for each year					
	1998	**1999**	**2000**	**2001**	**2002**	**2003 (1/2 year)**
All tablets regardless of content	20	10	54	68	44	19
Methamphetamine powders	30	35	14	24	36	66
Amphetamine powders	3	<1.0	<0.5	<0.5	3	3
Heroin powders	41	31	25	4	16	11
Cocaine powders	6	1	4	2	1	<0.5
MDMA powder	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ketamine powder	n/a	22	3	<1.0	<0.5	<0.5

Note: n/a = not available

Source: Victorian Police Forensic Services Department (Quinn 2004).

The principal drugs identified in the illegal tablet market by this research are MDMA, methamphetamine and ketamine. These drugs can be seen in single drug containing tablets where they are present in combination with other non-drug compounds such as sugars and/or various tablet-binding agents. Small amounts of other drugs such as LSD, caffeine, paracetamol, and other non-drug substances such as safrole, have been found in some seizures. The variation observed in the composition of these tablets is in the nature of the non-drug material, colour and logo design and most importantly, the drug purity level.

Quinn (2004) found that these drugs can also be seen in multi-drug containing tablets where all three drugs may be present in combination, and/or present with a number of other drug compounds and/or in combination with non-drug compounds such as sugars and various tablet binding agents. The variation observed in these multi-drug tablets was much greater due to the range of variables including drug types, non-drug substances, colour and logo design and most importantly, drug purity levels. Clearly there is no set recipe for these tablets and the quantity and mix of drugs, and the purity of each drug in the mix, varies from batch to batch, and therefore from week to week and year to year. Average purity is one guide to the level of drug content within these tablets, however, it is also important to consider the often wide-ranging minimum and maximum purity observed in seizures.

Table 3-4 presents the average, minimum and maximum purity, as a percentage, where MDMA, methamphetamine or ketamine were identified as the main drug in the tablet seized in Victoria between 1998 and 2003. While average purity only fluctuates for MDMA and methamphetamine tablets within a limited range, average purity for ketamine fluctuates widely. For all tablets minimum and maximum purity fluctuates considerably, with an evident decline in MDMA purity since 2000 compared with the two previous years.

Table 3-4. Purity of tablets seized in Victoria where MDMA, methylamphetamine and ketamine were the major drugs identified, 1998–2003.

	1998	1999	2000	2001	2002	2003 (half year)
MDMA						
Average purity (%)	30	32	35	19	36	20
Minimum purity (%)	16	11	3	2	1	3
Maximum purity (%)	55	54	68	66	70	51
Methylamphetamine						
Average purity (%)	2	5	5	3	5	7
Minimum purity (%)	<0.5	<0.1	<0.5	<0.5	<0.5	<1.0
Maximum purity (%)	19	25	33	37	42	29
Ketamine						
Average purity (%)	n/a	31	18	9	15	21
Minimum purity (%)	n/a	21	2	<0.5	<0.5	2
Maximum purity (%)	n/a	43	47	44	54	44

Note: n/a = not available

Source: Victorian Police Forensic Services Department.

The level of analysis undertaken by Quinn (2004) in Victoria has yet to be replicated in other states and it is outside of the scope of the present project. Similar illegal tablet content analysis has, however, been undertaken in Canada based on Royal Canadian Mounted Police seizures at rave events in 2001 and 2002 (Buxton, 2003). Camileri and Caldicott (2004) undertook a similar small-scale comparison of tablet content presented at a rave event for testing, with those seized by police during the same month in South Australia. Their results indicated that what was seized by police was not necessarily representative of what consumers were using in the same time period, in terms of both MDMA purity level and tablet composition. The inference from this study is that police seize a small, and not necessarily representative sample, of what drugs are available in a given market at a particular time.

The development of a national forensic database for the illegal tablet market will provide opportunities for such analysis in the future. An important next step in this more sophisticated approach to using seizure data for strategic intelligence is to link the chemical analysis of these samples of drugs that are present in the market to the wider aspects of the seizure event through which they were acquired, such as estimated drug price, quantity and location of seizure.

Limitations of seizure data for strategic assessment of ecstasy markets

Intelligence about seizure events along the supply chain to Australia, and within our borders, is a key indicator for profiling illegal drug markets. For the ecstasy market, seizure events encompass drugs (MDMA and non-MDMA tablets, and MDMA powder), clan labs, and MDMA precursor chemicals. Many physical and contextual attributes of such seizure events can inform our strategic understanding of the ecstasy market.

Current published data is usually limited to the number of seizure events, and the weight and purity of the drugs involved. This data is usually aggregated to provide total number and weight

of seizures by drug type nationally and for each jurisdiction. Assumptions based on this high level of aggregated data can often be misleading. More detailed data on a wider range of variables for each seizure event are recorded by agencies involved in independent and joint operations. Some of this data is released to the media. With appropriate controls, this more detailed data could also be shared between law enforcement agencies and made available for research activity such as the EMI project.

There are a number of acknowledged shortcomings with the collection, analysis and dissemination of more detailed data about seizure events. For the ecstasy market some of these issues are around distinguishing ecstasy events for other ATS seizure events. These markets overlap. Agreed definitions of seizure event attributes, for example the physical description of drugs, clan labs and precursors, are not as yet in place in all Australian jurisdictions. There are also a range of other barriers to making effective strategic use of seizure event intelligence for all drugs.

These barriers relate to balancing the needs of operational priorities with accurate recording of supply control activities in informational systems that also allow data extraction for intelligence purposes. While security is a consideration, greater collaboration in data analysis would enhance coordination and effectiveness of law enforcement regulation of illegal drug markets. The ability to distinguish independent and joint seizure events is essential to prevent double counting between state and federal agencies. The increasing demands on forensic services frequently means delays in chemical analysis. While some data sets are amended retrospectively, it is unclear if this happens, and in what detail, in individual agencies.

Concluding remarks

While significant advances have been made in recent years in using seizure event intelligence to provide market indicators, there remain a number of barriers to using existing data and substantial underutilisation of the much richer data about the supply chain context of seizure events. This strategic use of intelligence from seizure events is discussed in more detail in Chapter six on Market regulation, where supply regulation issues regarding arrests of consumers and suppliers, and drug prices are also presented within the context of intelligence-led policing of illegal drug markets.

This chapter has presented evidence mainly from market regulators in law enforcement and from seizure data in the wholesale and mid-levels of the Australian ecstasy market. The next chapter uses these sources and the views of suppliers and consumers and health workers, to provide a more detailed analysis of the mid-level and retail markets in Queensland.

Chapter four: Supply in Queensland ecstasy markets

Summary

- Queensland ecstasy markets may be driven by local demand but they are predominantly supplied from interstate, principally Sydney, and from overseas.
- There is increasing evidence of local ecstasy manufacture on a scale beyond simple experimentation and a recent detection of sophisticated large-scale production with the precursor PMK has occurred.
- Some ecstasy is imported directly into Queensland from Europe, sometimes with a South East Asian transit, by air passenger and cargo, sea cargo and small vessel, and the postal system. Though on a far lesser scale than in Sydney or Melbourne, these importations may be for local retail markets, trans-shipment to other states or both.
- Our knowledge of the structure and dynamics of mid-level supply-chain activities and participants is limited. Consumers are largely unaware of the supply chain beyond their retail contacts. Law enforcement market regulators derive intelligence from cases they are involved with, but there is significant potential for strategic intelligence to be derived from case series analysis of seizure events and from ethnographic research.
- Retail supply for many consumers generally involves sourcing ecstasy from peers in social networks, particularly at market entry. Consumers who supply peers have very similar characteristics to consumers who do not supply. This supply is usually driven not by cash profit but by other, often social motives.
- There appear to be few barriers for consumers to become retail suppliers, although capital and network connections limit participation in mid-level supply and importation. Mid-level supply may involve a mix of entrepreneurs promoting ecstasy and organised criminal networks.
- The ecstasy market is relatively closed, with consumers predominantly purchasing from known suppliers who are usually social peers, in private homes. However, some transactions do occur between unknown market participants in night clubs and at other music events. Even these transactions, however, may involve prior planning.
- While some consumers have specific expectations regarding the content and effects of the ecstasy they purchase, others do not. Consumers have mixed levels of confidence in the actual content of ecstasy they use, often relying on peer opinion or self use to estimate likely contents and effects. Few consumers use pill testing kits, but many are aware of consumer pill testing results posted on Internet sites.
- QPS seizures reflect retail market regulation activities and provide valuable insights into the types of ecstasy present in the Queensland market, although these seizures are not necessarily representative of the market. QPS seized a total 18.3 kilograms of ecstasy in 2002/03 and 2003/04. Two-thirds of these seizure events were of less than ten tablets. Median tablet purity is reasonably consistent at approximately 30% or 90 mg of MDMA, although the purity range can be substantial, presenting significant risk for consumers. Data on the mix of tablet contents are not readily available but few non-MDMA phenethylamines appear to be present in the market. Some tablets do contain methamphetamine, ketamine and/or caffeine as well as/or/instead of MDMA.

Introduction

The following analysis provides an overview of the supply mechanisms evident in the Queensland ecstasy market. This involves assessing the extent of local MDMA manufacture and reviewing law enforcement activity and border interdictions in Queensland. Retail market mechanisms are also described in detail using consumer and supplier interviews, drug seizure data, and intelligence provided by market regulators from a number of law enforcement and health agencies. While local demand clearly drives the market, the supply-side of the Queensland ecstasy market is inextricably linked to the national and international supply chains described in the previous chapter.

Most consumers and suppliers interviewed about the Queensland market acknowledged that ecstasy was largely supplied from overseas production sites. For the most part, ecstasy was perceived to be imported into the country through Sydney or Melbourne, and distributed throughout Australia by diverse distribution networks. This distribution might be a result of highly organised ventures dealing in large quantities and involving numerous persons, or it might involve sole operators smuggling smaller amounts across international and interstate borders in person or through the post.

Manufacture in Queensland

Information regarding the local manufacture of ecstasy was difficult to collect given that most consumers and suppliers involved in the study were uncertain about, or unwilling to discuss, this topic in any detail. This reluctance to comment on the local manufacture of ecstasy was also evident in the EMI consumer survey. Participants were asked to respond to a range of statements about the manufacture of ecstasy in Queensland and Australia and many reported that they could not comment (see Table 4-1). Nearly-two thirds of those surveyed stated that they did not know whether it was possible to obtain the necessary precursor chemicals for ecstasy production in Australia or from overseas, and around 40% indicated that they did not know whether ecstasy was made in Queensland or other Australian states. Thirty-two per cent stated that they did not know if ecstasy was produced overseas.

Responses to an open ended question on the manufacture and distribution of ecstasy included in the survey were also characterised by secrecy and lack of knowledge. Respondents often qualified their responses to this open ended question by stating that they did not know about the manufacture and distribution of ecstasy, and many simply indicated that they did not know, without adding further comment. Nearly half of all respondents mentioned that they either did not know (28.3%), refused to answer (10.4%), did not want to know (3.0%), did not want to say/could not say (1.7%) or did not care/had not thought about (5.7%) the manufacture and distribution of ecstasy. These results reflect the ways in which consumers can collectively assist in keeping illegal drug markets hidden by maintaining discretion when discussing the production and distribution. This practice preserves the anonymity of market participants, thereby decreasing their likelihood of detection by law enforcement.

Although many participants were not very confident about, or were disinclined to share their knowledge regarding the supply functions of the ecstasy market, the EMI consumer survey did provide some evidence to support the notion of local production. Forty-seven per cent of participants agreed a lot or a little that ecstasy is produced in Queensland, while 58% believed to some extent that ecstasy is produced interstate. Fewer participants believed that it was possible to obtain the necessary chemicals to produce ecstasy in Queensland (29%), from other states in Australia (31%) or from overseas (33%). Approximately half of those surveyed reported that they agreed a lot with the statement that ecstasy is produced overseas, while 18% agreed with this

statement a little. It is important to note, however, that these results are consumer perceptions about ecstasy manufacture, and they do not necessarily reflect actual knowledge about local production.

Table 4-1. Consumer perceptions of local manufacture of ecstasy.

Statement	Level of Agreement %			
	Not at all	A little	A lot	Don't know
Ecstasy is made in Queensland	10.3	36.8	9.9	43.0
Ecstasy is made interstate	3.1	28.7	29.1	39.0
Ecstasy is made overseas	0.9	17.5	50.2	31.4
It is possible to get the chemicals to make ecstasy in Queensland	5.4	17.0	11.7	65.9
It is possible to get the chemicals to make ecstasy interstate	3.1	14.3	16.6	65.9
It is possible to get the chemicals to make ecstasy in Australia from overseas	2.2	11.7	21.1	65.0

Information about the local manufacture of ecstasy collected by in-depth interviews with consumers, suppliers and market regulators was inconsistent. Law enforcement officials generally believed that, although possible, ecstasy was not being produced in Queensland in any serious manner. Some others varied in their opinions about local manufacture – some believed that the ecstasy market is completely supplied by overseas imports, while others alleged that ecstasy imports are supplemented with local production.

Conflicting points of view regarding local ecstasy production are evident in the following interview extracts. The first excerpt is selected from an interview with regulators affiliated with a health-related agency.

I: *Is there backyard… [production of ecstasy]?*

R1: *Not locally, no. [Regulator/Male/Cairns]*

R2: *It's still being shipped in. [Regulator/Female/Cairns]*

The notion that all ecstasy is imported, as suggested in the above quote, contrasted with the acknowledgement of local production by other participants who are consumers. When asked where ecstasy was being produced in Queensland one respondent remarked as follows:

R: *People's homes. I suppose there would be big cooking sheds around and stuff, but that's more the big time boys, and that's bikers. Bikers are the main big guys of the drug scene.*

I: *We associate bikers with amphetamine production, but are they involved in ecstasy production?*

R: *Yeah, a little bit. Or they'll help E cooks find the ingredients, like they'll do a swap, they'll help each other out. [Consumer/Female/Brisbane]*

The quote above highlights a number of factors. It provides some evidence of local production and suggests that the manufacture and distribution of ecstasy is linked to established amphetamine distribution networks and outlaw motor cycle gangs (OMCG). It also demonstrates how the production process may be quite specialised – where various people are allocated or responsible for the different phases involved in the manufacture and distribution of ecstasy. This strategy indicates a high level of organisation and reduces the likelihood of law enforcement detection.

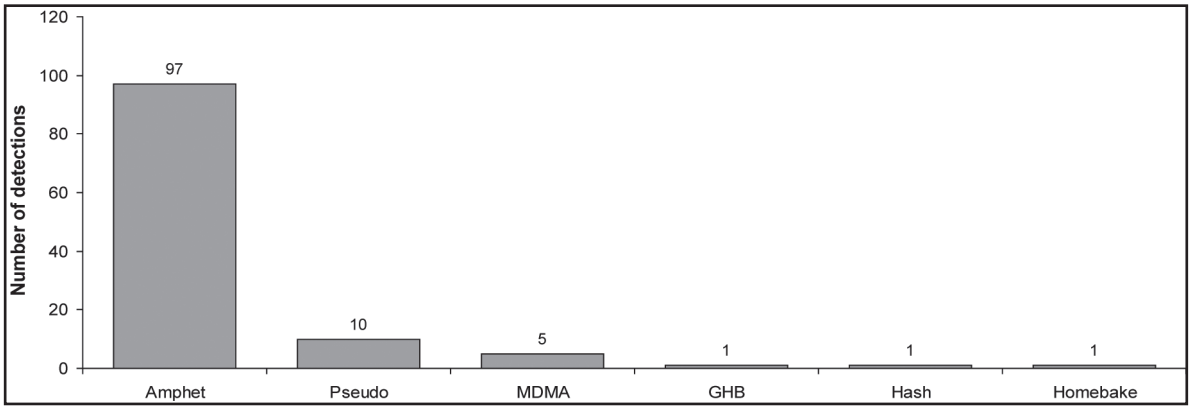
Ecstasy lab detections in Queensland

The perceptions of market participants can, to some extent, be confirmed by evidence from lab detections. The number of ecstasy clan lab detections by the QPS is low. Most clan lab detections involve manufacturing methamphetamine, or processing the precursor pseudoephedrine for the production of methamphetamine. Figure 4-1 shows that out of the 212 clan labs detected in 2004, 105 clan labs have been analysed to date. Of these, 97 were for the production of methamphetamine and five were for the production of MDMA. Of these 212 labs only eight were Category A labs that were producing drugs at the time of detection. Of the remainder, 101 were Category B (detected post-reaction) and 102 were Category C (detected prior to reaction) clan lab seizures.

Nevertheless, market regulators from law enforcement report that MDMA lab detections are increasing in QLD and nationally. The data presented in Figure 4-2 shows the number of MDMA clan labs detected in Queensland from 1997 to 2004. The number of MDMA clan lab detections represented in this figure may underestimate their prevalence since they exclude detection of chemicals consistent with MDMA production when insufficient proof of production is present. The fact that there is insufficient evidence of actual ecstasy production may suggest that these are small-scale production attempts. The number of MDMA lab detections by QPS increased from 1 in 1999 and 1 in 2000, to 3 in 2003 and 5 in 2004. The 2004 figure for MDMA clan labs may increase as more of the seized labs are analysed.

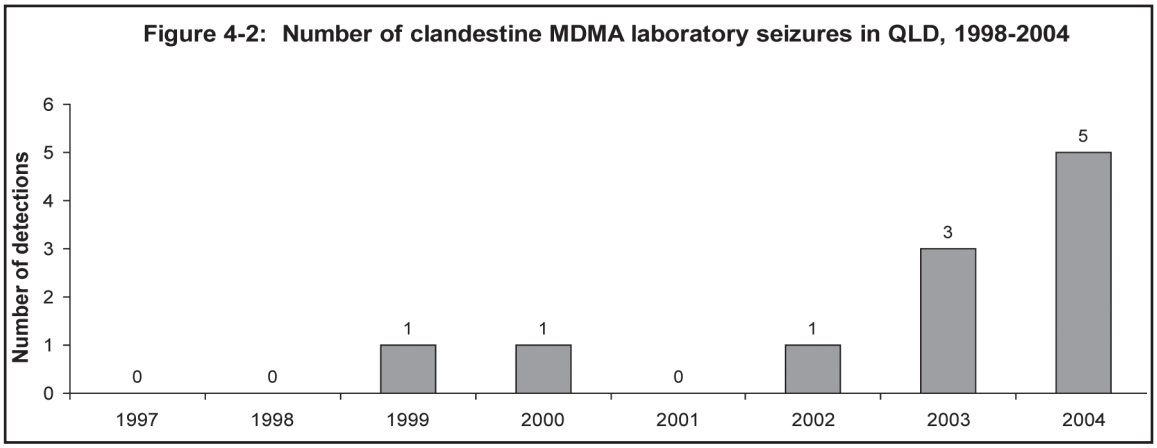
The actual production capacity of these detected laboratories is not known and is difficult to estimate. While the volume of drugs, precursors and other chemicals on site provides some indication, without corroborating evidence from offenders involved it is not possible to determine if multiple batches have been produced over time, or whether the production was a one-off event. More detailed analysis of intelligence and forensic data collected for each seizure event would nevertheless improve understanding of this section of the local ecstasy supply chain. This analysis is considered to be both time consuming and expensive for QPS.

Figure 4-1: Substances produced by clandestine laboratories in QLD, 2004



Note: Based on the 115 (of 212) labs analysed as at 29 April 2005.
Source: QPS .

Figure 4-2: Number of clandestine MDMA laboratory seizures in QLD, 1998–2004



Note: sourced from ILIT within SDIG, QPS. These are not official QPS statistics.
Source: QPS.

Barriers to local MDMA production

Two key impediments to the local manufacture of ecstasy are sourcing component chemicals and accessing appropriate expertise. The production of ecstasy is a relatively difficult process requiring sophisticated chemistry skills. Law enforcement has noted that qualified chemists have been engaged to manufacture ecstasy in Australia's southern states (CMC, 2004) and the following EMI interview extract indicates that expertise may be sourced internationally:

> *They've flown their cook out from overseas and he has shown them what to do. They've given him half the profits over here to do it, he has paid for the trip and everything and they've watched it [production of ecstasy] and done it themselves [under his guidance] a couple of times. Now they do it themselves.* [Dealer/Male/Brisbane]

The manufacture of ecstasy uses similar laboratory equipment to methamphetamine synthesis but starts with significantly different precursor chemicals and produces different intermediate chemicals, from which MDMA is finally produced as a powder. Published clan lab detection data do not detail what equipment, chemicals (precursor or intermediate) and output in what composition is actually seized. The potential capacity of each lab is also unclear, with detections of small 'back-yard' or 'suit case' labs and large-scale, commercial enterprises both being recorded as one 'lab'. Anecdotal evidence from law enforcement officers interviewed in the EMI study implies that the batch capacity of these (mainly methamphetamine) Queensland clan labs is likely to be less than 100 grams. However, the production capacity of an individual lab is a function of not only the amount of equipment and precursors on site at the time of detection, but also how frequently the lab operates.

The proliferation of small methamphetamine labs in Queensland implies that relevant precursor chemicals are readily available and only a modest level of organic chemistry skill is necessary to establish production. As the QPS has observed[1], the expertise needed in MDMA production varies according to the route of synthesis. The level of organic chemistry skill required for MDMA production is greater than for the more common synthesis routes to produce methamphetamine. Quality control is difficult to achieve where synthesis techniques are poor. Furthermore, production volume is limited where the availability of appropriate precursor chemicals is restricted.

[1] Confidential feedback and QPS protected document.

A recent MDMA clan lab detection by QPS in March 2005 on the Gold Coast illustrates the importance of these issues for an analysis of the ecstasy market in Australia. Four persons, including one Dutch national, were arrested following a raid in which several kilograms of MDMA liquid and other chemicals were seized. This successful operation raised considerable interest, as the synthesis route apparently used to produce MDMA in this case, was one not previously identified in Australia. The presence of refrigeration equipment to chill precursor and intermediate chemicals suggested that a technique known as 'cold fusion' had been used. The synthesis route utilised sodium borohydride and hydrogen chloride gas, as well as the more common intermediary, methylamine. The basic precursor was PMK, evidently smuggled into Australia in alcoholic beverage bottles.

Intelligence gathered in this operation suggested that the Dutch national involved came to Queensland for the express purpose of training local manufacturers in the 'cold fusion' synthesis route, which is particularly efficient in converting PMK into MDMA and maximises yield from precursor product. The unit cost of production from this technique, which is more common in the Netherlands, is estimated to be as low as 25 cents per tablet, and therefore very profitable in the Australian market.

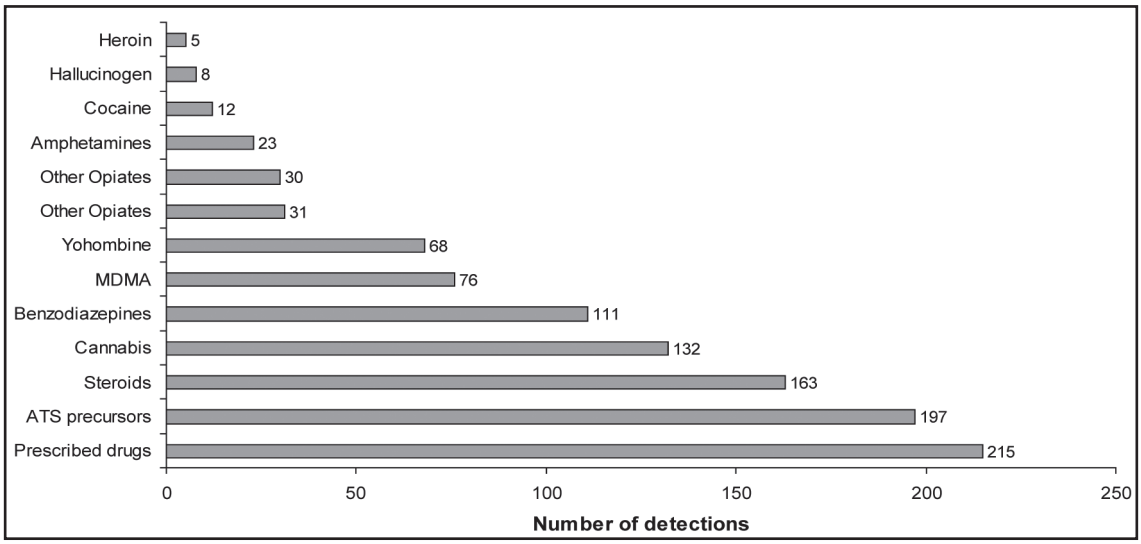
In summary, without more detailed analysis of post-operational MDMA seizure reports it is difficult to ascertain conclusively the extent to which local production is intended to manufacture significant quantities of MDMA products, is largely experimental, or involves making 'fake' ecstasy tablets based on methamphetamine. Although it is not possible to determine the extent of such production in Queensland, the consensus among consumers, suppliers and law enforcement officers interviewed in the EMI study is that while there are currently attempts to produce MDMA in quantity in Queensland, these attempts have until recently been on a modest scale. However, the recent Gold Coast clan lab detection clearly indicates that coordinated international criminal efforts to manufacture ecstasy within Queensland are possible.

Ecstasy detections by Customs entering Queensland

Australian Customs national detection data demonstrate that while most ecstasy entering Australia does so through either NSW or Victoria, some importation into other states, including Queensland, does occur. AFP market regulators interviewed for the EMI study advised that such importations may be intended for either the local retail market or for interstate trans-shipment to other retail markets. A more detailed analysis of Customs detections within Queensland is provided to illustrate the diversity of seizure events and the importance of considering the impact of individual detections on the aggregate statistics for the market.

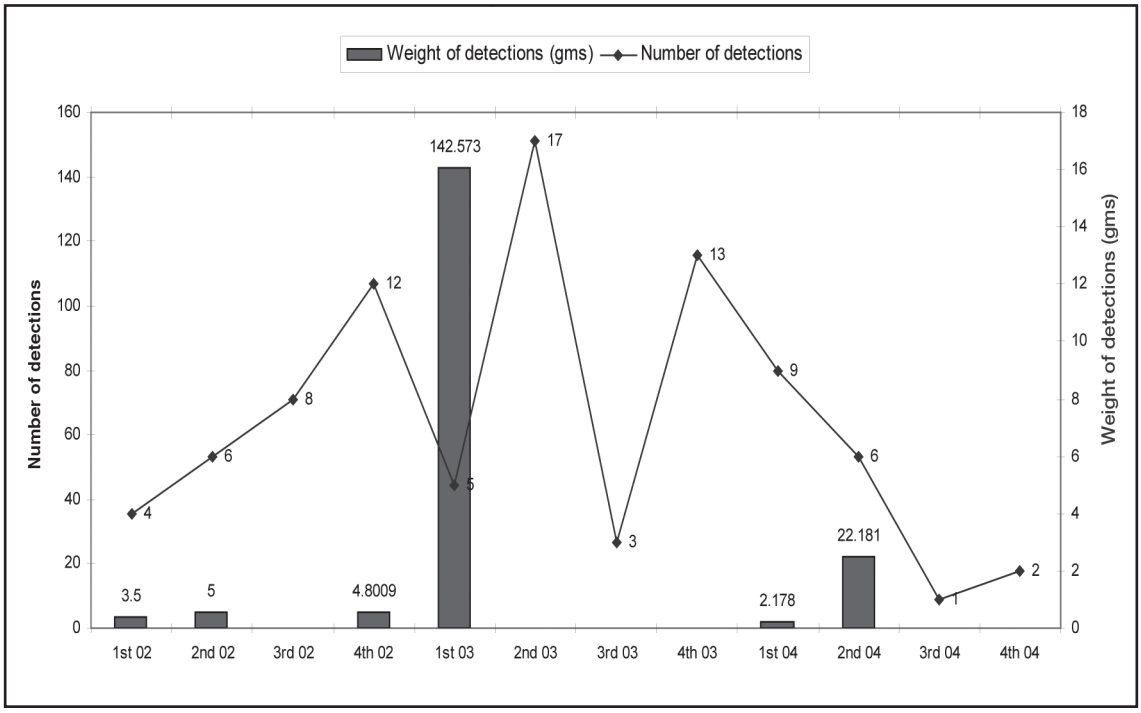
Between 1 July 2002 and 30 December 2004, Australian Customs made 1,071 drug detections in Queensland (see Figure 4-3); 76 of these (7%) were of MDMA. Although a number of other drugs were detected more frequently during this time, this is not necessarily indicative of the relative weights of each drug type detected (see also Figures 4-4 and 4-5).

Figure 4-3: Number of drug detections made by Australian Customs in Queensland, by drug, 2002/03 and 2003/04



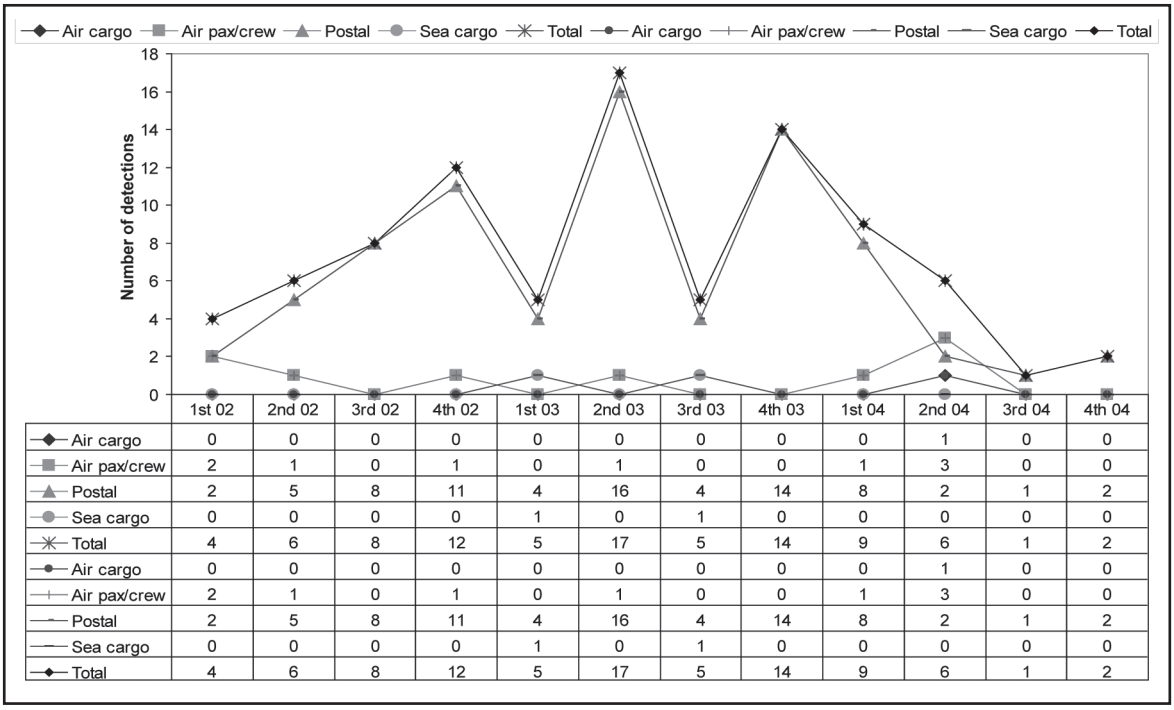
As Figure 4-4 shows, the average number of MDMA detections in each quarter was just under 11, however, this ranged from as many as 17 detections in the April–June 2003 quarter to only three in the July–September 2003 quarter. The median weight of MDMA detections was reasonably stable at around 5 grams (about 15 tablets) or less, from July 2002 to March 2004; however, the median detection weight increased markedly in the second quarter of 2004. This increase was not a function of one or two large detections; rather, it reflects that almost all seizures in this quarter were of larger quantities. Of the six detections in this period, four were of more than 100 grams and three were of 700 grams or more.

Figure 4-4: Number and median weight of MDMA detections by Australian Customs in Queensland by quarter, 2002 to 2004



As Figure 4-5 shows, these larger detections in the second quarter of 2004 were paralleled by an increase in the number of detections involving air passengers: three of the four large detections in this period involved air passengers entering Brisbane airport.

Figure 4-5: Number of MDMA detections in Queensland for 2002–2004 by quarter and means of entry



	1st 02	2nd 02	3rd 02	4th 02	1st 03	2nd 03	3rd 03	4th 03	1st 04	2nd 04	3rd 04	4th 04
Air cargo	0	0	0	0	0	0	0	0	0	1	0	0
Air pax/crew	2	1	0	1	0	1	0	0	1	3	0	0
Postal	2	5	8	11	4	16	4	14	8	2	1	2
Sea cargo	0	0	0	0	1	0	1	0	0	0	0	0
Total	4	6	8	12	5	17	5	14	9	6	1	2
Air cargo	0	0	0	0	0	0	0	0	0	1	0	0
Air pax/crew	2	1	0	1	0	1	0	0	1	3	0	0
Postal	2	5	8	11	4	16	4	14	8	2	1	2
Sea cargo	0	0	0	0	1	0	1	0	0	0	0	0
Total	4	6	8	12	5	17	5	14	9	6	1	2

Source: Australian Customs

Despite a small number of larger detections, most Australian Customs detections of MDMA in Queensland (n=71) were of less than one kilogram. In fact, 65 of the 73 detections were of less than 100 grams. One detection of 4.48 kg from the UK was intercepted in a postal article in December 2002, and one very large detection of 135.5 kg from Belgium was intercepted in sea cargo, in February 2003.

Australian Customs detection data are an essential market indicator for importation events. More detailed analysis of the data by Australian Customs underpins target profiling of persons and cargo. Together with increased funding for new technologies in the form of ion scanners and container x-ray, this tactical intelligence has improved the level of interdiction of ecstasy importations (Cass et al, 2002). The AFP arranges chemical analysis of Australian Customs detections with the National Measurement Institute in Sydney. This Institute now incorporates the function previously undertaken by the Australian Government Analytical Laboratories (AGAL). This chemical analysis data is then incorporated back into the Australian Customs Drug LAN database when and where it is available. Customs detections are also recorded in the AFP PROMIS case management information system.

Ecstasy transport routes to Queensland

Ecstasy from southern states generally moves into Queensland via Brisbane and/or the Gold Coast, as the principal retail markets, before moving into other regional areas. The general understanding of the route of ecstasy distribution in the Queensland market is evident in the following excerpt from an interview with law enforcement regulators:

R1: The transit point [for imported ecstasy] appears to be down south. Whether it be Sydney or Melbourne, [it] certainly doesn't appear to be in Brisbane… Intelligence does suggest Sydney. [Market regulator/Male /Brisbane]

R2: The last few jobs we've indicated as being Sydney based and then it's been brought up to Queensland from there. [Market regulator/Male/Brisbane]

I: Where abouts in Queensland? Brisbane or the Gold Coast, or…?

R1: Brisbane and Gold Coast.

R2: And smaller amounts to Cairns. But certainly the Gold Coast would be our major market.

I: Outside those three areas are there any detections? In Toowoomba say or…

R2: Small amounts. [Regulators discussing retail market transactions]

R1: There's small seizures right throughout the state. There's clear indications that ecstasy is readily available right throughout the state. Whether it be in Cairns, right up the eastern seaboard or out at Mount Isa. The largest seizures that we've been involved in over the last 12 months have been Gold Coast-related.

Other market regulators also positioned Sydney as the primary source of ecstasy in Australia:

R1: Essentially, if you're looking for where it comes from [into Queensland] most of it originates in Sydney. [Market regulator/Male/Gold Coast]

I: Sydney rather than Melbourne?

R1: Sydney rather than Melbourne.

R2: Sydney's our prime source of supply. [Market regulator/Male/Gold Coast]

Although intelligence and seizure data indicate that Sydney is more likely than other metropolitan centres to be the initial location of importation of ecstasy into Australia, it is acknowledged that ecstasy that has been manufactured overseas may enter the country at any international point of entry. One law enforcement official noted,

"As soon as you have got [international] flights coming in, you know that the level of ecstasy seizures is greater" [Market regulator/Male/Brisbane].

Ecstasy may be imported into Australia in shipping vessels, carried on flights by individuals or imported via the post in various quantities. As one market regulator acknowledged:

"…a lot of our seizures are individuals who bring a few thousand pills in" [Market regulator/Male/Gold Coast].

These opinions are supported by Australian Customs seizure data. Imported ecstasy is distributed to mid-level suppliers once it successfully arrives in Australia. This ecstasy will either supply the local market at port of entry or may be distributed to other states. The size of distributed batches will

depend on the initial quantity imported and the level of organisation of those involved at this level. The supply chain in Australia is discussed in the following interview excerpt:

> *From what I can work out…ecstasy comes into the country…[and is] then distributed to the larger dealers…[then] lots of ten or a hundred thousand go to different areas [which is then] split down into hundreds. [If you are buying the hundred lots] people are able to pay for their own ecstasy use. [Consumer/Male/Brisbane]*

The above quote refers to different levels in the organisational structure of distribution based on the volume of product being consigned. It would be very unusual, however, for quantities of one hundred thousand ecstasy pills to be immediately divided into lots of one hundred. It is more likely that imported ecstasy will enter the country and then be re-distributed in quantities numbering in the thousands. As one market regulator commented:

> *It is definitely imported in significant quantities and then distributed upon importation to various places right throughout Australia. Whether it be Queensland, New South Wales, South Australia or wherever. I believe that these distributions would probably be around 100,000 pills at any one time. [Market regulator/Male/Brisbane]*

Participants in the EMI study often referred to deals involving quantities of five or ten thousand ecstasy pills. It is likely that these amounts are obtained by mid-level dealers who source their ecstasy from suppliers in direct contact with importers. Mid-level dealers then distribute to retail suppliers who supply at the consumer level. Consumer-level suppliers are often referred to as runners or gofers, and are likely to be sourcing quantities of one hundred to a thousand ecstasy pills. Consumers will then either buy from consumer-level suppliers for themselves, or for themselves and on behalf of others (see the section on Sourcing ecstasy, for more information on consumer purchasing patterns). Further analysis of individual AFP cases would provide more evidence for the validity of these perceptions of organisational structure, supplier profiles and volume/price transaction intelligence at the mid level of the ecstasy supply chain.

The 'chain of supply model' outlined above assumes that imported ecstasy moves through four to five levels of distribution before arriving at the consumer (see Chapter Three). This model serves as only an approximate guide to represent the different levels of distribution involved in the supply of ecstasy in Queensland. The number of levels involved in the supply chain will vary depending on the quantity of ecstasy initially imported and the level of organisation of those involved. Highly organised individuals or groups with well established contacts in the market will operate and distribute larger quantities of ecstasy.

Participants in the EMI consumer survey believed that higher volume suppliers were more likely than low volume suppliers to be involved in other illegal activities, and that low volume suppliers were less likely to be involved in other criminal activities compared with suppliers of other drugs such as heroin and methamphetamine. The recognition of organised criminal activity in high-level distribution is apparent in the following excerpt:

> *I think criminality does come in as you go up the food chain…The people there are significantly-linked criminals, but at the lower echelon are your party goers, your night clubbers. [Consumer/Male/Brisbane]*

In summary, individual and organised groups of suppliers to the Queensland market move volumes of ecstasy from quite small retail quantities, to very large international consignments, either directly from overseas or (more often) from the southern states, mainly from Sydney. Direct international import (postal, air passenger, or air and sea cargo) or other regional international imports may be delivered straight to the local retail market or they may trans-ship to markets in other states.

Among market regulators interviewed for the EMI study, views were expressed that ecstasy moves from Sydney and, to a lesser extent from Melbourne, directly to the Gold Coast or Brisbane, mainly by road (passenger car, freight truck, bus or rail), as airport security is apparently increasingly limiting interstate distribution by air. Interstate and intrastate movement of ecstasy by postal and courier delivery seems increasingly likely as well. Pleasure craft (boats and private aeroplanes) from southern states to holiday destinations in the Gold Coast, Whitsundays and the Cairns area may also account for some regional market supply.

Retail supply within Queensland

Drawing on evidence from the EMI consumer survey, interviews with consumers, suppliers and market regulators, from consumer postings on Internet discussion groups and research evidence from overseas studies, this section details consumer behaviour in market transactions with retail suppliers and highlights the prevalence of peer supply as a norm in a relatively closed market.

Descriptive characteristics of retail-level suppliers were collected by the EMI consumer survey. The PDI component of the EMI consumer survey identified 138 suppliers of ecstasy representing 60% of the total sample. These suppliers were defined as individuals who reported usually obtaining ecstasy for both themselves and others (n=137), or for others only (n=1). The suppliers interviewed for the EMI consumer survey were by definition both users and suppliers, and the vast majority of these purchased ecstasy for members of their peer network. A profile of these suppliers is represented in Table 4-2, which shows that in many respects, consumers who also supply are not different from those who do not supply ecstasy to others. The two groups did not differ significantly in terms of age, gender or Indigenous status; nor did they differ with respect to drug treatment status or prison history. Suppliers were, however, significantly less likely to identify as non-heterosexual in this sample.

Table 4-2. Demographic characteristics of regular ecstasy users who do and do not supply.

	Suppliers (n=138)	Non-suppliers (n=85)	p
% male	53.6	58.8	ns
Median age in years (range)	24.0 (16-52)	24.0 (18-45)	ns
% Indigenous	6.5	7.1	ns
Median years schooling	12.0	11.0	< 0.001
% university educated	24.6	9.6	0.004
% trade/technical qualifications	29.0	27.7	ns
% unemployed	16.7	28.2	0.040
Mean fortnightly income ($)	1083.10	814.23	0.004
% in drug treatment	3.6	4.7	ns
% prison history	8.0	11.0	ns
% non-heterosexual	14.5	24.1	0.035
Median age first tried ecstasy	19.0	20.0	ns
Median age started regular use	20.0	20.0	ns
Median time in market (years) [a]	3.0	3.0	ns

Table 4-2. continued.

	Suppliers (n=138)	Non-suppliers (n=85)	p
% ever injected a drug	37.0	36.5	ns
Median days ecstasy use last 6 months	20.0	24.0	ns
Median qty ecstasy used			
Average	2.0	2.0	0.041
Most	4.0	3.0	0.004
% arrested last 12 months	9.4	21.2	0.014
For use/possession	5.1	7.1	ns
For dealing/trafficking	0.7	2.4	ns
% criminal activity last month			
Property	10.2	7.1	ns
Dealing for cash profit	29.9	4.8	< 0.001
Fraud	0.7	2.4	ns
Violent crime	2.2	3.6	ns
Median no. ecstasy tabs bought			
Usually	5.0	2.0	0.040
Least ever	1.0	1.0	ns
Most ever	20.0	5.0	0.006
Frequency of ecstasy purchase (%)			
Every day	0.7	1.2	
Once a week or more	50.7	58.8	ns
About once a month	44.2	36.5	
Every few months	4.3	2.4	
Once or twice a year	0.0	1.2	
How often negotiate price (%)			
Always	19.6	23.5	ns
Sometimes	36.2	30.6	
Rarely	15.9	18.8	
Never	28.3	27.1	

Note: Suppliers are those who report usually purchasing ecstasy either for themselves and others (n=137), or only for others (n=1).
ns = not significant

[a] number of years between age initiated regular use, and current age.

There were, however, some unexpected differences between the supply and non-supply groups. Suppliers had on average completed more years of schooling, and were more than twice as likely to have completed a university degree. They were also less likely to be unemployed, and on average earned around $269 more (net) per fortnight. Given that our income questions asked for total income including licit and illicit sources, this increased income may to some extent reflect the suppliers' dealing activity, however it is also consistent with their better education and more favourable employment status.

There was no significant difference between suppliers and non-suppliers in the age at which they first tried ecstasy, or started using ecstasy regularly; nor did the groups differ in terms of how long

they had been using ecstasy for. This finding runs contrary to the notion that users 'progress' to dealing after a length of time in the ecstasy market. Suppliers were also no more likely to report having injected a drug, and there was no significant difference between groups in the frequency with which they used ecstasy. Again, these findings suggest that consumers who supply are not necessarily those at the 'heavy end' of the using spectrum, although suppliers did report using slightly more ecstasy, on average, than non-suppliers.

Somewhat surprisingly, suppliers were significantly less likely than non-suppliers to report having been arrested in the last 12 months, although there was no difference between groups in the proportion who had been arrested for either use/possession or dealing/trafficking. These findings suggest that compared with other regular users of ecstasy, those who also supply are no more likely to be known to the police as dealers, and are, in fact, less likely to have had recent contact with the police. Non-suppliers were significantly more likely than suppliers to report having been arrested for property crime ($p = .029$) or for driving under the influence of alcohol ($p = 0.021$). There was no significant difference between suppliers and non-suppliers in the proportion who reported engaging in property crime, fraud or violent crime in the last month, however, as expected, suppliers were more than six times more likely to report having engaged in drug dealing for cash profit in the last month.

This last finding indicates that although many users report supplying only to friends and associates, almost a third also make a cash profit from their dealing activity. One interviewed law enforcement officer observed that some suppliers moving smaller amounts seem to make only small profits. He could not see why they bothered. An explanation for this may be that the retail level supply was not usually or predominantly driven by a cash profit motive. More detailed research is required to establish the level of profit associated with low-level dealing in the ecstasy market, as many users do report accepting 'fuel money' (a $1 or $2 profit per pill) from those they supply to.

Lastly, Table 4-2 shows that there was no difference between suppliers and non-suppliers in either the frequency of ecstasy purchase or the likelihood of negotiating a price with their supplier. However, suppliers reported usually obtaining more than twice as many pills (n=5) as non-suppliers (n=2), and the maximum number of pills they had obtained at one time (n=20) was four times that of non-suppliers (n=5). Given that suppliers reported typically using 2 pills in one session, these data suggest that many low-level suppliers typically provide ecstasy to only one or two other people. Further research is required to establish whether, when these user/suppliers obtain a larger number of pills at once, they distribute them to others and/or stockpile them for future occasions. There is some anecdotal evidence of the latter occurring, especially when peer suppliers can access 'good pills'. Further research is also required to establish whether the suppliers recruited for the EMI study are representative of low-level suppliers, or whether more 'professional', profit-oriented suppliers were under-represented in the survey.

Consumer supply knowledge

Consumers were also asked to respond to a series of supply-orientated statements; their responses to these statements appear in Table 4-3 separately for suppliers and non-suppliers. As expected, suppliers were less likely to agree that they could not get more than 10 ecstasy pills at a time, or to agree that they would never get more than 10 pills at one time. Suppliers were not, however, any more or less likely to agree that they could get more than 100 pills at a time, indicating that as a group they were engaging in only low-level retail supply.

Table 4-3. Market knowledge/beliefs of regular ecstasy users who do and do not supply

	Suppliers (n=138)	Non-suppliers (n=85)	p
'I could not get more than 10 ecstasy tabs at one time' (%)			
Not at all	72.5	54.1	<0.001
A little	12.3	9.4	
A lot	10.9	16.5	
Don't know	4.3	20.0	
I would never get more than ten ecstasy tabs at the one time (%)			
Not at all	52.2	27.1	<0.001
A little	22.5	14.1	
A lot	19.6	36.5	
Don't know	5.8	22.4	
'If I wanted to I could get more than 100 tabs at one time' (%)			
Not at all	29.0	25.9	ns
A little	19.6	12.9	
A lot	37.7	32.9	
Don't know	13.8	28.2	
I have a supplier who is close to the manufacture of ecstasy (%)			
Not at all	23.4	23.5	ns
A little	16.1	10.6	
A lot	19.0	15.3	
Don't know	41.6	50.6	
I have a supplier who knows an ecstasy importer (%)			
Not at all	29.7	27.1	0.039
A little	13.0	5.9	
A lot	13.0	5.9	
Don't know	44.2	61.2	
Ecstasy is made in Queensland (%)			
Not at all	9.4	11.8	<0 .001
A little	46.4	21.2	
A lot	12.3	5.9	
Don't know	31.9	61.2	
Ecstasy is made interstate (%)			
Not at all	2.9	3.5	< 0.001
A little	35.5	17.6	
A lot	33.3	22.4	
Don't know	28.3	56.5	
Ecstasy is made overseas (%)			
Not at all	0.7	1.2	<0 .001
A little	21.7	10.6	
A lot	56.5	40.0	
Don't know	21.0	48.2	

Table 4.3 continued.

	Suppliers (n=138)	Non-suppliers (n=85)	p
It is possible to get the chemicals to make ecstasy in Queensland (%)			
Not at all	5.8	4.7	0.011
A little	22.5	8.2	
A lot	13.8	8.2	
Don't know	58.0	78.8	
It is possible to get the chemicals to make ecstasy interstate (%)			
Not at all	2.9	3.5	0.048
A little	18.1	8.2	
A lot	19.6	11.8	
Don't know	59.4	76.5	
It is possible to get the chemicals to make ecstasy in Australia from overseas (%)			ns
Not at all	2.9	1.2	
A little	15.2	5.9	
A lot	23.2	17.6	
Don't know	58.7	75.3	

Note: Suppliers are those who report usually purchasing ecstasy either for themselves and others (n=137), or only for others (n=1).

ns= not significant

Compared to non-suppliers, suppliers were less likely to respond that they didn't know about their supplier's source; they were also somewhat more likely to believe that their supplier was close to the point of manufacture, and that their supplier knew an ecstasy importer. Similarly, suppliers were less likely to respond that they didn't know about the point of manufacture of ecstasy, or about the availability of precursor chemicals for the production of ecstasy; suppliers more often agreed that ecstasy was made in Queensland, interstate and overseas, and were more likely to agree that it was possible to obtain the necessary precursor chemicals in Queensland or interstate, and to import these chemicals into Australia from overseas. The accuracy of these perceptions cannot be established from these data.

Despite some differences in the reported knowledge of suppliers and non-suppliers, a substantial proportion of participants indicated that they were not in a position to comment on the distribution of ecstasy in Queensland. Over half of those surveyed indicated that they did not know whether their supplier was in direct contact with an importer of ecstasy (see Table 4-4 below). These results reflect the fact that consumers are unlikely to question the source of their ecstasy. Therefore, it is not possible from consumer responses to determine how many supply-chain levels away from the point of importation consumers perceive their supplier to be.

Although most consumers were unlikely to have close contact with importers, and therefore have the capacity to obtain large quantities of ecstasy, a significant proportion stated that they had the ability to obtain quantities that would facilitate progression from consumer to retail supplier status. Thirty-six per cent of those surveyed agreed a lot that they could acquire 100 or more ecstasy pills at the one time, while 17% agreed a little, 28% did not agree at all and 19% did not know. These results suggest that it is relatively easy to enter the ecstasy market as a consumer-level supplier once consumer entry into the market has been established, and many consumers expressed at least some interest in progressing to supply. Only 26% of those surveyed agreed a lot that they would

never obtain more than 10 ecstasy pills at one time, while 19% agreed a little, 43% did not agree at all and 12% did not know (see Table 4-4).

Table 4-4. Consumer connections to ecstasy supply chain[a]

Statement	Level of Agreement			
	A lot	A little	Not at all	Don't know
I have a supplier who knows an ecstasy importer	10.3	10.3	28.7	50.7
I would never get more than 10 ecstasy tabs at the one time	26.0	19.3	42.6	12.1
If I wanted to I could get more than 100 tabs of ecstasy at the one time	32.9	17.0	27.8	19.3

[a]N=230

One of the key distinguishing features of ecstasy suppliers is their age. As noted above, retail ecstasy suppliers, like ecstasy users, are typically quite young. Regulators and dealers interviewed for the project agreed that age was a principal barrier for entry into retail-level distribution of ecstasy. As one participant commented:

> *They [dealers] are all young now…they've either got a brother who knows someone, or they work with someone who knows someone that can hook 'em up. If you are young, and you're out in the scene all the time, it doesn't take long to get noticed, and then you can start pickin' 'em. [Dealer/Male/Brisbane]*

Consumers appear relatively unconcerned about participating in the supply of ecstasy at the retail level. This is largely related to the normalisation process associated with ecstasy use. As one market regulator noted, '…the youth and the people that are dealing in this sort of stuff [ecstasy] don't see it as a criminal drug' [Regulator/Male/Brisbane]. Consumers do not, first and foremost, perceive obtaining ecstasy for others as a criminal offence, as it is viewed as an efficient use of time and permits consumers and suppliers to interact less often and more discretely. The distinction between consumer and supplier, for market participants, is generally made in terms of the level of profit, number of transactions made and amount of time and effort put into dealing, as a part-time or full-time job. One EMI participant defined dealers as follows:

> *[It is] generally those people that are doing it for work… it's their job, they've always got drugs and it's their main source of income…but they might be getting Centrelink payments as well. [Consumer/Male/Cairns]*

The transition from buying for personal use for self and friends to becoming a dealer is usually opportunistic and motivated by a desire to fund drug use and obtain profit. One participant explained his progression into cannabis dealing in the following manner:

> *There were so many people asking [for drugs], I was sick of doing three trips a week to pick up a quarter an ounce supply, so I thought I'd save some time picking up an ounce at a time. And then that became a little bit more regular because guests were coming over and I got to know more people. As I met more people, I was very careful about who I dealt with and I made sure everybody knew not to give my number out. I only give that out when I feel comfortable with the person. And yeah, it just snowballed from there.*

> *It was an ounce one week to about two ounces a week to three ounces, four ounces… it just builds up and builds up. I tried not to do any large quantities because I wanted to keep it quiet. Like I'm not silly, if you make too much noise, then you're gonna get caught. [Dealer/Male/Cairns]*

Although the above quote relates to cannabis, the processes involved in progressively dealing in larger quantities are equally relevant to ecstasy distribution. Progression requires accessing distribution networks, establishing trust with suppliers and finding/managing demand for the product. However, while movement into consumer-level supply of ecstasy is relatively easy, advancing into mid-level supply is somewhat more difficult. Securing finance to fund larger purchases represents a significant barrier for those wanting to progress to higher level distribution. This consideration is particularly relevant for suppliers who have not been able to establish a reputation that promotes obtaining significant quantities of ecstasy on credit:

> *It comes down to paying for it. It's easy to get enough money together for a hundred [pills]. But to go to the next level, say a thousand pills, you buy a thousand pills for twenty bucks each, you have got to have twenty grand. [Regulator/Male/Brisbane]*

Individuals seeking to progress to mid-level supply also need to contend with fewer opportunities to expand their enterprise. The improved profit margins available at this level and beyond increases competition and market share protection. The involvement of organised crime groups at this level also means that establishing direct connections with high-level distributors may be difficult for most ecstasy consumers, given their social background. As one market regulator noted, "there is no evidence that well educated middle class users have come in and then tried to move up" [Regulator/Male/Gold Coast]. Progression into mid-level supply is likely to be mediated by high-level suppliers – certain individuals will be approached and 'groomed for promotion'. This may involve providing larger amounts of ecstasy on credit to suppliers with reliable reputations and facilitates the expansion of supply enterprises for high-level distributors.

Consumer interaction with retail suppliers

The 2004 EDRS survey shows that most consumers are likely to source their ecstasy from known persons rather than unknown persons, indicating a relatively closed market (see Table 4-5). Just over three-quarters of participants (69%) reported that they obtained ecstasy from friends in the previous 6 months, 61% obtained from known dealers and 28% sourced from acquaintances – only 13% indicated that they had obtained ecstasy from unknown dealers in the previous 6 months. The results also show that the Queensland ecstasy market is characterised by considerable regional variability. Participants in Cairns (22%) were more likely to indicate that they obtained ecstasy from unknown sources in the previous 6 months than those in Brisbane (14%) and the Gold Coast (4%), and were much less likely than participants in other locations to obtain ecstasy from known dealers.

This suggests that the Cairns market is less established than the Brisbane and Gold Coast markets, however this finding may be, at least partially, an artefact of the recruitment strategies used in each location – tourists (who are more likely to rely on unknown sources to obtain ecstasy) were included in the Cairns sample, but not in the Brisbane and Gold Coast samples. Nevertheless, these data suggest that the Cairns ecstasy market may be less established and, therefore, less closed than the markets in the more established centres of Brisbane and the Gold Coast. While these results indicate that most consumers rely on a known source for ecstasy, they do not show how often consumers rely on particular sources. It is not possible from the data, for example, to ascertain whether those obtaining from unknown sources do so on a regular basis or only in certain mitigating circumstances (e.g. a regular supplier is temporarily unavailable).

Table 4-5. Sources of ecstasy

Persons Score from:	Brisbane n=104 %	Gold Coast n=77 %	Cairns n=49 %	Total n=230 %
Used not scored[a]	0	5	2	2
Friends	80	47	80	69
Known Dealers	62	79	33	61
Acquaintances	29	12	51	28
Work colleagues	19	10	14	15
Unknown dealers	14	4	22	13

[a] Used not scored means that the consumer did not pay for their ecstasy.
Source: EDRS (2004)

The types of locations in which ecstasy is procured also suggest a closed ecstasy market (see Table 4-6). Participants in the 2004 EDRS survey were more likely to normally conduct transactions in private venues such as a friend's home (57%) or dealer's home (55%), than in public venues such as nightclubs (28%) or raves (19%). Only 8% of respondents reported having obtained ecstasy on the street.

Just over 30% of respondents reported that they normally made ecstasy transactions at previously agreed public locations. These users were sourcing ecstasy from known market participants, despite acquiring ecstasy in open locations. For example, one participant reported typically making telephone contact with his supplier, then meeting the supplier at a café to complete the transaction. Once again, EDRS respondents from Cairns were more likely than EDRS respondents from other locations to provide information on open distribution activity in their local market. They were also much more likely to purchase ecstasy at nightclubs and raves than were respondents from Brisbane and the Gold Coast (Table 4-6).

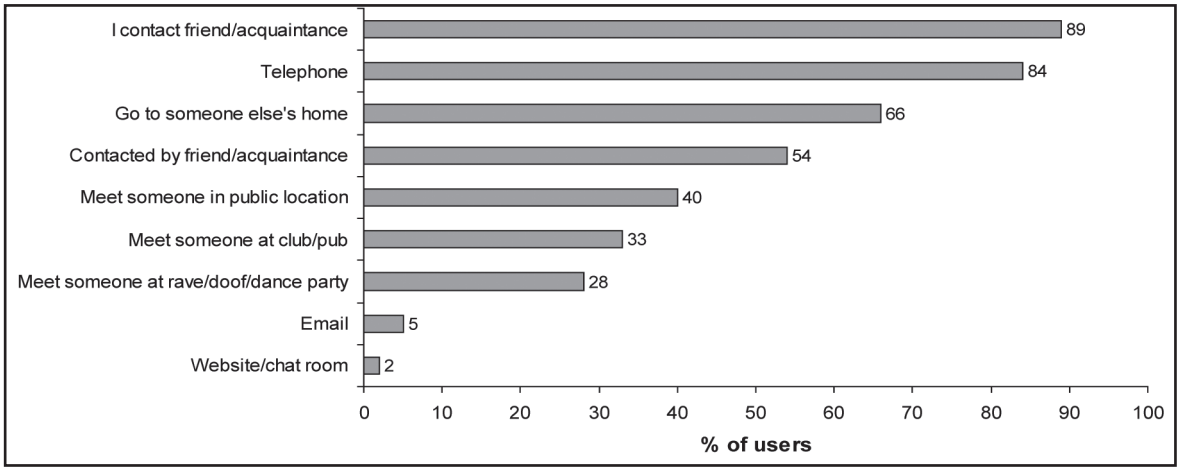
Table 4-6. Location of ecstasy purchase

Locations scored from:	Brisbane n=104 %	Gold Coast n=77 %	Cairns n=49 %	Total n=230 %
Used not scored	0	5	2	2
At own home	33	26	20	28
Friend's home	58	46	71	57
Dealer's home	46	75	43	55
Nightclub	27	17	49	28
Pubs	14	10	22	15
Raves	14	13	37	19
Street	4	10	14	8
Agreed public location	37	23	31	31
Work	9	5	4	7

* Used not scored means that the consumer did not pay for their ecstasy.
Source: EDRS (2004)

The EMI consumer survey also showed that most consumers contact a supplier of ecstasy via a closed network of known market participants (see Figure 4-6). Most participants reported contacting a friend or acquaintance (89%) in the initial stages of organising the supply of ecstasy, and the telephone was most commonly used to make this contact (84%). The actual exchange of ecstasy was more likely to occur in someone else's home (66%), rather than in a public location (40%), a club or pub (33%) or rave (28%). However, with the present findings it is difficult to quantify the proportion of supply transactions that are pre-arranged before occurring at these different locations, from those that are simply initiated at these locations. Further research is required to disentangle the methods and locations involved in arranging ecstasy transactions. The Internet was rarely used to arrange the procurement of ecstasy – only 5% of users reported using email and 2% stated that they used websites or chat rooms.

Figure 4-6: Methods of contact involved in sourcing ecstasy



Source: EMI Consumer Survey

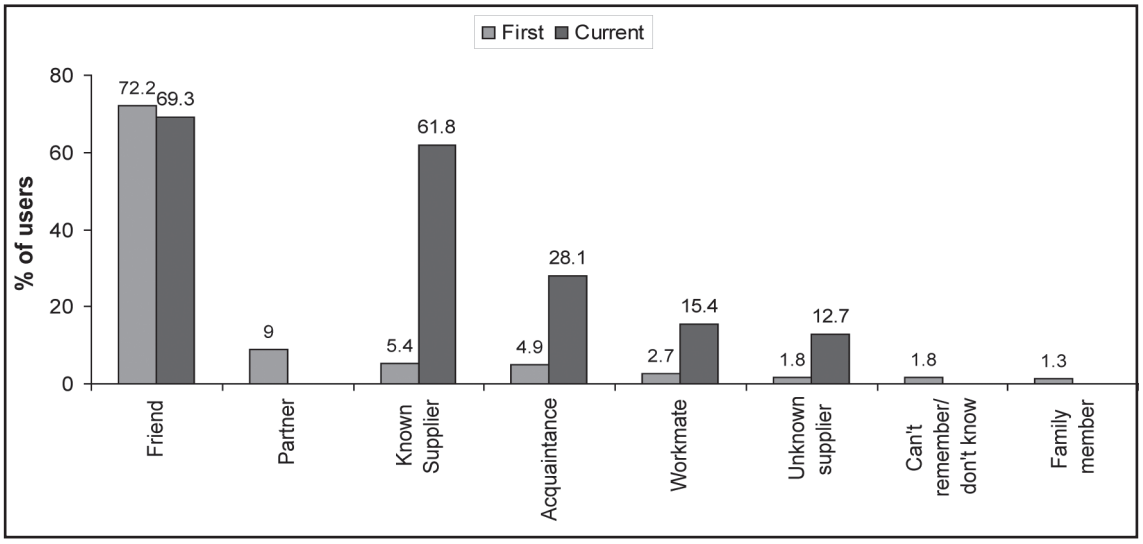
The data presented in Figure 4-7 compare consumer reports of who they first obtained ecstasy from, to their current sources. The results indicate that most novice users (96%) sourced their first ecstasy from a person previously known to them, illustrating the practice of accessing the market via a known participant. Just over 72% obtained their first ecstasy from a friend, 9% obtained from a partner and 5% obtained from an acquaintance. The custom of sourcing ecstasy from known persons at the point of initiation is evident in the following extract from an in-depth interview with a consumer:

> *People learn to access and experience ecstasy.... mainly through friends. It's not really a drug that people push. Like you just know someone, who knows someone who knows someone, and that's how you end up taking it. [Consumer/Female/Brisbane]*

The EMI consumer survey also explored the ways in which consumers develop and establish relationships with dealers over time. Although very few users reported first obtaining ecstasy from a dealer, a substantial proportion reported currently obtaining ecstasy from a known or unknown dealer. Only 5% bought from a known dealer at initiation compared to 62% currently; 2% first obtained ecstasy from an unknown dealer in contrast to 13% currently (see Figure 4-7).

Initiation to ecstasy use should be interpreted in a context of poly-drug use. It is likely that the ecstasy users surveyed in the EMI study had used other drugs, particularly alcohol and cannabis, before first experimenting with ecstasy. Given that some consumers would, therefore, have had prior contact with illegal drug markets, it is not surprising to note that a small proportion reported first accessing ecstasy from a known dealer.

Figure 4-7: Source of ecstasy at initiation and currently



Note: Some response categories for 'first use' were not available in the 'current use' question.

Although ecstasy is clearly available at public locations, data collected in the EMI study suggest that the procurement of ecstasy is typically organised well before the time of consumption, and often occurs in private locations. As one respondent indicated, relying on unknown sources and seeking ecstasy in public locations is usually not an effective strategy:

> *They [dealers] are not gonna say, "Oh, I'm gonna stop dancing and I'll go and score you an E!" It's just not gonna happen. Even that shows the desperation of people to me, fancy going up to a total stranger, who's obviously off their head, and asking them for drugs. Chances are, they're not gonna have any. [Regulator/Male/Cairns]*

Consumers who seek ecstasy from unknown suppliers in public venues risk not finding a source, paying higher prices, being exploited by dealers, receiving poor quality product and being detected by police. Given the closed nature of the ecstasy market, dealers also tend to be suspicious of unknown people soliciting for ecstasy, and usually only sell to people they trust or people associated with people they trust. The following quote illustrates how the purchase of ecstasy is planned before the time of consumption and is often carried out by one person on behalf of a collective group of consumers. This intermediary person is likely to have developed a relationship with their supplier over time and is trusted by both their supplier and the consumers they are buying on behalf of.

> *Friday night, we were going out to see someone in a club who was really good. That was a planned thing. We bought tickets beforehand and everyone was asked if they wanted anything [ecstasy]. So we all pooled together, somebody else organised it, because they have got a good contact at the moment. [Dealer/Male/Cairns]*

The custom of purchasing ecstasy on behalf of others is also evident in the results of the EMI consumer survey. Although just over a third of participants reported that they usually obtained ecstasy for themselves only, almost two-thirds reported that they usually obtained ecstasy for both themselves and others. Only one user in the sample reported usually obtaining ecstasy only for others (see Figure 4-8).

Figure 4-8: Purchasing patterns – who ecstasy is bought for

The procurement of ecstasy for multiple persons has two main advantages. First, it combines resources to facilitate bulk purchases at reduced prices, and second, it decreases the overall number of transactions being made, thereby minimising risk of apprehension by law enforcement. This arrangement also benefits suppliers, who are able to sell larger quantities of ecstasy more efficiently, increasing profit margins and reducing risk of police detection. Another example of how ecstasy may be sourced follows:

> *Someone might go, 'Hey, would you like a line of this MDMA powder?', and you would ask, 'Can you get any more of that?'…and if someone was to pick up some really quality drugs, they'd basically phone everyone and say, 'Hey, I'm getting on to this really nice stuff'. [Consumer/Male/Cairns]*

Once again this example illustrates the importance of accessing known market participants to source ecstasy. It also shows the opportunistic nature of some ecstasy transactions (consumers may solicit interest from other consumers) and how consumers use intermediary persons to procure ecstasy on their behalf. It is important to note that the person in the above quote asked *whether* additional MDMA powder could be sourced, rather than *where* and from *whom* the MDMA powder was obtained. This illustrates that seeking ecstasy from a supplier's supplier (otherwise known as 'leap frogging'), in order to pay less or to acquire a more reliable source, represents a serious breach of codes of practice, in the ecstasy user subculture.

The above discussion emphasises the importance of social networks for consumers wanting to source ecstasy. Most ecstasy transactions occur in private locations with known persons, or are pre-arranged with known persons if occurring in public locations. Although it is rare for consumers to rely on unknown dealers to procure ecstasy, such transactions do occur. Sourcing ecstasy from unknown dealers is especially likely to transpire if a consumer's sense of judgement has been altered by alcohol and/or illicit substances previously consumed. Consumers may also purchase from unknown dealers if they are at an event and discover that the ecstasy they have pre-purchased has proved to be ineffective, or they want to extend the ecstasy experience with additional doses. Finally, consumers may simply fail to adequately plan for their night out, or their supplier may 'fall through' for one reason or another, leaving them no other option than to seek a supplier at a venue, or go out without consuming ecstasy. Consumers who have not established contact with other market participants (i.e. novice consumers) will also have to rely on unknown sources. This last point is particularly relevant for tourists and the Cairns market.

It was interesting to note that whereas most consumers interviewed for the EMI study perceived the ecstasy market to be quite closed, many law enforcement regulators perceived the ecstasy market to be considerably more open. Many law enforcement regulators interviewed for the EMI study depicted nightclubs and other special events to be locations of open illegal drug activity. In their

view, it is possible for suppliers to easily distribute large volumes of ecstasy by passing through different nightclubs or attending special events. One law enforcement regulator, for example, spoke of an individual who, after being detained, admitted to selling a thousand pills a night in Fortitude Valley nightclubs. As outlined above, however, consumers are more likely to report that they perform ecstasy transactions in private rather than public locations, and data from in-depth interviews with consumers contest the idea that people frequently source ecstasy from unknown dealers. The overall consumer perception of a closed market in relation to ecstasy is evident in the following quote:

> *People don't advertise, 'Oh, I've got Es for sale'. It's very underground, very controlled. [Consumer/Female/Brisbane]*

The inconsistency in the perception of availability of ecstasy between law enforcement and consumers suggests a number of possibilities. Many ecstasy consumers experience intoxication from their drug use in nightclubs. Some consumers may possess and swallow ecstasy tablets inside clubs, while others may swallow the drug immediately outside the club or in a private location before travelling to a nightclub or other licensed venue. These market behaviours occur after consumers engage in transactions with suppliers.

The volume of transactions that occurs in or around licensed venues is unknown. Consumers indicated that market transactions were more likely to occur in private locations than in nightclubs but clearly some transactions do occur within these venues, although they may be pre-arranged between known market participants elsewhere.

The allocation of policing resources to drug market regulation is based on careful consideration of criminal intelligence priorities and threat assessment levels. However, it is possible that law enforcement intelligence is overstating the prevalence of ecstasy distribution in public locations, such as nightclubs. The distribution activity observed by law enforcement in public places may merely represent a small component of the overall scale of distribution within the ecstasy market – law enforcement may be focussing on the overt minority of transactions, while devoting fewer resources to the more covert majority.

The nature of law enforcement operational activity may be such that investigators are more likely to encounter and be successful in penetrating these more open markets, while more closed markets go largely unobserved. Given that most consumers surveyed for the EMI study reported obtaining their ecstasy in a closed market environment, this has implications for any understanding of the impact of law enforcement activity on the overall ecstasy market. Discussion among regular ecstasy consumers on the Bluelight Internet Australian Drug Discussion forum can provide some insight into attitudes of consumers to regulation of the ecstasy market.[2]

The practice of sourcing ecstasy principally through relatives, friends and acquaintances rather than from unknown suppliers is also found in European research on the retail markets in Amsterdam, Barcelona and Turin. As in Australia, this practice contrasts with sourcing processes for heroin and amphetamines in these cities. Gruppo Abele (2003:29) documented places of acquisition in Amsterdam using the following categories:

[2] Bluelight Australian Drug Discussion, What's Going On in Briss Valley? Downloaded on 17-06-2005 http://www.bluelight.nu/vb/showthread.php?s=7f711314d474ee9b23c2f8173de717ad&threadid=207197&r=44.

- relative/friend/acquaintance
- home dealer
- delivery service
- coffee shop
- club/pub/other place of entertainment
- street dealer
- other.

They compared the acquisition of ecstasy, amphetamines and cocaine over a five-year period between 1997 and 2001. Ecstasy was more highly associated with sourcing ecstasy from relative/friend/acquaintance, and this association strengthened with time, compared with the other drugs studied. In order to further investigate this issue locally, more detailed questions regarding home delivery and non-licensed venue/non-entertainment locations of transactions could be included in future surveys of regular ecstasy consumers in Australia.

The predominance of sourcing illicit drugs from known dealers or persons is also demonstrated in discussion threads taken from the chat room forum on the Bluelight website.[3] The discussion included in Appendix D opens with a user requesting advice about purchasing amphetamine from an unknown source. The comments made in response to this opening thread illustrate the code of practice that stipulates buying from trusted dealers and are equally relevant to the purchase of ecstasy. Such discussion threads, though at times chaotic, provide very useful insights into the diverse levels of knowledge, attitudes, and the drug use and manufacturing experience of regular ecstasy consumers. Just as serious attention to the Internet is given by law enforcement and intelligence agencies on terrorist activities, as Schneider (2003) states, it is likely to be the next logical step for intelligence in controlling synthetic drug production and distribution.

Consumer perceptions of ecstasy content and branding

The illicit nature of ecstasy means that the market is not governed by the same quality controls that regulate licit drug markets. The section *Tablet content ratio as market indicator* in the previous chapter detailed the variation in tablet content in some Australian ecstasy markets and the section below *QPS seizures in the Queensland ecstasy market* provide some guidance of tablet purity in that market. Substances bought as ecstasy can vary in purity and/or content and there is little consumers can do to conclusively establish the content of ecstasy products. The following section discusses the types of substances sold as ecstasy in Queensland and how consumers attempt to establish ecstasy content.

For some consumers, one of the most important factors contributing to ecstasy purchasing patterns is the concept of branding through logos and tablet colour. Ecstasy is usually sold in pill or tablet format, and these pills/tablets are differentiated or 'branded' by brands which are denoted by a range of factors including colour, shape, size and the presence of a logo or symbol pressed into the face of the pill. The types of logos used to brand ecstasy generally have positive connotations (e.g. Dove, Superman and Kiss) or associations with other commodity brand names with high status (e.g. Calvin Klein, Mercedes and PlayStation). The use of branding is an important marketing strategy. It creates product differentiation and plays a role in signifying the content, characteristics and quality of various types of ecstasy. It also facilitates the creation of market segments – ecstasy can be designed to specifically appeal to certain types of consumers.

[3] (www.bluelight.nu/vb/forumdisplay) downloaded on the 17.02.05.

The extent to which consumers are attracted and attached to ecstasy tablets with particular physical appearance and logos is unclear; however, a recent British study concluded that to the extent that brand loyalty based on logos does exist, it is misplaced: *'Customer loyalty to brand-name pills, identified by logos such as Superman, Mitsubishi, Tweety Pie, etc. seems to be largely unfounded since modern pill machines can produce any number of different logos from the same batch of powder. Customer loyalty to individual dealers with a reputation for quality sales is better founded.'* (Pearson, Hobbs 2001).

Despite this, content analysis of postings by Australian ecstasy consumers on the Bluelight internet discussion list clearly indicates that logos and physical descriptions are used in attempts to identify quality tablets that meet consumer expectations. These discussions are also used to warn peer consumers of poor quality or dangerous tablets.[4] Bluelight participants are, however, unlikely to be representative of all ecstasy users, or even of regular ecstasy users.

As well as the Bluelight discussion list, some consumers attempt to gauge the content of ecstasy at other Internet sites that cater for an Australian audience, such as *Enlighten-Harm Reduction*[5] and the international *Pill Reports* and *Ecstasy Data* websites.[6] These sites provide information on the characteristics of different types of ecstasy, offer pill testing kits that enable users to test for the presence of MDMA or seek information from other users about particular brands currently available in different local markets. The most common way of establishing the content of ecstasy, however, is to consume and experience the substance itself, or to speak with peers who have used the same tablet.

Consumer strategies for determining tablet contents

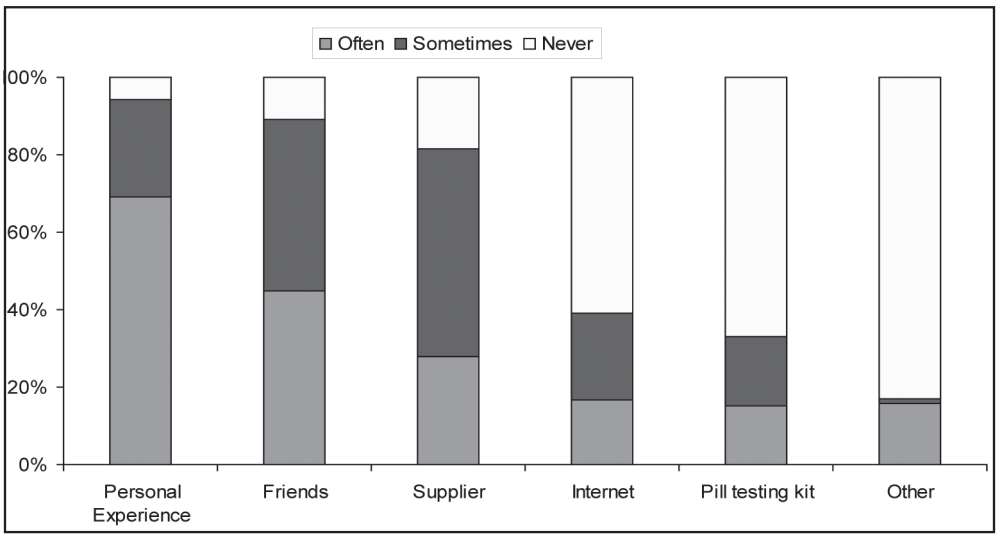
Participants in the EMI consumer survey were asked a series of questions about ecstasy logos and the content of ecstasy tablets, and their responses indicated that many users remain unsure of the content of the pills they are consuming. Nearly 70 per cent of those surveyed indicated that they often determined the contents of a particular 'brand' of ecstasy by swallowing it, while almost half (45%) reported often taking friends' advice about the contents of pills, and more than a quarter (28%) reported often accepting advice from their supplier (See Figure 4-9). The use of these two strategies illustrates the level of trust among ecstasy market participants, both between friends and between friends and dealers. The least common ways of assessing information about the possible content of ecstasy were via the Internet (17%) or by utilising pill testing kits (15%), although around a third of consumers reported having used these approaches at least 'sometimes'. Perhaps reflecting a greater interest in pill quality and content, consumers who also supplied were more likely than other consumers to report using a pill testing kit 'often' (20% versus 8%) or 'sometimes' (21% versus 13%), $p = 0.01$.

[4] At www.bluelight/nu/vb select the Australian Drug Discussion forum.

[5] www.enlighten-hr.org.

[6] www.pillreports.com and www.ecstasydata.org.

Figure 4-9: Strategies used to establish content of ecstasy by frequency utilised



Source: EMI Consumer Survey

The reasons why users more often rely on what are arguably less reliable, and certainly less objective, methods to establish pill contents are unclear. Perhaps convenience is one factor, with friends and dealers more accessible than either the Internet or pill testing kits, to many users. Another factor likely to be important is trust as users may feel that they can trust friends and regular dealers – who may lose a regular client if they supply poor quality product – more than they can trust unknown individuals on the Internet. Although objective information about some pills is available on the Internet from sites such as *pillreports.com*, it may also be the case that users are aware of the ease with which pills can be copied, and are thus unwilling to trust information about a particular brand of ecstasy, preferring to trust sources closer to them about a particular 'batch'.

The processes that may be used to determine the content of ecstasy by consumers are apparent in the quote below. It illustrates how content information about ecstasy is derived from other ecstasy users and their reported experiences of particular pills. It also shows how the content of pills is assessed once the ecstasy has actually been consumed:

R: *Mostly it's word of mouth. People will go, 'These are really good Es' or 'These are really bad Es'. And you know if it's a bad E, if it's ketamine based, because you feel like shit. You get really tired and it's not a good feeling. But if it's really clean, you'll feel really good and have really good clarity, and be in control of it all.*

I: *So, a good E is not ketamine based?*

R: *Mmm. Or amphetamine based.*

I: *So a good E is what?*

R: *It's pure MDMA. [Consumer/Female/Brisbane]*

Some of the more specific questions asked by consumers to determine the content of ecstasy, before making an ecstasy purchase, are evident in the following:

I've noticed over the years how ecstasy has changed [increased product differentiation]. Now, a lot of other things are being labelled as ecstasy. It's promoted with more of a 'Have you tried that one?' or 'What sort is it?' So there are a lot of more specific questions, not just, 'Have you got an E?' It will be like, 'Yeah, I'm scoring some Es and

this one and I heard they were really good'. So it's a bit more, 'What sort are they? Have you had them? What do they do? What effects?' You're getting that sort of questioning. [Regulator/Male/Cairns]

Consumers interviewed for the EMI study also acknowledged that ecstasy can produce different effects for different people, and that these differences are taken into account when interpreting information from other users about the content of ecstasy. Over time, ecstasy users establish whether they experience familiar or dissimilar reactions to certain 'brands' of ecstasy and establish an appreciation of which types of ecstasy different people prefer to use. Consumers use this information to guide how they decipher other people's assessments of certain ecstasy products. Knowing how to interpret and trust information about the content of ecstasy from dealers also develops over time. As one participant pointed out:

Because you've been buying for a while, you talk to the person you are buying off…and you start to know whether he says the same thing about every pill he sells or whether it [content information] is truly the case. [Dealer/Male/30/Cairns]

Despite using particular strategies to assess the contents of ecstasy, the EMI survey showed that ecstasy consumers are generally uncertain about tablet contents. When asked how confident they were about the contents of ecstasy, around one-third reported that they were 'not confident' and a further 38% of users reported being only 'a little confident' (see Figure 4-10). As one participant pointed out:

[Y]ou can have a look at a pill, but you won't know what it will contain. It may look like an excellent quality press, nice beveled edges, score, everything. But you won't know what's in it...until you've eaten it. [Consumer/Male/23/Cairns]

Figure 4-10: Levels of confidence regarding ecstasy content before and after consumption

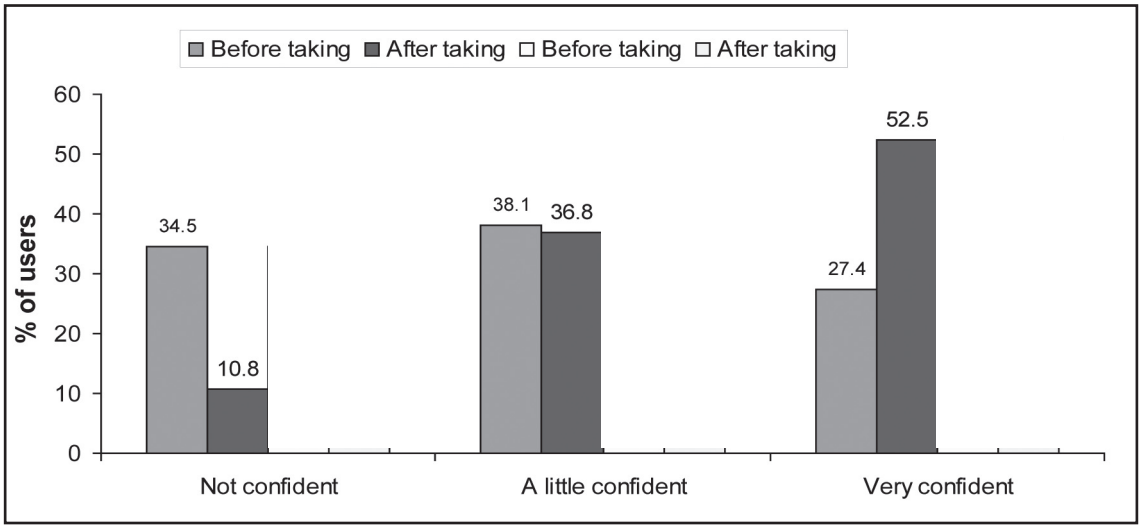


Figure 4-10 illustrates the level of confidence that users have in ecstasy pills before they consume them, and after they consume them, based on EMI data. Two things are immediately evident: (a) many users are unaware of the contents of their ecstasy pills, before consuming them, and (b) many users feel more confident of the contents of their pill, after consuming it. More than a third of users (34.5%) stated that they were 'not at all' confident of the contents of the pills they consume, before consuming them, however, just over a quarter (27.4%) stated that they were very confident of the pill contents, prior to consumption. After consuming pills, the proportion reporting that they were 'not at all' confident of the contents dropped to 10.8%, and over half (52.5%) reported that they were 'very confident' of the contents of their pills, after consuming them. These data suggest

that many users adopt a calculated risk approach to establishing pill contents – by consuming them. Many users believe that after consuming the pill, they can be very confident of its contents, however, it is not possible to verify the accuracy of this assessment. Most remarkably, more than one in ten users reported being 'not at all' sure of the contents of their pills even after consuming them, indicating a very low level of knowledge, yet a willingness to engage in use of the drug.

It was interesting to note that one participant identified a niche premium market operating within the broader ecstasy market in the Cairns area. This participant favoured the use of ecstasy powder, since he believed that it was more pure than ecstasy in pill form, if bought from the right source. The way in which this participant assessed the content and purity of ecstasy powder versus ecstasy pills is apparent in the following:

> *[I]f you're going to buy powder and you pay a lot more money for it, it's generally going to be of a better quality. When you weigh up a pill, and it comes in at 300 milligrams, you know that a standard dose is between 75 and 150 [milligrams of ecstasy] or something like that. The rest of it must just be binder and/or whatever else they put in it. Whereas if you're looking at a gram of powder, you can smell it, see the colour. You can generally go, '"Well look, if its three-quarters binder, you can't charge that much for it," yeah, stuff like that. So for me, I find it a lot more safe buying powder because I know it will generally have a tendency to be more pure…I can establish it to be a better standard than I can with any pill, because of colours, pressings, binder, stuff like that. [Consumer/Male/Cairns]*

The participant in the above quote had considerable experience and expertise in determining the quality of ecstasy and noted that most ecstasy consumers mistrusted ecstasy powder because they assumed it would be more readily cut with adulterants than pills. This participant believed that although most ecstasy consumers are not proficient at determining the content of ecstasy, it is possible to assess the purity of ecstasy powder to a certain extent by appraising the touch, sight and smell of the substance. His apparent ability to obtain relatively pure ecstasy powder suggests high-level connections with distribution networks and is noteworthy in the context of recent increases in the quantity of ecstasy powder detected at the border. The presence of relatively pure MDMA powder is also evident in the following comment made by one of the dealers interviewed for the project:

> *I can get, every now and again, you can get pure MDMA powder. But then you have got to weigh up 0.3 [grams] and put it into a capsule. You know, what a tedious task that is. No way would I do that, I have done it, but no way. The profit margin is through the roof, but nah. [Dealer/Male/Brisbane]*

The quote above also illustrates the importance of packaging in the distribution of ecstasy. The following section discusses in more detail how ecstasy is packaged and marketed to consumers by the use of branding and brand recognition.

Branding

Different brands of ecstasy generally establish a reputation within the drug-using community via social networks or Internet pill reports. Internet pill report websites provide a reference forum for consumers to access and share information on the characteristics of different brands of ecstasy. Users are able to submit and find information on a range of factors relating to particular brands of ecstasy including location of purchase, pill description (colour, shape, texture, size and logo), pill test results and suspected contents. Users may also rate the pill under discussion out of ten and discuss their personal experience of the pill once consumed. Other consumers may then use this information to inform purchasing patterns and guide expectations regarding the ecstasy experience trajectory. The way in which the reputation of certain brands of ecstasy can affect purchasing behaviour is evident in the following comment by one of the EMI participants:

If there's Hyundai [brand of ecstasy] in town, people may then go, "Oh that's a really good one, I might buy a couple of them". [Regulator/Male/Cairns]

The significance of brand recognition in the ecstasy market is also apparent in the practice of pill re-pressing and the production of counterfeit ecstasy. Counterfeit and re-pressed ecstasy is often branded with particular symbols that replicate the signifying features of other pills that have gained ascendancy within the market. The practice of creating inferior ecstasy pills that imitate other leading brands of ecstasy in terms of design is apparent in the following comment made by a consumer on the Pill-reports Internet forum:

The thought of pills being the same because of same colour and logo caught me out a few times at the start. I find that usually after 2 weeks of a pill arriving on the scene it is quickly replaced by lower quality duds by some dealer wanting to cash in on the brand name and suck poor unsuspecting people in to line their own wallets. [Pill report post]

The above Internet post illustrates that profit motive is a primary explanation for the prevalence of counterfeit and re-pressed ecstasy. It also describes the ecstasy market as being highly adaptive and responsive – reputedly taking suppliers only two weeks to place low quality or counterfeit ecstasy on the market under the guise of brands associated with quality.

The production of counterfeit ecstasy or the practice of re-pressing ecstasy pills/powder with other adulterants has three main advantages. First, it increases profit margins by reducing purity levels or utilising less expensive constituent chemicals. Second, it allows pills to be designed/re-designed so that they resemble high value or leading market 'brands', thereby increasing demand and improving market value. Finally, it can also facilitate the creation of additional market niches via the introduction of newly branded ecstasy pills. The increased profit margins gained from adulterating ecstasy pills with other substances is evident in the following:

[Pill presses] open up a whole door…if you've got a good ingredient…you can take a thousand pills and turn them into fifteen hundred…and you've got an extra five hundred pills profit…so that's what people are doing now. [Dealer/Male/Brisbane]

The prevalence of particular symbols being used to brand different types of ecstasy is also apparent in the following quote by one of the regulators interviewed for the EMI study:

I can show you the same symbol being used as a Mitsubishi symbol. That's a pretty nice looking tablet – a pharmaceutical red pack thing. And the same symbol I have seen with a pretty crumbly tablet. Different sort of tablet, with the same symbol. [Regulator/Male/Brisbane]

Consumer perceptions regarding ecstasy content

The existence of re-pressed or counterfeit ecstasy may explain why only 40 per cent of EMI consumer survey participants believed that branding provided a good indication of the qualities of ecstasy, although it also suggests that some consumers are susceptible to 'brand loyalty' (Table 4-7). Participants also acknowledged that there was great diversity in the range of ecstasy products available on the market – with 79 per cent agreeing that "there is a big difference between the different types of ecstasy and the effects they give me".

Forensic data indicate that a significant proportion of pills sold as ecstasy in Australia contain other psychoactive ingredients instead of, or as well as, MDMA. As discussed earlier in this report, some pills contain a combination of methamphetamine and ketamine, in an attempt to simulate the effects of MDMA. Among consumers surveyed for the EMI study there was little agreement with regard to the MDMA content of ecstasy pills. Almost one in four (23.3%) regular ecstasy users

agreed that 'most of the ecstasy you get or buy in Australia contains little or no MDMA'; however, nearly half (49.3%) disagreed with this statement and more than a quarter (27.4%) did not know. Responses to the statement that 'most of the ecstasy you get or buy in Queensland is mainly MDMA' were evenly split, with around a third each stating that this was true (32.4%) or false (31.5%), or that they did not know (36.0%). Evidently, many regular ecstasy users in Queensland are uncertain of the contents of the pills they consume. Moreover, many seem indifferent to this fact, with half of those surveyed (50.5%) agreeing that 'I do not care what is in the ecstasy tabs I take, so long as I have a good time'.

The importance of experience in establishing pill contents is apparent in the following EMI quote, which also shows the role of social networks in the conveyance of content information:

> *It's usually word of mouth as to how good it is. And how good it is doesn't necessarily mean how much MDMA is in it. [Dealer/Male/Cairns]*

The following two quotes also demonstrate that some consumers are mainly concerned with the different effects of ecstasy, rather than with content.

> *I've been told that I've had straight MDMA. It was good, it was loved up, it was alright. But I'd rather a pill that has got that other little bit in it, which makes it fun, which makes it bouncy. One that sends you in a direction, instead of being, "Ahh, I'm happy".* [Dealer/Male/Cairns]

> *If you get a pill that's got Special K in it, it's going to be shit E and you're gonna fall asleep, and that's not what you are looking for. You're looking to dance or hang out with your friends and have a good night. You don't want to go into Special K land, 'cos you become a zombie, 'cos you're awake, but you can't move, and you're like "Make it stop". It takes two hours to come out of Special K. [Consumer/Female/Brisbane]*

Although many users are uncertain of the contents of the pills they consume, the majority do recognise that the contents of pills on the market vary. More than three-quarters (78.9%) of users agreed that 'there is a big difference between the different types of ecstasy and the effects they give me'. One in five users (21.6%) believed that the effects of ecstasy were similar to those for speed, however, almost two-thirds (61.3%) disagreed with this view. Around one in four users (24.7%) believed that the effects of ecstasy were similar to those of 'weak LSD'; however, more than a third (37.2%) disagreed with this statement and 38% did not know, perhaps reflecting the fact that many of those surveyed had never tried LSD.

Table 4-7. Consumer belief about ecstasy manufacture and contents.

	True (%)	False (%)	Don't know (%)
Logos are a good indication of what the tab will be like	39.5	53.8	6.7
Most of the ecstasy you get or buy in QLD contains little or no MDMA	23.3	49.3	27.4
Most of the ecstasy you get or buy in Queensland is mainly MDMA	32.4	31.5	36.0
I do not care what is in the ecstasy tabs I take, so long as I have a good time	50.5	43.7	5.9
There is a big difference between the different types of ecstasy and the effects they give me	78.9	14.3	6.7
The positive effects of ecstasy are very similar to the positive effects of speed	21.6	61.3	17.1
The positive effects of ecstasy are very similar to the positive effects of weak LSD	24.7	37.2	38.1

Source: EMI Consumer Survey

Overall, the results discussed in this section indicate that ecstasy consumers recognise that it is difficult to establish the content of substances sold as ecstasy and that different ecstasy products produce different effects depending on the content of the pill and the physiological and psychological state of the consumer. The knowledge deficiency regarding the contents of ecstasy means that consumers place more emphasis on the ecstasy experience and manage factors that they have more control over (see 'Managing use' section in Chapter Two). The prevalence of counterfeit ecstasy and reconstitution of ecstasy was consistently acknowledged by study participants.

QPS seizures in the Queensland retail ecstasy market

National law enforcement agencies are not involved directly in the policing of illegal drug markets at the regional and retail levels. It is the market regulation activities of each state and territory police service that can best inform understanding of the retail ecstasy market. Drugs seized by QPS are analysed by the Queensland Health Pathology and Scientific Services (QHPSS). This analysis is initially in two stages; firstly, to determine which drugs are present in the material seized, secondly, for drug seizures over two grams, a more detailed chemical analysis is conducted to establish actual drug weight, purity, composition and other physical attributes. These quantified seizure data are presented below.

Table 4-8 provides descriptive statistics for all MDMA seizures analysed and quantified by QHPSS during the 2002/03 and 2003/04 financial years. Of the roughly 2,000 seizures received by QHPSS each year, just under 30% are not quantified because purity is not required to secure a prosecution, usually for possession, and of these, about half (15%, i.e. 300 seizures) contain MDMA. Those MDMA seizures that were not quantified are not considered here.

It must also be noted that (a) the data presented here do not include seizures of pills that were found to contain no MDMA, and (b) these data *do* include seizures of powder that *were* found to contain MDMA. According to QHPSS, approximately 90% of MDMA seizures analysed are in pill form. These data should therefore be considered in conjunction with the Queensland component of the national illicit drug logo database, administered by the Drugs Branch, Chemistry Division of the Victorian Police Forensic Services Department. Whereas QHPSS data includes MDMA seizures irrespective of form, the pills database includes all pill seizures irrespective of content. Due to

the imperfect overlap between these two databases, consideration of both databases is necessary in order to gain a full appreciation of the form and contents of substances sold as 'ecstasy' in Queensland.

QHPSS reported analysis of 462 MDMA seizures in 2002/03 with a total weight of 13.9 kg, and 429 seizures in 2003/04 with a total weight of 4.3 kg. The reduction in seizures in 2003/04 should not be taken to reflect a reduction in MDMA use or even seizure. Seizure analysis data are heavily influenced by law enforcement operational activity, and by the workflow and changing priorities of forensic chemistry staff. Changes in the size and purity of seizures may also reflect police operational activity generally, or in one region of the state, and can be heavily influenced by one or two large seizures which may not be indicative of a general trend.

With these caveats in mind, there was little change in the median seizure weight between 2002/03 (1.04 grams) and 2003/04 (1.22 grams) – an average of 3 or 4 pills. Across the two years combined, 48% of seizures were of less than 1 gram, and 58% of seizures were of less than 2 grams total weight. Assuming an average pill weight of 0.29 grams[7], 68% of seizures were of fewer than 10 MDMA pills, however 9% of seizures were of 100 or more pills. On average then, the amount seized in the Queensland retail market over the past two years has been about 9 kg per year.

The median purity of MDMA seizures changed little from 2002/03 (30.6%) to 2003/04 (31.6%), with the purity of seizures in each year ranging widely from less than 1% MDMA to around 80% MDMA. There was no significant difference in the purity of smaller (<2 gram, median = 30.60%) and larger (≥ 2 grams, median = 31.65%) seizures ($p > .05$). Presumably this reflects the fact that even trafficable quantities of ecstasy are usually in pressed pill form, rather than powder, and thus in contrast to some others drugs (notably heroin and methamphetamine) the drug is less likely to be adulterated as it progresses through the supply chain to the end consumer.

Table 4-8. Descriptive statistics for quantified MDMA seizures analysed by QHPSS, 2002/03 and 2003/04.

	2002/03	2003/04
Number of seizures analysed	462	429
Total seizure weight (g)		
Mean (SD)	30.26 (129.38)	10.09 (29.77)
Median	1.04	1.22
Mode	0.24[a]	0.25[a]
Range	0.01 – 1433.71	0.04 – 230.86
MDMA purity (%)		
Mean (SD)	30.67 (10.89)	32.68 (12.04)
Median	30.60	31.60
Mode	30.80	22.80
Range	0.10 – 81.00	0.30 – 78.20

[7] The estimated number of pills has been calculated using the Australian Customs/AFP/ABCI agreed estimate of 0.29 gm/tab. (see http://www.afp.gov.au/afp/page/Crime/Drugs/DrugSeizures/Amphetamines.htm.

Table 4-8. continued.

	2002/03	2003/04
Estimated number of pills[a]		
Mean (SD)	104 (446)	35 (103)
Median	4	4
Mode	1	1
Range	1 – 4944	1 – 796
Estimated dosage per pill (mg)[a]		
Mean (SD)	89 (32)	91 (34)
Median	89	90
Mode	80 [b]	80
Range	10 – 235	<1 – 227

[a] Based on an estimated 0.29 g per pill, which is the estimate used by Australian Customs/AFP/ACC. Note that this estimate also assumes that all seizures were of pills, whereas approximately 10% of seizures are not in pill form.

[b] Multiple modes exist. The smallest value is shown.

Source: QHPSS data file

Again assuming an average pill weight of 0.29 grams, the average dosage per pill also changed little over this time, with a median dosage of around 90 milligrams of MDMA per pill. Based on QHPSS data, 95% of pills seized and analysed had a dosage between about 30 mg and 150 mg. Anecdotal consumer preferences for dosage, reported by Erowid and based on research undertaken before MDMA was illegal (Downing, 1986), indicate that nearly half of seizures in the retail market represent dosages of one to two tablets for one or two people, presumably on a single occasion. The following Table 4-9 provides an indication of these consumer dosage preferences. Higher level dosages have substantial risks for sensitive individuals.

Table 4-9. Consumer perceived MDMA dosages.

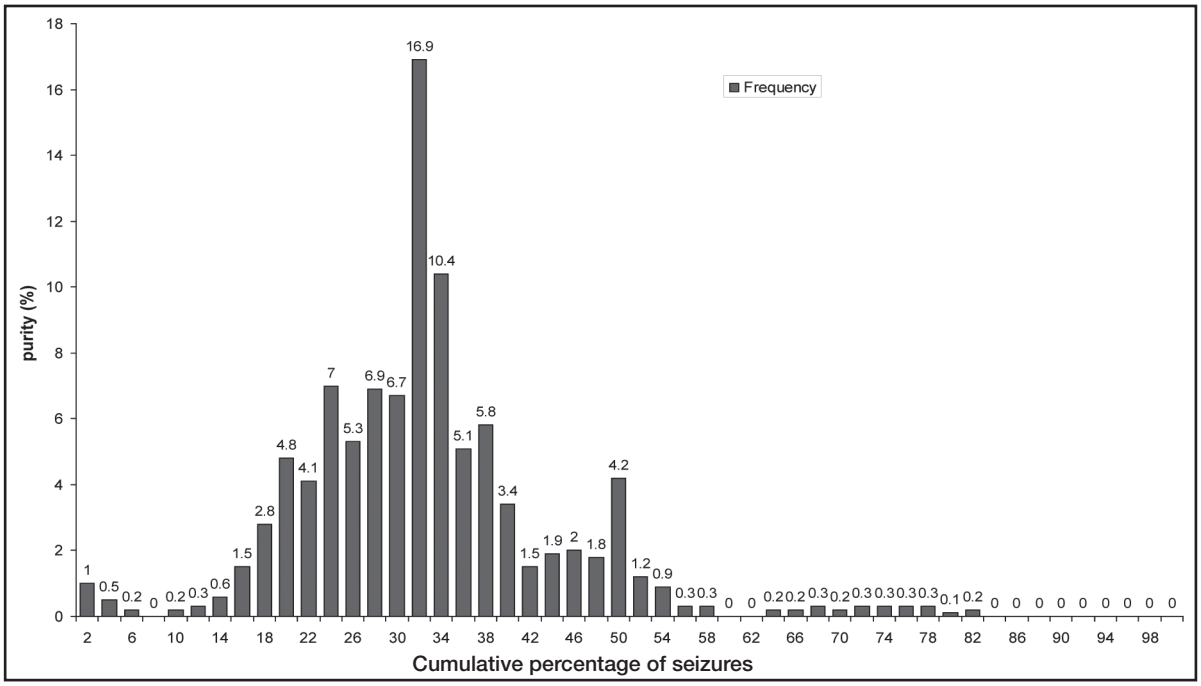
Estimated MDMA dosages in milligrams	
Threshold for any effect	30 mg
Common for small or sensitive people	50 - 75 mg
Common for most people	75 - 125 mg
Common for large or less sensitive people	125 - 175 mg
Required by few (side effects increase)	200 + mg

Source: www.erowid.org[8].

The following Figures 4-11 and 4-12 graphically illustrate the purity and size of seizures analysed by QHPSS during the 2002/03 and 2003/04 financial years. Figure 4-11 shows the distribution of the purity of seizures analysed during 2002/03 and 2003/04. As noted earlier, the average purity of MDMA seizures is around 30%, which equates to an average dose of about 90 mg of MDMA. Nevertheless, QHPSS analysis indicates that MDMA of very low and very high purity is available at the retail level.

[8]www.erowid.org/chemicals/mdma/mdma.shtml.

Figure 4-11: Distribution of purity of MDMA seizures between 2002/03 and 2003/04



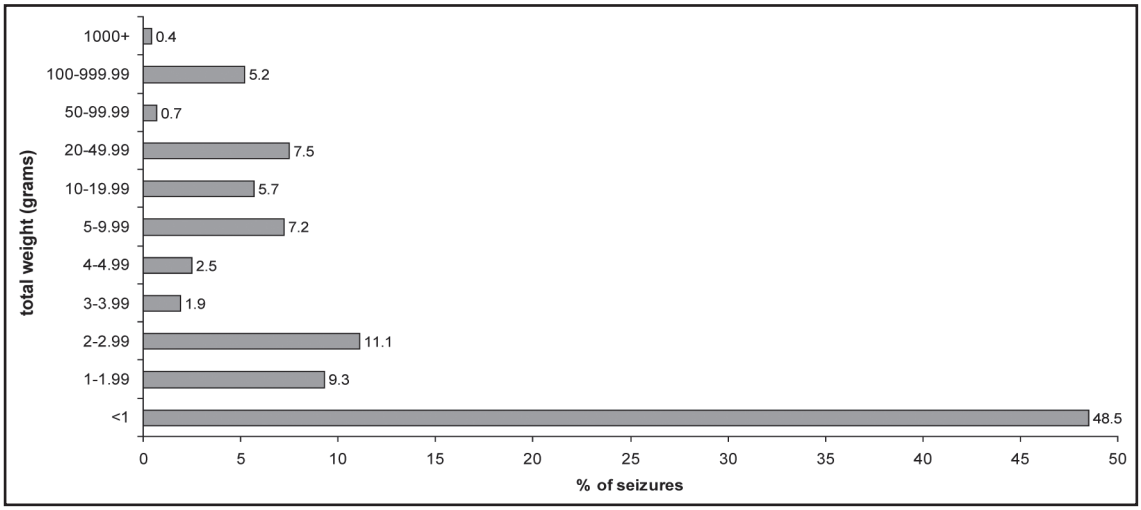
Source: QHPSS

Figure 4-12 shows the distribution of the total weight of MDMA seizures analysed by QHPSS in 2002/03 and 2003/04. As the figure shows, the vast majority of seizures were of quite small quantities, with 58% of seizures of less than 2 grams and only four seizures in excess of one kilogram during this time. Clearly, QPS are active primarily at the consumer end of the retail market, although they have made a small number of mid-level seizures in recent years.

Seizures of 2 grams (approximately 7 tablets) or less are not 'quantified' to determine levels of drug purity, but are analysed to confirm the presence of MDMA. This analysis confirms an offence of *'Possessing dangerous drugs'* under Schedule 2 of the *Drugs Misuse Act (1986)*[9]. Seizures of 2 grams and over are 'quantified' to determine if the pure drug weight is 2 grams or more. If the pure drug weight equals or exceeds 2 grams, a more serious charge is laid under Schedule 3 of the Act. Where pure MDMA content per tablet is at the average of 90 milligrams, this would imply 22 tablets or more to exceed 2 grams pure drug weight.

[9] *Drugs Misuse Act* (1986) Part 2 Section 9 Possessing dangerous drugs: (c) if the dangerous drug is a thing specified in the *Drugs Misuse Regulation 1987*, schedule 2 and the quantity of the thing is of or exceeds the quantity specified in the *Drugs Misuse Regulation 1987*, schedule 3 in respect of that thing – maximum penalty 20 years imprisonment; (d) in any other case where the dangerous drug is a thing specified in the *Drugs Misuse Regulation 1987*, schedule 1 or 2 – maximum penalty 15 years imprisonment; http://www.legislation.qld.gov.au/LEGISLTN/CURRENT/D/DrugsMisuseA86.pdf, http://www.legislation.qld.gov.au/LEGISLTN/CURRENT/D/DrugsMisuseR87.pdf.

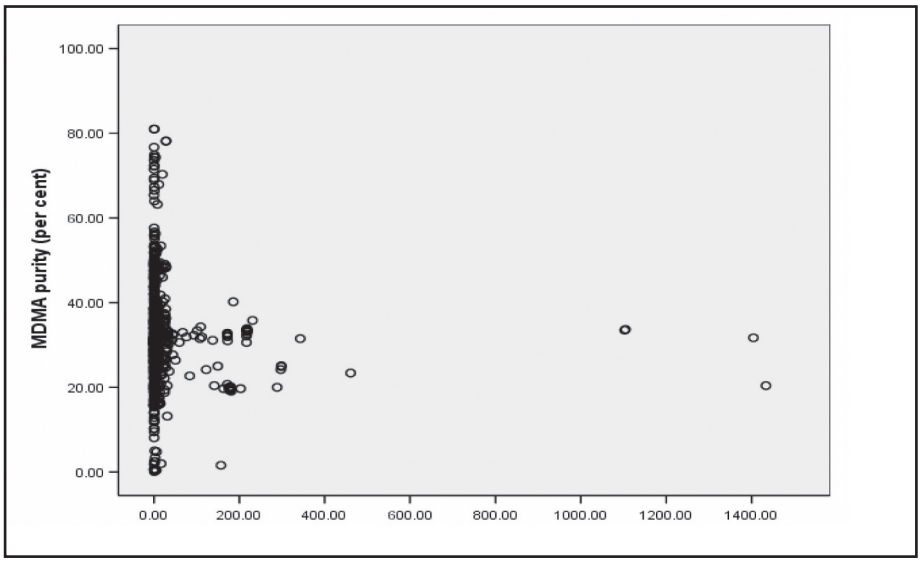
Figure 4-12: Distribution of total weight of MDMA seizures between 2002/03 and 2003/04



Note: 1 gram is approximately equivalent to 3 ecstasy tablets (at 0.29 grams each). Source: QHPSS.

It is presently not possible to match seizure data with drug prices by linking QHPSS data with intelligence about the relevant seizure events in the QPS operational CRISP information system, however, information from qualitative interviews with both consumers and suppliers suggests that more pure MDMA pills typically sell at a higher price than do less pure pills, with experienced consumers paying up to $60 for 'a good pill' containing 90 mg or more of MDMA or (more rarely) a quantity of 'pure powder' from their supplier. Nevertheless, there appears to be no association between seizure weight and seizure purity at a retail level in Queensland (see Figure 4-13), suggesting that MDMA is not usually cut and pressed into pills after crossing the Queensland border. As Figure 4-13 shows, most seizures analysed by QHPSS are relatively small (<10 g) and have a purity in the range of 20–60%; the purity of small seizures ranges from less than 1% to as high as 81% although almost all larger seizures fall in the 20–40% purity range. This may be indicative of greater 'quality control' (i.e. consistent purity) in the production of commercial quantities of ecstasy.

Figure 4-13: Purity of MDMA seizures by QPS as a function of total seizure weight between 2002/03 and 2003/04

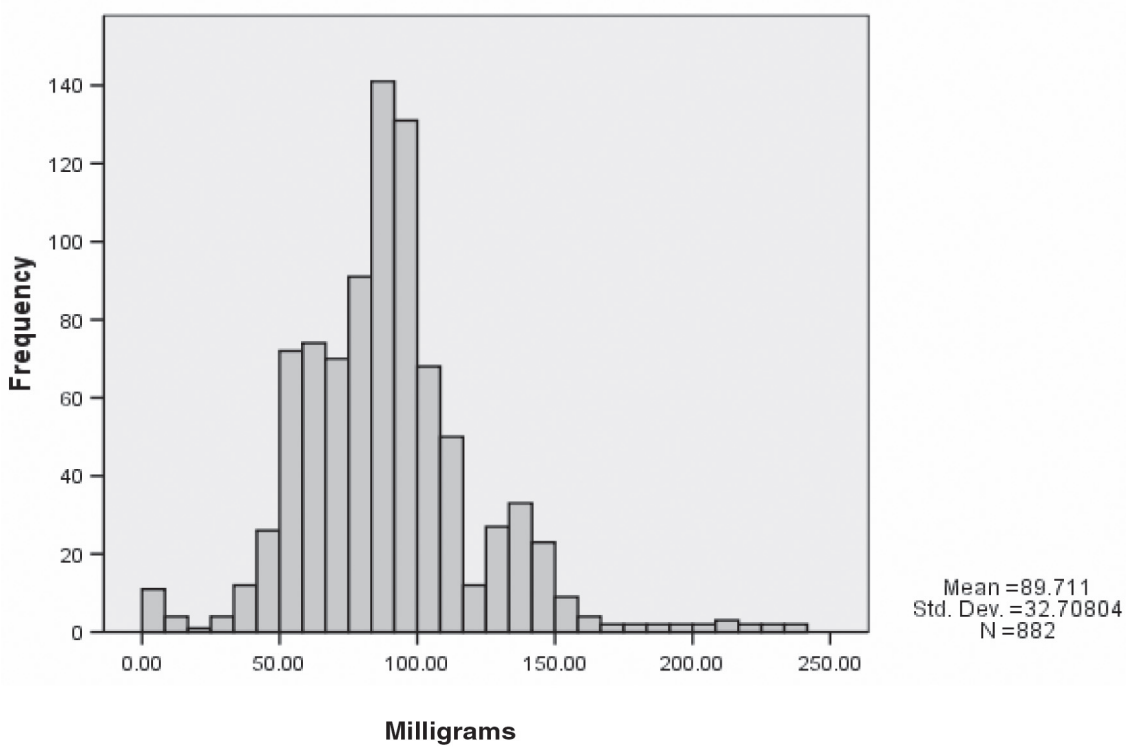


Total seizure weight
Source: QHPSS

Figure 4-14 shows the estimated dosage of MDMA per pill, based on analysed QHPSS seizures from 2002/03 to 2003/04. This estimate is based on two assumptions: (a) that the average pill weighs 0.29 grams, and (b) that all seizures were in pill form. While the former assumption is likely to be true on average, the latter is true for only about 90% of seizures. Information regarding the form of the remaining 10% of seizures, and the typical quantity of non-pill MDMA consumed by users, are not available. Inclusion of MDMA powder in the calculation of average purity can distort market interpretation, as it is unclear whether seized powder was intended for consumption in its current form, or for further cutting and pressing into tablets of lower purity. Accordingly, purity data for ecstasy tablets and powder should be recorded separately and powder seizures should be converted to tablet equivalents in summing total seizure weights.

As noted earlier, the average dosage per tablet in QHPSS seizures is estimated at 90 milligrams, which is in the middle of that considered appropriate by most consumers. However, there is considerable variation in the estimated dosage per pill, with dosages of less than 1 mg up to 235 mg calculated. Although the 'average' dosage of MDMA in Queensland seems to be around 90 mg, 28% of seizures were estimated to be of pills with a dosage below the consumer preferred dosage of 75-125mg, and 24% of seizures were estimated to be of pills with a dosage exceeding 125 mg of MDMA. Clearly, users of ecstasy cannot always be 'sure of what they are getting' and this is potentially a source of considerable risk for consumers.

Figure 4-14: Average weight of pure MDMA per tab (i.e. dosage) between 2002/03 and 2003/04



Source: QHPSS data file

In 2003/04, in addition to the 429 MDMA seizures, QHPSS also analysed one seizure which was found to contain a quantity of MDA. This seizure had a total weight of 0.191 grams, presumably a single pill, and was 28.6% MDA, resulting in a pure drug weight of 54 milligrams. The pill was blue in colour with a 'D & G' logo, and was provided by the Gold Coast CIB. Although non-MDMA phenethylamine seizures are rare, this seizure illustrates that they can, and do, occur in Queensland. The size of the market in Queensland for MDA or other phenethylamine is difficult to estimate, but available evidence suggests that is very small.

Concluding remarks

This chapter has detailed the supply mechanisms of the retail ecstasy market in Queensland, utilising data from a consumer survey, in-depth interviews with consumers, suppliers and market regulators from law enforcement and health agencies. Our understanding of retail markets is conditional on a similar level of understanding for our national market and for the global trade in illegal drugs. The following chapter introduces a new analytical tool to estimate the size of the ecstasy market in Queensland, and for Australia, by modeling consumption and seizure volumes. However, market sizing estimates depend on accurate seizure data for MDMA. Such data is not currently available for all state jurisdictions.

Chapter five: Sizing the ecstasy market – a new tool

Summary

- Not knowing the size of illegal drug markets is a significant barrier to effective drug policy. Supply-side estimates are possible for organic-based drugs such as heroin and cocaine, with significant limitations. Such estimates are not possible for ATS drugs, including ecstasy.
- Demand-side models of market size have a number of advantages for sizing national, regional and local drug markets. Accurately recording consumption and seizures provides data for the best estimate of market size. There are, however, a number of limitations to this approach.
- Detailed data on consumption (prevalence, frequency and volume of use, and retail price paid) of illegal drugs is, to varying extents, difficult to obtain. The level of difficulty varies with the drug in question, with consumer perceptions of drug policy, and with the choice of research methods to estimate consumption. Drug seizure data should be easy to compile but often is not.
- It is estimated that in 2001 at least 51,450 people in Queensland had used ecstasy within the last 12 months. Based on 2001 data, an estimated 888,238 ecstasy tablets are consumed annually in Queensland, 700,550 (79%) by males and 187,688 (11%) by females, with male users consuming an average of 23 ecstasy tablets per year and females users consuming an average of nine ecstasy tablets per year.
- By adding the average amount seized in the Queensland retail market in the past two years (i.e. 9 kg or 31,000 tablets) to the annual consumption estimate of 888,238 tablets, a total market size for the Queensland ecstasy market can be estimated at 919,238 tablets or 267 kg per annum. The value of this market, using a price sensitivity analysis per tablet of $21.27 for the lower market limit, and $49.97 for upper market limit, generates a range estimate for the total market value of between $19,522,192 and $45,934,323. Using the average Queensland retail price of $35.62 the total market value is estimated at $32,743,258.
- In the Australian ecstasy market an estimated 450,000 people had used ecstasy within the last 12 months, based on 2001 data. It is estimated that at least 5,200,000 ecstasy tablets are consumed annually in Australia. The overall retail value of this consumption in the Australian ecstasy market is estimated at $182 million per year. As total ecstasy seizures in Australia cannot be quantified, a total market size estimate is difficult. Our best estimate for 2001 is a total market size of 7.8 million tablets (or 2,282 kg) annually with a retail value of $275.5 million.
- The EMI market sizing model can be used to monitor ecstasy market change at a national and jurisdictional level. It can be updated, as new data is available, for example the 2004 NDSHS detailed results. This data set was not available at the time the EMI analysis was undertaken. This model could also be applied to the cannabis market.

Introduction

Illegal drug market analysis faces a significant challenge in the lack of proven methods for determining actual size (either in terms of volume or value) of the market for specific drugs in a given location and time period. This problem is a direct consequence of the illegal nature of these products and the activities surrounding their trading. It is also related to limited conceptualization of both the nature of supply and demand for different drugs, and of the behaviours of market participants. At a UK Home Office seminar on supply and trafficking research in 2002, participants acknowledged*, "a combination of the quantity and quality of existing research limits evidence on which future research can build"* (Browne, Mason & Murphy, 2003, p. 324). They further agreed that there is a lack of established methods and findings on which to build theory or further study. One key shortcoming for both supply-control program managers and researchers was*, "the inherent difficulty in calculating change in a market when a baseline measure is so elusive*" (Browne, Mason & Murphy, 2003, p. 327).

This chapter details the development of a demand-based model of the Australian and Queensland ecstasy markets. This model was constructed after reviewing supply-side and demand-side approaches to illegal drug market sizing considered by the UK Home Office and the US Office of National Drug Control Policy (US ONDCP). The EMI model extracts data from household and special population surveys to construct a database that provides best estimates for the prevalence, frequency and volume of ecstasy consumption for all age groups. This model, together with the best estimates of ecstasy seizures and retail price data in both Australia and Queensland, provides a reliable minimum estimate of the ecstasy market size and value. While this model has a number of limitations that are detailed below, it has the potential to be enhanced and updated as new data becomes available.

Supply-side market sizing methods

Traditionally, illegal drug market size estimates have been derived by two broad approaches. The first is a top-down supply-based approach calculated by monitoring the production yield of crops for the manufacture of heroin, cocaine and cannabis products. These are gathered in both producer countries, and from local production, with estimates of the proportions of total production destined for particular markets. This approach has been used by the US ONDCP, particularly with regard to estimates for cocaine derived from production estimates in Andean countries (based on estimates of the area under cultivation, yield per hectare, alkaloid content of the leaf and efficiency of processing). These estimates are used in sophisticated models to calculate total cocaine production and the portion shipped to the US. Price estimates are then used to value these shipments.[1]

The UNODC also rely on similar crop estimates to size markets based on data from their own field offices and provided by national governments in Annual Report Questionnaires (ARQ). These are presented in their World Drug Report (UNODC, 2004a; UNODC, 2004b) and Global Illicit Drug Trends (UNODC, 2003a, 2003c) publications. For example, since 1994, UNODC has conducted an annual opium poppy survey in Afghanistan to know the extent of opium poppy cultivation and its production in that country. The survey includes four distinct but interrelated components: Rapid Assessment Survey, Annual Opium Poppy Survey, Opium Yield Survey and Opium Price Collection. As well as providing the basis for UNODC supply and demand reduction programs in each illicit drug-producing country, this intelligence data contributes to global and local market analysis in consumer countries.[2]

The limitations of this global and regional supply approach are clearly evident. There is little reliable evidence of the supply chain between crop production and local retail drug markets on irregularity and incompleteness of the data submitted by national governments (Reuter, 1996).

[1] See for example: http://www.whitehousedrugpolicy.gov./publications/pdf/cocain2002.pdf.

[2] http://www.unodc.org/afg/en/reports_surveys.html.

These estimates, and the strategy used by some law enforcement agencies when attempting to estimate national market size by assuming that the volume of a particular drug seized by the police and customs officers annually is 10% of the actual market, are untested assumptions and little more than informed guesses (Barham et al, 2003).

While still an important source of information about the global supply of some drugs, such crop-focused market estimates are not relevant to chemically derived ATS markets. Supply-side estimates of the ATS markets tend to rely on drug and precursors seizure data and on the number and type of clandestine laboratories seized (UNODC, 2003a). The increasingly sophisticated approaches to mapping the flow of precursors and ATS drugs in the world market are discussed in Chapters three and six.

Demand-side market sizing methods

The alternative methodology to supply-side approaches is to build up a picture of the size of illegal drug markets from information about consumption. Such demand-focused approaches use two methods in estimating the volume of drugs consumed. The direct method involves asking representative samples of the general population about their drug use, through household surveys. The indirect method relies upon inferring reference about drug use in the general population from subsets of known drug users for whom reliable consumption data exist.

It has been argued that problem drug use cannot be estimated directly through population surveys but is best approached using a range of indirect techniques (UNODC, 2003b).[3] Indirect estimates involve extrapolation from reliable data about a sub-group's consumption, such as data collected as part of treatment programs. If reliable assumptions can be made about the proportion of problem users who are receiving treatment at any one time, it is possible to estimate overall size of the problem drug using population and their drug consumption. Simple variants of this approach involve using multipliers to gross-up treatment workload figures and consumptions estimates. More elaborate variants involve statistical modeling using 'capture/recapture' methods where an estimate of the number of drug users who are captured in three or more data sources is used to derive a total estimate of the number of problem users.

This argument addresses mainly the heroin and cocaine markets, where there exists greater numbers of heavy or problematic drug users who may be dependent and in regular contact with health services. Such methods are less relevant to ecstasy consumption as consumers are much less likely to be daily consumers or dependent, and thus have few contacts with either health services generally or with specialist drug treatment services. Moreover it is argued here that ecstasy lacks the stigma of many other illegal drugs and consumers are more likely to respond truthfully to population-based surveys.

The UNODC (2003a, p.49) states: *'Taking into account occasional, moderate and heavy use, studies show that, on average, the eight million ecstasy users consume about three tablets per week. This amounts to an annual requirement for up to 1,250 million tablets, or 100 tons to 125 tons of drug (each tablet contains 80mg to 100mg)'.*

[3] A more detailed description of issues relating to prevalence estimation can be found in the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) Scientific Monograph No. 1, Estimating the Prevalence of Problem Drug Use in Europe (Luxembourg, Office for Official Publications of the European Union, 1997).

The NERA model

The Research, Development and Statistics Directorate of the United Kingdom Home Office commissioned National Economic Research Associates (NERA) to prepare a methodology for estimating the size of the market for illegal drugs in the UK using available data sources on prevalence and consumption patterns (Bramley-Harker, 2001). This model was developed to support strategic market analysis and organisational performance methodologies for the National Criminal Intelligence Service, and HM Customs and Excise. The model split consumers into different types and then derived separate estimates for two groups of users: 'regular' users who used over four times a month; and 'occasional' users who used less than four times a month. The rationale was that separate estimation methods were appropriate to the two groups, and that the summed estimate would be more reliable than one derived from a single, consistent approach, applied to both groups.

The approach involved an indirect estimation method of regular users and direct methods for occasional users. It made use of data on police detainees, drawn from the New English and Welsh Arrestee Drug Abuse Monitoring (NEW-ADAM) (an equivalent of the DUMA program in Australia) for regular users, and general population data on prevalence and consumption from the British Crime Survey (BCS) drug use component for prevalence, and the Youth Lifestyle Survey (YLS) for consumption for occasional users. The Australian NDSHS collects equivalent data, though in a more comprehensive manner. The prevalence rates from these UK surveys were then applied to the general population estimates. A multiplier method was used to capture the prevalence in the arrestee and at risk of arrest, but not arrested, in the year of interest populations.

The multiplier in this case is the probability that 'regular' drug users (defined as at least weekly) of each drug type identified within the NEW-ADAM sample would be arrested in a year, and the probability that an arrestee has been in prison during this year and for how long. This methodology was used only for amphetamines, crack, cocaine and heroin as the researchers believed that general population surveys would provide more reliable data for cannabis and ecstasy use, due to these drugs being considered somewhat more socially acceptable. An obvious weakness with the NERA model was that one component of the estimate was derived from an offender-based survey relying on the assumption that regular users of amphetamines, crack, cocaine and heroin are likely to be represented within this survey sample. This is not necessarily the case and in the UK there is little evidence to suggest that frequent users of powder cocaine or ecstasy are at significant risk of arrest. There are no equivalent national sentinel population surveys in the UK equivalent to the Australian IDRS and EDRS sentinel surveys.

Pudney provides critical comment and recommendations on enhancements to the limitations of the NERA methodology in Appendix B to the Bramley-Harker (2001) report. The shortcomings of the original model with regard to powder cocaine use have been addressed by Barham et al (2003) who proposed a new classification of drug users, using the following four categories rather than the two used in the first application of the model.

1. Rare users – infrequent cocaine users who may have regularly used cannabis and alcohol but only used cocaine or ecstasy on a 'special occasion'. *"The significance of this group is low in comparison to the total market because of their infrequent use."* Also included here are 'opportunistic' users who do not seek out this drug, or can not afford it, but will use it if an opportunity arises.
2. Occasional users – those using approximately monthly.
3. Frequent users – using twice a month or more. *"They will not necessarily fit any stereotype of problem drug users; they are likely to be employed and occupy conventional societal roles. The regularity of their drug use will mean they make a significant contribution to overall consumption levels"*.

4. Problem users – those with an extensive repertoire of chaotic poly-drug use, that in this case would certainly include methamphetamine use, and possibly heroin use, as well as heavy use of alcohol, cannabis and probably prescription drugs such as benzodiazepines and possibly opiates. Cocaine or ecstasy is probably not their drug of choice but they would use this if the opportunity presented itself. This group is likely to have experience with both drug treatment services (possibly associated with dependence) and the criminal justice system (as a result of drug-related offending) Their levels of use are likely to be high but the absolute numbers are likely to be small.

A range of direct and indirect methodologies are recommended to ascertain accurate consumption data for each of the types of consumers. One recommendation is the creation of an equivalent survey to the Australian PDI to measure patterns of ecstasy and related drug use. These enhancements to the original NERA model are now under consideration by the UK Home Office (Browne, Mason & Murphy, 2003), and Pudney (2001a) has commenced work on an complimentary approach constructing suitable quantity indices for trend analysis in market size rather then attempting to establish a baseline year as a reference point.

The EMI market sizing model

The EMI study has developed a model to estimate the overall size and value of the Queensland ecstasy market. The EMI model has been designed to allow for the incorporation of new data so information pertaining to the size and value of the Queensland ecstasy market could be easily updated. The initial results produced by the EMI model, including those for the Australian market, are presented here.

A number of data sources were made available to assist in the development of the model, ranging from large nation-wide surveys aimed at populations consisting of both ecstasy users and non-users (representative samples) to smaller studies aimed exclusively at ecstasy users (sentinel samples). The model utilises data from a number of sources, but mainly relies on data gathered by large representative surveys, particularly the 2001 NDSHS for both Australia and Queensland (AIHW, 2002).

An important feature of the model is its capacity to allow for modifications or improvements to existing data sets. Currently some surveys lack information that could greatly improve the accuracy of the model, such as data related to recent ecstasy use, average ecstasy price or prevalence of use among infrequent users. There is scope in the present model to accommodate any changes to existing datasets, should they be modified in the future. This chapter also considers any potential improvements to current datasets, should they be feasible, in order to facilitate future attempts to estimate the size and value of the Queensland ecstasy market.

The model can also be modified to examine changes in the market over time. In its present state, the model is configured to provide a 'snapshot' of the current size and value of the Queensland ecstasy market. However, should the need arise, the model can incorporate data from earlier years in order for an historical analysis to be undertaken or market projections to be made.

This model was developed using Microsoft Excel 2000 software and adopts a micro 'bottom-up' costing approach, using consumption-based information such as the number of ecstasy users, the frequency and amount of their use and the average amount paid for ecstasy. This is in contrast to a macro 'top-down' approach, which would attempt to size the market using supply-side data that is likely to be both unreliable and unavailable for ATS drugs.

Best available data for average annual ecstasy seizures for the Queensland retail ecstasy market were incorporated in the EMI model to provide a total market size estimate by weight and value. Such an estimation is not possible nationally as state jurisdiction ecstasy seizure data is not available.

Available data sources

A number of surveys have been completed in Australia and Queensland to extract information on ecstasy use. Listed in Appendix A are summaries of the information made available from the variety of surveys that examine the use of ecstasy in Queensland and Australia. Key demographic variables from these drug surveys are highlighted together with key variables related to ecstasy use. These include average frequency and amount of ecstasy use, age of first use and average price paid.

These tables present the most recent information available rather than summarising information from the same year for purposes of comparison. For instance, the 2001 NDSHS and the Queensland component of the 2004 EDRS will often be used in the model, rather than using data from the same year. The most recent information available is used, in order to maximise the accuracy of the present size and value of the Queensland ecstasy market. For instance, the NDSHS provides data on prevalence of ecstasy in Queensland, whereas the EDRS provides data on the average price paid for ecstasy. Combining data from the 2001 versions of these studies would give an accurate estimation of the market in 2001. However, the use of the most recent EDRS data available (2004) would give a more accurate estimation of the present size and value of the Queensland ecstasy market.

Surveys aimed at representative populations include the National Drug Strategy Household Survey and Crime and Misconduct Commission (CMC) Queensland Household Survey. The NDSHS is a large representative survey conducted throughout Australia which aims to provide comprehensive information relating to tobacco, alcohol and a range of illicit drugs every three years. CMC data is gathered from a computer-aided telephone interview (CATI) based Queensland Household Survey which has been conducted on an annual basis since 2001. Key variables from both of these surveys are listed in Table 1 of Appendix A.

The remaining surveys collect data from sentinel populations. The EDRS Initiative aims to describe the characteristics of samples of current ecstasy users from each capital city in Australia; however, only Queensland data was used in the construction of the current model. The Illicit Drug Reporting System (IDRS) aims to monitor the price, purity and availability of a variety of illicit drugs as well as identifying emerging trends in illicit drug markets. Data are also available from two Queensland sites of the Drug Use Monitoring in Australia (DUMA) project, which aims to measure drug use among those who have been recently apprehended by police. The CMC's Amphetamines in Queensland (AIQ) study also provides information on the usage patterns of amphetamine-type stimulants from a sample of current users located across Queensland. Key variables from all of these studies are listed in Table 2 of Appendix A.

Surveys aimed specifically at younger groups of users include the Australian Secondary Students Alcohol and Drugs Survey (ASSADS) and the Drug Arm Schoolies Survey (DASS). ASSADS is a national survey that obtains data on the use of licit and illicit drugs among secondary school students aged 12 to 17 years, selected randomly from government and independent schools. DASS is a smaller survey examining drug use among recent school leavers on the Gold Coast. Key variables from these surveys are summarised in Table 3 of Appendix A.

Information available from data sources

Any attempt to quantify the size and value of the ecstasy market requires data that are appropriate, reliable and timely. The appropriateness of data is influenced by the research question at hand. National health and/or drug surveys consider a 'snapshot' of health indicators and behaviours across a representative sample of the population. The ability to reliably identify the nature and characteristics of ecstasy users from these surveys is, however, limited by the general nature of the questionnaire and non-stringent eligibility criteria. That is, the population sample results are

likely to be an underestimate, as not all respondents will respond honestly to questions concerning illegal drug use. Sentinel surveys, on the other hand, do provide an opportunity to gauge particular characteristics of ecstasy use by targeting actual regular ecstasy users and asking more specific questions related to their use, such as history or patterns of use. Both types of surveys are, however, subject to limitations which impact on the generalisation of results. Irrespective of flaws inherent in surveys, key information to size the ecstasy market can be obtained, and when combined in an appropriate manner, can provide credible estimates of the size and value of a market.

In order to procure estimates of the size and value of the ecstasy market, information is at least required on:

- the number of ecstasy users in the population of interest
- their frequency of ecstasy use
- the amount of ecstasy consumed per occasion
- the price paid for ecstasy.

Number of ecstasy users in the population of interest

Population estimates of the proportion of participants that have: i) ever used ecstasy; and, ii) used recently (within last 12 months) are outlined in Table 5-1. These figures have been derived from data within the 2004 CMC surveys and the 2001 NDSHS (for both Australia and Queensland). Appropriate weighting methods were applied to the NDSHS in order to increase the size of the data to national and state-level populations. Unfortunately, no data are available on recent use of ecstasy among the general Queensland population from the CMC survey as this study does not gather this type of information. Questions that gather such information may be a useful addition to any future versions of the CMC survey.

As indicated in Table 5-1, estimates of the prevalence of lifetime ecstasy use in Queensland vary between the 2001 NDSHS and 2004 CMC surveys. For instance, about 13% of 35 to 39 year-old males reported lifetime use of ecstasy in the CMC survey, whereas about 4% of members of the same group in Queensland reported lifetime use in the NDSHS.

A higher prevalence of ecstasy use is found in younger adults, with 20 to 24 year old males reporting the highest rate of lifetime ecstasy use in the NDSHS (24% at national level and 20% at Queensland level) and 25 to 29 year old males reporting the highest prevalence in the CMC (17%). The 20 to 24 year age group also reported the highest prevalence rates among female users (20% at national level and 16% at Queensland level); however, females aged between 30 and 34 reported the highest prevalence in the 2004 CMC survey. Those in the 20 to 24 year age group also reported the highest rates of ecstasy use in the past 12 months in the NDSHS (12% and 8% for males and females respectively, at Queensland level).

Male consumers reported higher rates of recent and lifetime ecstasy use compared to female consumers in both the NDSHS (2001) and CMC (2004) surveys. Of all males in the NDSHS about one in ten (9%) used ecstasy in their lifetime and one in twenty (5%) had used in the last 12 months, compared to 7% and 3% of females, respectively. In the 2004 CMC survey, 8% of all males and 3% of all females reported lifetime use of ecstasy.

Table 5-1. Prevalence of ecstasy use in Australia and Queensland, by age and gender.

Age	% ever used ecstasy	% using in last 12 months	% ever used ecstasy	% using in last 12 months
	Males		Females	
		NDSHS 2001 national estimates		
14-19	7.1%	5.7%	6.8%	4.3%
20-24	23.8%	14.3%	19.8%	12.0%
25-29	21.1%	10.6%	14.1%	4.8%
30-34	11.3%	4.5%	7.4%	2.4%
35-39	6.1%	1.5%	4.4%	0.9%
40-44	4.0%	1.2%	2.2%	0.6%
45-49	1.7%	0.3%	1.4%	0.2%
50+	0.4%	0.1%	0.1%	0.1%
		NDSHS 2001 QLD estimates		
14-19	2.8%	2.2%	3.7%	1.7%
20-24	19.6%	11.6%	16.3%	8.2%
25-29	14.9%	4.3%	10.4%	2.6%
30-34	12.9%	2.9%	5.4%	1.4%
35-39	3.9%	0.4%	3.6%	0.0%
40-44	1.5%	0.3%	1.6%	0.0%
45-49	1.0%	0.0%	1.9%	0.0%
50+	0.5%	0.2%	0.2%	0.2%
		CMC 2004		
18-19	3.3%		3.1%	
20-24	11.5%		5.4%	
25-29	17.0%		5.6%	
30-34	14.0%		7.1%	
35-39	13.2%		1.6%	
40-44	2.4%		0.5%	
45-49	4.3%		0.7%	
50+	0.8%		0.0%	

Estimates of the number of ecstasy users in the Queensland population can be derived by combining the above prevalence rates with estimates of the Australian and Queensland resident population (ABS, 2003). Using this method, the numbers of ecstasy users in Australia and Queensland can be found in Table 5-2. It is estimated that 939,118 (542,518 males + 396,600 females) people in Australia have ever used ecstasy, with slightly more than half of these (58%) being male. Of these, 450,002 (272,937 males + 177,065 females) have used ecstasy within the last 12 months. It is estimated that 140,252 (80,587 males + 59,665 females) people in Queensland have ever used ecstasy, with male users being slightly over represented (57%). Of these, it is estimated that 51,244 (30,974 males + 20,270 females) have used ecstasy within the last 12 months. Applying CMC prevalence rates to the Queensland population results in an estimate of 121,193 (91,005 males + 30,188 females) ecstasy users, with about three-quarters (75%) of these being male. The CMC estimate of Queensland ecstasy users is approximately 86% of the estimate calculated by applying the NDSHS prevalence rates.

Table 5-2. Number of people that have ever or recently used ecstasy in Australia and Queensland, derived from NDSHS 2001, CMC 2004 and ABS 2003 resident population data, by age group and gender.

Age	Number ever used ecstasy	Number using in last 12 months	Number ever used ecstasy	Number using in last 12 months
	Males		Females	
	NDSHS 2001 - National estimates			
14-19	62,502	49,583	57,453	36,453
20-24	156,258	93,960	123,398	74,758
25-29	142,421	71,839	95,880	32,549
30-34	86,785	34,262	57,015	18,800
35-39	42,482	10,304	33,297	7,209
40-44	30,779	9,407	16,372	4,426
45-49	11,474	1,855	9,207	1,249
50+	9,817	1,727	3,978	1,621
Total	542,518	272,937	396,600	177,065
	NDSHS 2001 - QLD estimates			
14-19	4,671	3,918	5,813	2,681
20-24	26,610	15,745	21,415	10,857
25-29	19,346	5,590	13,481	3,376
30-34	18,229	4,088	7,797	2,022
35-39	5,337	546	4,984	0
40-44	2,148	460	2,338	0
45-49	1,374	0	2,503	0
50+[a]	2,872	834	1,334	1,334
Total	80,587	31,181	59,665	20,270

[a] Application of population estimates to this survey sample age group produced invalid data.

Table 5-2 continued.

Age	Number ever used ecstasy	Number using in last 12 months	Number ever used ecstasy	Number using in last 12 months
	Males		Females	
		CMC 2004		
18-19	1,856	-	1,672	-
20-24	15,650	-	7,157	-
25-29	22,121	-	7,303	-
30-34	19,831	-	10,234	-
35-39	17,913	-	2,167	-
40-44	3,508	-	751	-
45-49	5,616	-	905	-
50+	4,510	-	0	-
Total	91,005	-	30,188	-

These population estimates are also presented in Table 5-3 as rates per 100,000 population. Expressing drug use as a rate of use within the population rates enables changing rates over time to be compared independently of changes in population size. This is particularly useful in states like Queensland where the annual population growth rate is 2.1% compared to the national average of 1.2%.

A total of 7,001 (7%) out of every 100,000 males in Australia have ever used ecstasy, compared with 4,985 (5%) out of every 100,000 females. The rate of ecstasy use in Queensland is slightly lower than the national rate, with 5,318 (5%) males and 3,861 (4%) females out of every 100,000 having ever used ecstasy. CMC prevalence rates indicate that 6,005 (6%) males and 1,954 females (2%) per 100,000 in Queensland have ever used ecstasy. Males therefore exhibit higher rates of recent ecstasy use than females at national and state levels. Out of every 100,000 people in Australia, 3,522 males and 2,226 females have used ecstasy in the last 12 months. In Queensland these rates are slightly lower at 2,044 for males and 1,312 for females.

Table 5-3. Rates of lifetime and recent ecstasy use per 100,000 population for NDSHS 2001 (national and Queensland estimates) and CMC 2004 survey, by age group and gender.

Age	Number ever used ecstasy, per 100,000	Number using in last 12 months, per 100,000	Number ever used ecstasy, per 100,000	Number using in last 12 months, per 100,000
	Males		Females	
	NDSHS 2001 – National estimates			
14-19	7,132	5,658	6,805	4,318
20-24	23,834	14,332	19,771	11,978
25-29	21,067	10,627	14,140	4,800
30-34	11,305	4,463	7,385	2,435
35-39	6,127	1,486	4,382	949
40-44	4,044	1,236	2,223	601
45-49	1,665	269	1,389	188
50+	373	66	138	56
Total	7,001	3,522	4,985	2,226
	NDSHS 2001 – QLD estimates			
14-19	2,820	2,366	3,683	1,699
20-24	19,619	11,608	16,263	8,245
25-29	14,907	4,307	10,422	2,610
30-34	12,886	2,890	5,391	1,398
35-39	3,940	403	3,576	0
40-44	1,494	320	1,589	0
45-49	1,046	0	1,868	0
50+	540	157	238	238
Total	5,318	2,058	3,861	1,312
	CMC 2004			
18-19	1,121		1,060	
20-24	11,538		5,435	
25-29	17,045		5,645	
30-34	14,019		7,075	
35-39	13,223		1,554	
40-44	2,439		510	
45-49	4,274		676	
50+	847		0	
Total	6,005		1,954	

Frequency of ecstasy use

Summaries of frequency of ecstasy use data from the major sentinel surveys, the EDRS and IDRS, are provided in Table 5-4 along with data from the 2001 NDSHS. Data from the sentinel surveys relate to the preceding six-month period while those from the national survey refer to the preceding twelve-month period. In order to be eligible to participate in the EDRS survey, users were required to have consumed ecstasy on six or more occasions in the previous six months. Consequently, no EDRS participants could be classified as 'quarterly' or 'yearly' users. Generally, larger proportions of EDRS participants report using ecstasy on a monthly basis, rather than weekly. Substantially fewer participants reported use of ecstasy in the IDRS, since this survey was not specifically aimed at users of this drug. Most IDRS participants identified themselves as yearly users of ecstasy and were least likely to identify themselves as weekly users.

Similar patterns of frequency of use were observed for males and females in the 2001 NDSHS. Yearly use of ecstasy was the frequency category that applied to the largest number of national NDSHS participants, followed by quarterly use, monthly use and weekly use. Only 14 to 19 year old females were more likely to be monthly users than quarterly users. NDSHS data at the Queensland level was similar to that at national level; however, the smaller sample sizes used in the state-level analysis compromised the credibility of the data. No participant in any survey was classified as a daily user of ecstasy.

Table 5-4. Frequency of ecstasy use among EDRS 2004, IDRS 2004, and NDSHS 2001 participants.

Age	% wkly	% mthly	% qrtrly	% yrly	N	% wkly	% mthly	% qrtrly	% yrly	N
	Males					Females				
EDRS/EMI 2004										
14-19	57%	43%	0%	0%	14	14%	86%	0%	0%	14
20-24	37%	63%	0%	0%	51	35%	65%	0%	0%	40
25-29	36%	64%	0%	0%	25	55%	45%	0%	0%	22
30-34	50%	50%	0%	0%	18	25%	75%	0%	0%	12
35-39	40%	60%	0%	0%	10	0%	100%	0%	0%	4
40-44	67%	33%	0%	0%	6	86%	14%	0%	0%	7
45-49	100%	0%	0%	0%	2	100%	0%	0%	0%	1
50+	100%	0%	0%	0%	1	0%	100%	0%	0%	1
IDRS 2004										
14-19	0%	0%	0%	100%	2	0%	0%	0%	100%	1
20-24	25%	0%	25%	50%	4	67%	33%	0%	0%	3
25-29	0%	44%	33%	22%	9	0%	0%	100%	0%	3
30-34	25%	25%	0%	50%	4	20%	0%	20%	60%	5
35-39	0%	33%	50%	17%	6	0%	25%	25%	50%	4
40-44	0%	33%	0%	67%	3	0%	0%	100%	0%	1
45-49	0%	33%	33%	33%	3	0%	0%	0%	0%	0
50+	0%	0%	50%	50%	2	0%	0%	0%	0%	0

Table 5-4 continued.

Age	% wkly	% mthly	% qrtrly	% yrly	N	% wkly	% mthly	% qrtrly	% yrly	N
	Males					Females				
					NDSHS 2001 – National proportions					
14-19	13%	19%	34%	35%	9,370	7%	23%	7%	61%	6,814
20-24	10%	24%	33%	33%	19,439	6%	18%	33%	40%	15,773
25-29	4%	21%	26%	47%	13,791	2%	13%	26%	59%	6,210
30-34	0%	17%	29%	54%	6,313	0%	17%	21%	59%	3,522
35-39	0%	18%	19%	63%	2,013	0%	9%	31%	60%	1,322
40-44	0%	9%	61%	31%	1,778	0%	0%	29%	71%	884
45-49	0%	0%	12%	88%	354	0%	0%	6%	94%	253
50+	0%	0%	42%	58%	349	0%	0%	0%	100%	316
					NDSHS 2001 – QLD proportions					
14-19	0%	78%	22%	0%	3,426	0%	44%	0%	56%	2,427
20-24	13%	12%	35%	39%	13,785	8%	26%	23%	43%	9,133
25-29	0%	56%	0%	44%	4,894	0%	0%	32%	68%	3,042
30-34	0%	19%	30%	50%	3,600	0%	83%	0%	17%	1,752
35-39	0%	0%	0%	100%	486	0%	0%	0%	0%	0
40-44	0%	0%	0%	100%	392	0%	0%	0%	0%	0
45-49	0%	0%	0%	0%	0	0%	0%	0%	0%	0
50+[a]										

[a] Application of population estimates to this survey sample age group produced invalid data

Amount of ecstasy consumed per occasion of use

Data pertaining to the average amount of ecstasy consumed per occasion of use can be found in Table 5-5, summarised from the 2004 EDRS and 2001 NDSHS surveys (both national and Queensland estimates). Most participants in both surveys reported using between one and two ecstasy pills per occasion of use, with very few reporting an average use of more than three pills. In both surveys, about two-thirds of males reported an average use of one ecstasy tablet per occasion of use, whereas about three-quarters of females reported this. Again, the reliability of Queensland data was compromised by small sample sizes. However, it appears that Queensland males aged between 14 and 24 consume a higher average amount of ecstasy per occasion of use than their counterparts in the rest of Australia. The proportion of people that reported an average use of more than three pills was highest among 14–19 year-old males, with approximately 6% in the EDRS and 8% in the NDSHS (national level). For females, this rate was highest amongst 35–39 year-old females, with approximately 5% in the EDRS and 8% in the NDSHS (national level).

Table 5-5. Amount of ecstasy consumed per occasion of use.

Age	% 1 tab	% 2 tabs	% 3 tabs	% >=4 tabs	Mean	SD	% 1 tab	% 2 tabs	% 3 tabs	% >=4 tabs	Mean	SD
	Males						Females					
PDI/EMI 2004												
14-19	60%	17%	13%	6%	2.14	1.41	75%	20%	2%	0%	1.46	0.84
20-24	61%	25%	2%	5%	2.26	1.27	74%	17%	2%	3%	1.72	0.67
25-29	61%	25%	6%	3%	2.78	3.79	78%	12%	6%	3%	2.05	1.94
30-34	67%	20%	6%	2%	5.03	13.74	79%	12%	2%	0%	2.04	1.01
35-39	62%	33%	5%	0%	1.95	0.96	84%	11%	0%	5%	1.50	0.71
40-44	80%	20%	0%	0%	2.00	0.63	100%	0%	0%	0%	2.00	1.15
45-49	100%	0%	0%	0%	1.50	0.71	100%	0%	0%	0%	3.00	0.00
50+	33%	67%	0%	0%	2.00	0.00	25%	0%	0%	0%	4.00	0.00
NDSHS 2001 National proportions												
14-19	59%	20%	13%	8%	1.48	1.56	78%	19%	2%	0%	0.77	0.69
20-24	66%	24%	3%	7%	0.93	1.20	75%	18%	2%	4%	0.83	1.00
25-29	62%	25%	10%	3%	0.76	0.94	78%	15%	5%	0%	0.44	0.77
30-34	67%	25%	5%	3%	0.55	0.84	83%	8%	2%	0%	0.36	0.58
35-39	65%	32%	3%	0%	0.34	0.65	86%	6%	0%	8%	0.30	0.77
40-44	86%	14%	0%	0%	0.35	0.56	100%	0%	0%	0%	0.27	0.44
45-49	100%	0%	0%	0%	0.16	0.37	100%	0%	0%	0%	0.14	0.34
50+	40%	60%	0%	0%	0.28	0.64	100%	0%	0%	0%	0.01	0.09
NDSHS 2001 QLD proportions												
14-19	72%	0%	0%	33%	1.64	1.47	100%	0%	0%	0%	0.46	0.50
20-24	32%	31%	14%	22%	1.14	1.60	69%	17%	5%	9%	0.78	1.03
25-29	69%	31%	0%	0%	0.38	0.64	100%	0%	0%	0%	0.25	0.43
30-34	50%	50%	0%	0%	0.34	0.67	100%	0%	0%	0%	0.26	0.44
35-39	100%	0%	0%	0%	0.10	0.30	0%	0%	0%	0%	0.00	0.00
40-44	100%	0%	0%	0%	0.21	0.41	0%	0%	0%	0%	0.00	0.00
45-49	0%	0%	0%	0%	0.00	0.00	0%	0%	0%	0%	0.00	0.00
50+	100%	0%	0%	0%	0.29	0.45	0%	0%	0%	0%	0.00	0.00

Price of ecstasy

Information on the average price of ecstasy was obtained from the 2004 EDRS (Stafford et al, 2005a). The average price of ecstasy in Queensland was $35.62. The maximum price reported was $65 while the minimum reported price was $17. There was little difference in the average price paid per ecstasy pill between males and females ($36.10 and $35.04, respectively), and the standard deviation was approximately seven dollars for both genders. There was also negligible difference in price between members of different age groups.

Sizing the ecstasy market in Queensland

By harnessing the above data from the four key variables related to the number of users, frequency and amount of use and ecstasy price, it is possible to construct a model that estimates the size of the ecstasy market in Queensland. First, it is necessary to combine Queensland-specific prevalence rates of ecstasy use with Queensland population data to calculate the number of ecstasy users in Queensland within each age group, for both males and females. These population numbers are then stratified by frequency of use category, so each age group contains a number of daily, weekly, monthly, quarterly and yearly users of ecstasy. Data relating to the average amount of ecstasy consumed are then applied to users in each frequency category, in order to calculate the total number of pills consumed annually by each age group, for both males and females.

For example, one-quarter of 26 year-old weekly ecstasy users may report consuming an average of two tablets when using ecstasy, while the remaining three-quarters report only using an average of one tablet. Therefore, the total number of pills consumed in a given year by this group would be calculated as follows: N x [(1 x 52 x 0.75) + (2 x 52 x 0.25)], where N is the total number of 26 year-old ecstasy users. Once a total number of pills consumed annually has been calculated for each age group, the value of the market is calculated by multiplying these numbers by the average price paid for ecstasy.

The results of the model can be found in Table 5-6. It is estimated that 51,451 people in Queensland (31,181 males + 20,270 females) have used ecstasy within the last 12 months. It is estimated that 888,238 ecstasy pills are consumed annually in Queensland, 700,550 (79%) by males and 187,688 (11%) by females. It is estimated that male users consume an average of 23 ecstasy tablets per year while females consume an average of nine ecstasy tablets per year. The overall value of consumption in the Queensland ecstasy market in 2001 is estimated at $31,639,053 per year, where males contribute $24,953,606 (79%) and females $6,685,447 (21%).

For both males and females, those aged between 20 and 24 account for the largest expenditure on ecstasy. The $19,374,110 spent by males in this age group is approximately three-quarters (75%) of the entire male ecstasy expenditure, while the $5,166,200 spent by females in this age group represents a similar proportion (77%) of the entire female ecstasy expenditure. The $24,540,310 spent annually by males and females in this age group represents about 78% of the value of the entire ecstasy market in Queensland. Users within this age group also have the highest average expenditure per person ($1,706 per person annually).

Table 5-6. Annual consumption in 2001 and average cost per user, by age and gender in Queensland.

Age	Number of users in the last 12 months	Average tabs per user per year	Total yearly consumption of ecstasy pills	Yearly cost of total consumption	Yearly cost per user
Males					
14-19	3,918	19.9	77,954	$2,776,739	$709
20-24	15,745	34.5	543,911	$19,374,110	$1,231
25-29	5,590	9.4	52,651	$1,875,417	$335
30-34	4,088	6.0	24,556	$874,683	$214
35-39	546	1.0	546	$19,447	$36
40-44	460	1.0	460	$16,374	$36
45-49	0	0.0	0	$0	$0
50+	834	1.0	473	$16,837	$20
Totals	**31,181**	**22.5**	**700,550**	**$24,953,606**	**$800**
Females					
14-19	2,681	5.8	15,610	$556,017	$207
20-24	10,857	13.4	145,037	$5,166,200	$76
25-29	3,376	2.0	6,625	$235,993	$70
30-34	2,022	10.1	20,417	$727,237	$360
35-39	0	0.0	0	$0	$0
40-44	0	0.0	0	$0	$0
45-49	0	0.0	0	$0	$0
50+ [a]	1,334	0.0	0	$0	$0
Totals	**20,270**	**9.3**	**187,688**	**$6,685,447**	**$330**
Persons					
14-19	6,599	14.2	93,564	$3,332,756	$916
20-24	26,601	25.9	688,948	$24,540,310	$1,706
25-29	8,966	6.6	59,276	$2,111,411	$405
30-34	6,110	7.4	44,972	$1,601,919	$574
35-39	546	1.0	546	$19,447	$36
40-44	460	1.0	460	$16,374	$36
45-49	0	0.0	0	$0	$0
50+ [a]	2,169	0.4	473	$16,837	$36
Totals	**51,451**	**17.3**	**888,238**	**$31,639,053**	**$615**

a. Application of population estimates to this survey sample age group produced invalid data.

Sensitivity analysis for Queensland estimates

The value of consumption in the market can vary depending on the price used in calculations. As indicated earlier, the price of ecstasy carried a standard deviation of approximately seven dollars. A sensitivity analysis can be conducted in order to account for this variation. Such an analysis can tell us how much our estimate will change if we apply a different price to the analysis. Conducting this analysis initially involves calculating upper and lower limits of the ecstasy price. In order to calculate the upper and lower limits to account for 95% of this variation, the standard deviation of the average Queensland ecstasy price is multiplied by 1.96 ($14.35). Subtracting this figure from the mean, results in a lower limit of $21.27, while adding the figure to the mean, results in an upper limit of $49.97. That is, 95% of users in the 2004 EDRS reported usually paying between $21.27 and $49.97 per ecstasy tablet (assuming a normal distribution).

The resultant estimates of market value from these upper and lower limits are summarised in Table 5-7. When using the upper limit of average ecstasy price, the value of consumption in the Queensland ecstasy market increases to $44,382,788, with males contributing $35,004,543 and females contributing $9,378,245. When applying the lower limit of average ecstasy price, the overall value of the market decreases to $18,895,319 with male users contributing $14,902,669 and female users $3,992,650. Applying the upper and lower limits causes the average amount spent per user to vary from $863 to $367, respectively. (See Sensitivity Analysis in Table 5-7).

A further sensitivity analysis was conducted by applying national prevalence rates of ecstasy use to the Queensland population (Sensitivity Analysis 3). Results of this analysis suggest that the annual value of consumption in the ecstasy market increases to $44,321,985 with males contributing the majority (83%) of this amount ($36,679,895). The average annual amount spent on ecstasy per user decreases to $687 per male user and $247 per female user.

Table 5-7. Results of sensitivity analysis on annual size and value of consumption in the Queensland market.

	Number of users in the last 12 months	Average annual number of pills per person	Total yearly consumption of ecstasy pills	Yearly cost of total consumption	Yearly cost per user
Original					
Males	31,181	22.5	700,550	$24,953,606	$800
Females	20,270	9.3	187,688	$ 6,685,447	$330
Total	**51,451**	**17.3**	**888,238**	**$31,639,053**	**$615**
Sensitivity Analysis 1: Using Upper Limit of Ecstasy Price					
Males	31,181	22.5	700,550	$35,004,543	$1,123
Females	20,270	9.3	187,688	$ 9,378,245	$463
Total	**51,451**	**17.3**	**888,238**	**$44,382,788**	**$863**
Sensitivity Analysis 2: Using Lower Limit of Ecstasy Price					
Males	31,181	22.5	700,550	$14,902,669	$478
Females	20,270	9.3	187,688	$ 3,992,650	$197
Total	**51,451**	**17.3**	**888,238**	**$18,895,319**	**$367**

Table 5-7 continued.

	Number of users in the last 12 months	Average annual number of pills per person	Total yearly consumption of ecstasy pills	Yearly cost of total consumption	Yearly cost per user
Sensitivity Analysis 3: National Prevalence Estimates applied to Queensland Population					
Males	53,408	22.5	1,029,907	$36,679,895	$687
Females	30,937	9.3	214,545	$ 7,642,090	$247
Total	**84,345**	**17.3**	**1,244,452**	**$44,321,985**	**$525**

Note: Upper and lower limits are based on a 95% confidence internal (CI)

Measuring heavy use

The available data do not explicitly take occasional heavy use into account. To estimate the total number of pills consumed by heavy users, data would be required on the average amount consumed by a heavy user and their frequency of consumption. Data are not available in this detail, however, it is possible to estimate the proportion of the market that uses heavily on a regular basis.

Table 5-8 presents the proportions of ecstasy users within each age group that use heavily on a more regular basis, for both males and females (where we define 'heavy use' as the consumption of three or more ecstasy pills per occasion of use). More regular heavy use is only observed in male users aged between 14 and 24 and female users aged between 20 and 24. About a third of males in the 14/19 year age group (33%) and 20/24 year age group (37%) engage in heavy use on a weekly basis (1,241 and 5,773 users, respectively). In contrast, about one in seven females (14%) aged between 20 and 24 use heavily on a regular basis (1,529 users).

About one-fifth (20%) of males aged 20 to 24 identified as weekly ecstasy users, thus resulting in a much higher amount of pills consumed annually (339,437) than by those in other age groups. Of those 'heavy users' in the male 14/19 year age group and female 20/24 year age group, none identified as being a weekly user of ecstasy.

The total amount spent on ecstasy by males that use ecstasy heavily on a more regular basis ($14,212,419) represented about 57% of the entire male ecstasy expenditure. The $2,758,934 spent annually by females that use ecstasy heavily on a regular basis represents about 41% of the entire female ecstasy expenditure.

Table 5-8. Proportion and number of NDSHS 2001 users (national and Queensland estimates) that consume three or more pills whenever ecstasy is used (heavy users) and total amount consumed, by age group and gender.

	NDSHS 2001 – QLD proportion			
Age	**Proportion that use heavily on a regular basis**	**Number of users that use heavily on a regular basis**	**Total number of pills taken annually by regular heavy users**	**Cost of total pills taken annually by regular heavy users**
Males				
14-19	33%	1,1310	62,887	$ 2,240,023
20-24	37%	5,773	339,437	$12,090,739
Females				
20-24	14%	1,529	77,455	$ 2,758,934

Integrating consumption and seizure estimates in Queensland

The model described above aimed to estimate the size and value of consumption in the Queensland ecstasy market. Data were acquired from a variety of representative and sentinel surveys that examined the use of ecstasy. The model made particular use of data related to the prevalence of ecstasy use, the average frequency and quantity of use and the average price paid for the drug. These data were combined to provide an estimate of the annual size and value of consumption in the Queensland ecstasy market.

This model estimates the annual value of consumption in the Queensland ecstasy market to be approximately $32 million, and consisting of approximately 51,000 users (31,181 males and 20,270 females). Data from the model indicate that the majority of ecstasy users are male in Australia and in Queensland, with prevalence rates being higher among males within each age category. In Queensland, it is estimated that 1,500 more males than females have used ecstasy per 100,000 people. The data also indicate that a greater proportion of males have used ecstasy in the last 12 months (an extra 700 males per 100,000 people). Those aged 20 to 24 report the highest average expenditure on ecstasy, and male users account for approximately three-quarters (79%) of all Queensland ecstasy expenditure (approximately $25 million).

The results of the sensitivity analysis suggest that the value of consumption in the annual Queensland ecstasy market may range from approximately $19 million to $44 million, depending on the price paid for ecstasy. Furthermore, if national prevalence rates are applied to Queensland the value of consumption in the annual ecstasy market is estimated to increase by about $13 million in value.

By adding the average annual amount seized in the Queensland retail market in the past two years (i.e. 9 kg or 31,000 tablets based on QHPSS data reported in chapter four) to the consumption estimate of 888,238 tablets, a total market size for the Queensland ecstasy market can be estimated at 919,238 tablets or 267 kg of ecstasy per annum. The value of this market, using the price sensitivity analysis of $21.27 for the lower market limit, and $49.97 for upper market limit, generate a range estimate for the total market value of between $19,552,192 and $45,934,323. Using the average Queensland retail price of $35.62 the total market value is estimated as $32,743,258.

In summary, therefore, the minimum annual size of the Queensland ecstasy market, based on 2001 consumption data and average seizure data for 2003/04, is nearly one million tablets with a retail value of $33 million dollars.

This estimate is within the range of the market size previously made by the Queensland Crime Commission (QCC) in 2001 of between $10 million and $50 million per annum[4]; and the volume of MDMA traded in Queensland to be between 65 kg and 390 kg[5] each year. This contrasts with the QCC's estimate of the annual value and volume of the amphetamine market as $400 million and 1.8 tonnes to 2.0 tonnes respectively (QCC, 2001).

Applying the EMI model nationally

Adding total national seizures for the same 2001 reporting period would provide an estimate of the total size of the Australian ecstasy market. While an estimate of 722 kg (or 2,490,000 tablets) is made for 2001/2002 by the ACC, this supply-side estimate is based only on seizures made by the AFP and the Australian Customs Service. Ecstasy seizure data for each state jurisdiction are not available as they are subsumed within all ATS drug seizures in some jurisdictions. While it may be possible to estimate ecstasy seizures in each state by applying the retail ecstasy market seizure rate estimate generated here for Queensland (3.4%) to the volume of consumption estimated in each state, this method would have far less validity than the more accurate recording of seizures by state police services.

Table 5-9 shows that nationally in 2001, 450,001 persons (272,937 males and 177,064 females) consumed an average of 11.6 ecstasy tablets (14.4 for males and 7.2 for females) in the past 12 months. The total consumed was 5,203,347 tablets (1,509 kg) with an estimated retail value of over $182 million, using an average retail price of $35.

Assuming a state police ecstasy seizure rate of 3.4% in all jurisdictions, combined with a total consumption of 5,203,347 tablets, the total size of the Australian ecstasy market in 2001 would have been 7,870,261 tablets (2282 kg) with a retail value (at $35 per tablet) of $275,459,135.[6]

Based on best available data the EMI model estimates the total size of the Australian ecstasy market in 2001 to be 7.8 million tablets (2,282 kg) with a retail value of $275.5 million.

Increased consumption reported in the initial results of the 2004 NDSHS (AIHW, 2005) and significantly higher federal seizures indicate that the size of the Australian ecstasy market in 2006 is considerably larger than it was in 2001.

[4] Based on an estimated 38,000 users with an estimated intake of 1 tablet per use from 6 to 36 times per year at an average price of $42 per tablet (extrapolated from NDARC data).

[5] Based on the above calculations which indicate consumption of between 228,000 and 1,368,000 tablets and assuming 3500 tablets per kg.

[6] Total Market Size: 176,913 tablets (state police seizures) + 2,490,000 (federal seizures) + 5,203,347 (tablets consumed) = 7,870,261 tablets (2282 kg) x $35/tablet = $275,459,135. This estimate implies a federal seizure rate of 32% (2,490,000/7,870,261 = 0.32).

Table 5-9. Annual consumption and average cost per user, by age and gender in Australia.

	National Estimates				
Age	**Number of users in the last 12 months**	**Average tabs per user per year**	**Total yearly consumption of ecstasy pills**	**Yearly cost of total consumption**	**Yearly cost per user**
Males					
14-19	49,583	19.9	988,661	$35,216,112	$710
20-24	93,960	21.0	1,970,775	$70,199,000	$747
25-29	71,839	9.4	677,410	$24,129,353	$336
30-34	34,262	5.5	189,164	$6,738,031	$197
35-39	10,304	4.9	50,669	$1,804,836	$175
40-44	9,407	4.3	40,309	$1,435,813	$153
45-49	1,855	1.4	2,521	$ 89,798	$48
50+	1,727	3.6	6,236	$ 222,115	$129
Totals	272,937	14.4	3,925,746	$139,835,059	$512
Females					
14-19	36,453	8.7	316,224	$11,263,915	$309
20-24	74,758	9.2	687,998	$24,506,478	$328
25-29	32,549	5.0	164,232	$5,849,941	$180
30-34	18,800	3.6	68,392	$2,436,111	$130
35-39	7,209	4.1	29,435	$1,048,464	$145
40-44	4,426	1.9	8,215	$ 292,618	$66
45-49	1,249	1.2	1,486	$52,931	$42
50+	1,620	1.0	1,620	$57,695	$36
Totals	177,064	7.2	1,277,601	$45,508,153	$257
Persons					
14-19	86,036	15.2	1,304,886	$46,480,027	$540
20-24	168,718	15.8	2,658,773	$94,705,478	$561
25-29	104,388	8.1	841,642	$ 29,979,294	$287
30-34	53,062	4.9	257,556	$9,174,142	$173
35-39	17,513	4.6	80,104	$2,853,300	$163
40-44	13,833	3.5	48,524	$1,728,431	$125
45-49	3,104	1.3	4,007	$142,729	$46
50+	3,347	2.3	7,855	$279,810	$84
Totals	450,001	11.6	5,203,347	$185,343,212	$412

Limitations

The shortcomings in accurately recording ecstasy seizures, including the conversion of powder and precursor seizures to tablet equivalents, limit the accuracy of estimating market size and therefore value. Progressive improvement to the management of these data for strategic intelligence purposes would enhance the accuracy of the EMI model at state level and enable estimates to be derived for the national ecstasy market.

The present analysis of consumption was also restricted by the limitations of some datasets. For instance, methodological issues within the CMC survey were likely contributors to under-reporting of prevalence rates. Consequently, it was impossible to acquire data on the prevalence of recent ecstasy use in Queensland except from the NDSHS. Expanding the sample size of the NDSHS, including over-sampling among the 15 to 25 age group, where consumption is concentrated, would improve the reliability of the EMI model. This would require collaborative investment by the health and law enforcement agencies at a jurisdictional level.

A more sophisticated examination of the ecstasy market may also include consideration of demographic, social and economic characteristics common to ecstasy users. This was not possible in the current analysis due to resource and time constraints. For instance, a more sophisticated application of price data could consider the variance in ecstasy price between members of different age groups, those who reside in different geographic regions or those who have been in the market for different periods of time. Ecstasy consumers that regularly consume large amounts are more likely to buy the drug in bulk and thus pay a lower price per pill, while those that use occasionally may be more willing to pay a higher price per pill. Also, those living in remote areas are more likely to pay a higher price for ecstasy than those living in urban areas (however the EDRS only examines urban consumers). Data indicate that those living in Cairns pay a slightly higher price for ecstasy than those living in Brisbane. The changing proportion of consumers purchasing from a regular known supplier or an unknown dealer may also influence price. It would also be possible to conduct a historical analysis of the ecstasy market by incorporating data from previous years. This would allow an analysis of trends in the market over time and prediction of how the market may change in the near future.

Since this model relies heavily upon data from the NDSHS, it may be possible to validate the model by estimating the size and value of markets for other drugs such as marijuana or alcohol and comparing these figures with those derived from other methods, such as from the use of supply-side data. It is unlikely that the model described in this chapter would be appropriate for sizing markets for drugs such as heroin or cocaine. Since people may be less inclined to admit the use of such substances, representative surveys are highly likely to give underestimates for the prevalence of heroin and cocaine use among the general population.

It is also important to consider that a number of consumers may have received ecstasy for free or in exchange for other goods or services. Since these people would report a cost of zero dollars, the mean cost may be an underestimate of the price of ecstasy and hence total value of the market.

Finally, the EMI model did not incorporate data from adolescents or arrestees, such as those from the DUMA, ASSADS and DASS studies. A review of these data sets indicated lower prevalence rates for recent consumption than observed in the NDSHS. Not accounting for consumption in populations outside the scope of the NDSHS is likely to result in an underestimate of the overall size and value of the ecstasy market. This model would benefit from recognising other populations not captured by representative or sentinel surveys, such as tourist and prison populations.

Despite these limitations, the model used reliable data and employed appropriate methods to estimate the annual value of the Queensland ecstasy market. As a first approximation, it provided credible estimates which may be improved with further refining of the model.

Chapter six: Market regulation

Summary

- Illegal drugs are a very lucrative market commodity. Public policy on drugs seeks to regulate this market by suppressing the volume of market transactions to the greatest extent possible by disrupting supply and attempting to reduce consumer demand.
- Negative market outcomes for ecstasy consumers may occur in the form of health problems. General and specialist health care services generate indicator data about drug-related problems that can inform our understanding of aspects of drug markets. This is currently not the case for ecstasy, however, as health data systems do not code for ecstasy-related problems separate from other ATS drugs.
- Most ecstasy consumers do not experience problems related to their drug use of sufficient severity to seek treatment; ecstasy users do not figure prominently among drug-related deaths.
- Between 2001 and 2004, 51 deaths in Australia were attributed primarily to drugs sold as ecstasy. Ecstasy-related deaths may involve a range of other drug and non-drug factors. Deaths attributed to ecstasy consumption as the primary contributing factor are relatively few, given the volume of use in the general population. Mortality data therefore have limited value in analysis of the ecstasy market, although further investigation is warranted.
- Criminal justice agencies seek to control supply by developing sophisticated systems to investigate illegal drug supply. These agencies also seek to reduce demand by enforcing laws that prohibit possession and educating the community about the risks – legal, social and health – of illegal drug use.
- Aggregated annual arrest data are heavily influenced by policing activity and priorities, organisational effectiveness and policy, and do not necessarily reflect changing market conditions. Arrest data can, however, in the longer term reflect changing patterns of drug consumption.
- Illegal drug market regulation by law enforcement increasingly uses intelligence from diverse internal and external sources to manage both operational and strategic responses. Precursor chemical control strategies are an example of effective intelligence-led policing that spans global and local market levels. Price monitoring along the supply chain is an area of potential for strategic intelligence in market profiling.
- There is considerable scope to make better use of existing data for strategic intelligence purposes and to develop a law enforcement research agenda that improves the quality of data collection and reporting.

Introduction

The purpose of this chapter is to document the activities of organisations that respond to illegal drug use. Data collected by health and law enforcement agencies about their involvement in activities relating to illegal drug use can indirectly inform our understanding of illegal drug markets. To be meaningful, such organisational activity must be placed within the context of a framework of public policy, programs and services that structure the response of governments and community organisations to drug problems in our society.

This chapter details indicator data collected by health and law enforcement agencies relating to the ecstasy market in Queensland. Relevant death and hospitalisation data are presented where available, along with data from client presentations to specialist drug treatment services. This open source intelligence is widely used as an indicator for heroin and amphetamine market activity where consumers are fewer in number and relatively inaccessible to researchers, but may have considerable contact with law enforcement and health services. As the results of the EMI survey demonstrate, ecstasy consumers appear to have relatively little contact with law enforcement and health services, as problems associated with dependence and injecting drug use are rarely evident in this group. These data are, therefore, less useful in profiling the ecstasy market.

Law enforcement activity in drug market regulation is typically presented as arrest and seizure data. Arresting consumers for possession or use of illegal drugs is a very effective demand-reduction strategy in the short term. Consumers do not, however, see the likelihood of their arrest as high, and consideration of the wider social ramifications of arrest by criminal justice has led to the development of a range of non-arrest interventions. These include police cautions and diversion in some jurisdictions and for different illegal drugs. Distinguishing consumer arrests from those of suppliers can provide a deeper understanding of this type of market regulatory intervention since not all arrests have the same market impact. Moreover, arrest and seizure data do not directly reflect the state of the market or the effectiveness of market regulation. Furthermore, in Queensland as in many other jurisdictions, ecstasy-related offences are subsumed within arrests for the broader range of ATS drugs. The limitations of these indicator data are discussed below.

The remaining sections of this chapter discuss the increasing role of strategic intelligence in assessing the potential impacts of law enforcement on illegal drug markets (Ratcliffe, 2004). Drug law enforcement has progressively made more use of intelligence from a diverse range of sources in regulating illegal drug markets. Traditionally, much market insight has been gained by experienced officers through management of known informants and assessment of information provided by unknown informants, and by interviewing offenders about broader market activity. These intelligence sources are supplemented by information collected by covert operations (in research terms, a form of participant observation), surveillance (in jurisdictions where such powers are available), and interception of communications. Such intercepts are mainly telephone calls but more recently include email and investigation of financial transactions (AUSTRAC, 2004, p.40). Increasingly, market intelligence is also derived from forensic analysis of drugs, drug shipment techniques, and clandestine laboratory and precursor seizures.

Examples of the potential for monitoring precursor chemicals and clandestine laboratories, and price along the supply chain, are used to illustrate how better use can be made of existing data for strategic intelligence about illegal drug markets. We also provide some insights into how this intelligence is collected and stored for access within and between law enforcement agencies. This includes some reflection on operational information systems for generating and sharing intelligence between agencies and with broader audiences, the role of open source material, and collaborative research programs in developing and maintaining market profiles.

Regulation of open and closed markets

The extent to which illegal drug markets are open or closed can inform regulators about the nature of markets for specific drugs and about the behaviour of individual consumers and suppliers in those markets. Reducing the visibility of drug markets is a key issue for policy makers and criminal justice agencies tasked with regulating such markets. This outcome may be considered, by criminal justice agencies, to be as acceptable as a reduction in the amount of drugs sold, particularly where other harms associated with drug use are not as evident. At a local level, police managers may view the suppression of open retail markets as a successful outcome, when such markets act as a magnet for new consumers, particularly youth, or where these markets are a locus of public nuisance and fear of crime (Hough & Edmunds, 1999).

Open markets are characterised by transactions in public places such as specific street corners or parks. Often these transactions involve strangers (i.e. consumers purchasing from unknown suppliers). This type of market is more common for drugs with high dependence potential, such as heroin and crack cocaine. Open market consumers are typically dependent, purchase illegal drugs in small amounts, frequently and often support their drug purchase with property crime or sex work (Edmunds, Hough & Urquia, 1996; Maher, 1997).

In Australia, open street markets are relatively rare and primarily confined to heroin transactions. Well known examples are found in Sydney (Kings Cross and Cabramatta – Maher and Dixon, 2001) and Melbourne (in Fitzroy and St Kilda – Fitzgerald, Broad & Dare, 1999). There are no known examples of open markets for ecstasy in Australia. Were such markets to arise, it could indicate either (a) an enlarged market, with consumers and suppliers willing to risk law enforcement intervention in retail transactions, or (b) a constrained market, with consumers compelled to risk transactions with unknown suppliers in public places.

At the other end of the spectrum are closed markets, where consumers and suppliers know one another, and have sufficient levels of trust to meet in private locations (often the home of one party or a mutual acquaintance) to conduct transactions. These transactions may have a more social orientation (i.e. with less emphasis on cash profit), and may involve a wider range of drugs including cannabis, methamphetamines, cocaine powder, GHB, ketamine and ecstasy.

Most illegal drug markets exist somewhere along the open–closed market continuum. Semi-open markets, for example, may be characterised by transactions made in more controlled public venues such as nightclubs, pubs or cafes. In these venues market participants may or may not know each other personally and there is a common cultural protocol used to make contact. Transactions are relatively discreet, using bathroom facilities or passing cash and drugs under tables. Venue staff may or may not be aware of, condone, and/or participate in such transactions.

Consequences of market participation

Market participation can have negative and positive consequences for regulators, suppliers and consumers. As market regulators, police and health professionals can build systems and structures that reduce the supply of and demand for drugs. Minimising the harms of drug use to individual consumers, their families and communities can be personally and professionally rewarding. However, market regulators can also be at risk of corruption. This may involve allowing supply to occur and/or actively participating in the market. Market regulators are also subjected to criticism for regulatory strategies perceived as inappropriate, or for endorsing penalties considered overly harsh for the nature of the offence. These aspects of market regulation should be addressed openly as part of healthy debate about drug policy.

Suppliers can make substantial profits from drug trafficking. The illegal drug trade is more profitable by weight than any other commodity in the world. These profits can enable suppliers to enjoy lavish lifestyles in the short term, yet sustaining commercial success is very difficult where the penalties, in terms of asset losses and imprisonment, or violence from competitors or dissatisfied customers, can have life-long consequences. It is a challenge for law enforcement agencies to manage the public release of information about the supply-side of illegal drug markets in a way that does not encourage media sensationalism and yet promotes considered research of drug policy and the effectiveness of drug law enforcement.

Suppliers and consumers also regulate their own market behaviour to minimise risk. Consumers gather information about when, where and how much ecstasy to purchase and use. The majority of regular consumers learn to manage dosage, risks of poly-drug use and the post-intoxication experience (see Chapter two). In a closed market such as the ecstasy market, suppliers consciously keep market transactions out of the public view and as a general rule try to provide a quality product (Dorn, Oette & White, 1998). There are, however, as in any market, naïve consumers and unscrupulous suppliers.

For consumers, the benefits they perceive from drug use are evident in high and growing levels of consumption (see Chapter Two). Acknowledging that consumer demand often drives illegal drug markets is important in understanding market mechanisms. The notion of 'evil' drug dealers 'forcing' drugs on naïve young people is largely a myth. A more realistic depiction of the ecstasy market, as provided by consumers in the EMI study, would portray young people choosing to experiment with sources of intoxication other than those legally available. While ecstasy consumers certainly do experience negative consequences from their drug use, these are often perceived to be manageable for most consumers who moderate their use.

Regular heavy drug use is often problematic. These problems can occur in multiple domains including physical health, mental health, social functioning, work/study performance and contact with the criminal justice system. Where ecstasy consumers come into contact with health services through experiencing the negative consequences of their drug use, they have been identified in indicator data for Queensland (see next section). Our understanding of the severity and chronic nature of these negative health outcomes can be informed by a number of sources including interviews with consumers and health service providers; indicator data from hospitals, ambulance services and specialist drug treatment services. The available information is, however, limited by the hidden nature of illegal drug use and by the manner in which health care service activity data systems record cases involving ecstasy.

Ecstasy-related deaths as a market indicator

Drug-related deaths are an important indicator of drug-related harm. Such data can also be an indirect indicator, in the context of other information, of illegal drug market conditions. For example, the significant increase in heroin overdose deaths from the mid to late 1990s, in a market context of increased consumption and seizures of higher purity and decline in heroin price, was a clear indicator of a rapidly expanding market (Degenhardt et al, 2005).

Death rates are normally expressed as deaths per 100,000 of the population for comparative purposes. No death rate benchmarks have been established for ecstasy. Drug-related deaths in Australia are recorded in two national systems: the Australian Institute of Health and Welfare Mortality Database (AIHWMD) and the National Coroners Information System (NCIS).

The AIHWMD contains data collected by the Registrars of Births, Deaths and Marriages in each State and Territory. These data are then compiled nationally by the Australian Bureau of Statistics (ABS) who code the data according the International Classification of Diseases (ICD). These data are published

by the ABS as a data series '*Causes of Death – 3303.0*'. Drug-related deaths are flagged within the AIHW Mortality Database. Unfortunately for the purposes of the EMI study, the ICD coding system for deaths and hospitalisation does not code separately for MDMA or other phenethylamine drugs. Events related to these drugs are subsumed within broader classifications of 'psychostimulants (T43.6)' which includes events associated with all forms of amphetamine type stimulants. It is thus impossible to accurately gauge, from these data, the extent of mortality associated with ecstasy use in Australia (Barker & Degenhardt, 2003) and deaths associated with all ATS drug may also be underestimated in this data (McKetin & McLaren, 2004).

The NCIS is managed by a section of the Victorian Institute of Forensic Medicine (VIFM).[1] Coroners' files constitute the source of data for the NCIS. These files include: police investigation reports, autopsy reports, supporting forensic medical reports (such as toxicology) and coroners' findings. The database contains both coded and non-coded data. Records can be searched through specific fields; full text data searches can also be conducted using particular words or expressions (e.g. 'pill', 'tablet' or 'ecstasy').

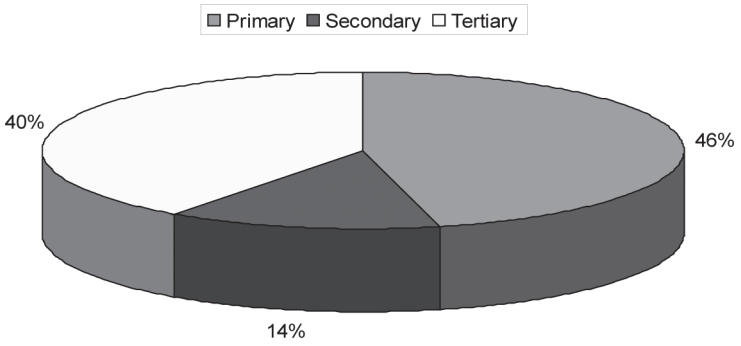
For the EMI study, a detailed search of all deaths in the NCIS between January 2001 and December 2004 was undertaken by NCIS staff, using a search strategy of keywords and phrases developed collaboratively by the NCIS and the EMI project team. The search terms included all drugs likely to be contained in a tablet sold as ecstasy, excluding methamphetamines. Therefore, deaths associated with drugs such as PMA are included within this analysis. NCIS assessment of the primary, secondary, or tertiary role of ecstasy in each death was based on the pathologist's notes regarding the role of ecstasy in the autopsy report, and on the coronial clerk's coded rating of the drug as a primary, secondary or tertiary object involved in the death. It should be noted that there is at present no nationally consistent method of coding such deaths; rather, contribution to death is based on the individual, subjective ratings of pathologists and coronial clerks.[2]

A total of 112 deaths related in some way to ecstasy in this period were identified across all Australian jurisdictions. Note that in order to preserve the anonymity of the deceased persons, only aggregate data are presented here. Figure 6-1 shows a breakdown of deaths as a function of the level of contribution of ecstasy to the death. Ecstasy was deemed to have made a primary contribution to the death in 51 of the 112 cases (46%). Ecstasy made a secondary contribution to a further 16 of the deaths (14%) and a tertiary contribution to a further 45 of the deaths (40%). Deaths in which ecstasy made a primary contribution mainly involved drug toxicity, overdose or physical collapse. Deaths in which ecstasy made a secondary contribution involved similar proximate causes, although other drugs (e.g. opiates) were deemed to have made the primary contribution to the death. Finally, deaths in which ecstasy made a tertiary contribution involved motor vehicle accidents, fatal violence, falls and suicide by non-drug means. In these deaths, ecstasy was detected in the deceased but with no direct contribution to the death.

[1] http://www.ncis.org.au

[2] The following disclaimer has been provided by the NCIS in relation to the data obtained for the EMI study: "This data set does not purport to be representative of all national deaths reported to the coroner involving ecstasy over the time period stated. Due to occasional coding errors, some missing data and some cases not being closed, it is possible that some relevant deaths were not included in this data set.

Figure 6-1: Level of involvement of ecstasy in death between 2001 and 2004



Note: Determination of level of ecstasy contribution to each death was made by the NCIS team, on the basis of existing coding and detailed analysis of case file notes.

Figure 6-2 provides detail of the relative contribution to deaths attributed to ecstasy between 2001 and 2004 throughout Australia. The number of deaths in which ecstasy was deemed to have made a primary contribution has remained reasonably consistent at around twelve deaths per annum over this period.

Figure 6-2: Number of ecstasy deaths in Australia by contribution to death and year, 2001–2004

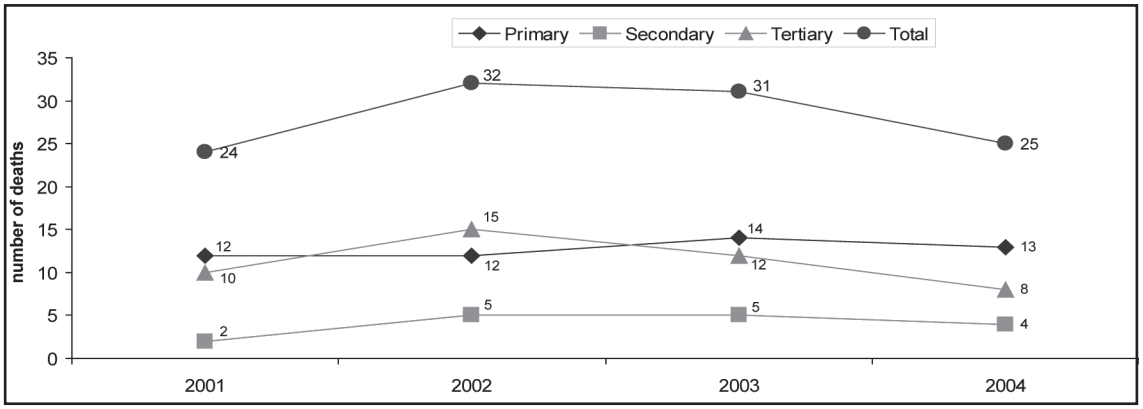


Figure 6-3 provides a breakdown of these ecstasy-related deaths, by jurisdiction. Almost half (48%) occurred in NSW, with a further 31% occurring in Victoria. Between 2001 and 2004 only five ecstasy-related deaths (4%) occurred in Queensland. No ecstasy-related deaths were recorded in Tasmania during this period. The majority of deaths have occurred in the most populous states, which are also the states known as centres of the Australian ecstasy market: NSW and Victoria.

Figure 6-3: Total number of ecstasy-related deaths and number where ecstasy was a primary contributor, by jurisdiction, between 2001 and 2004

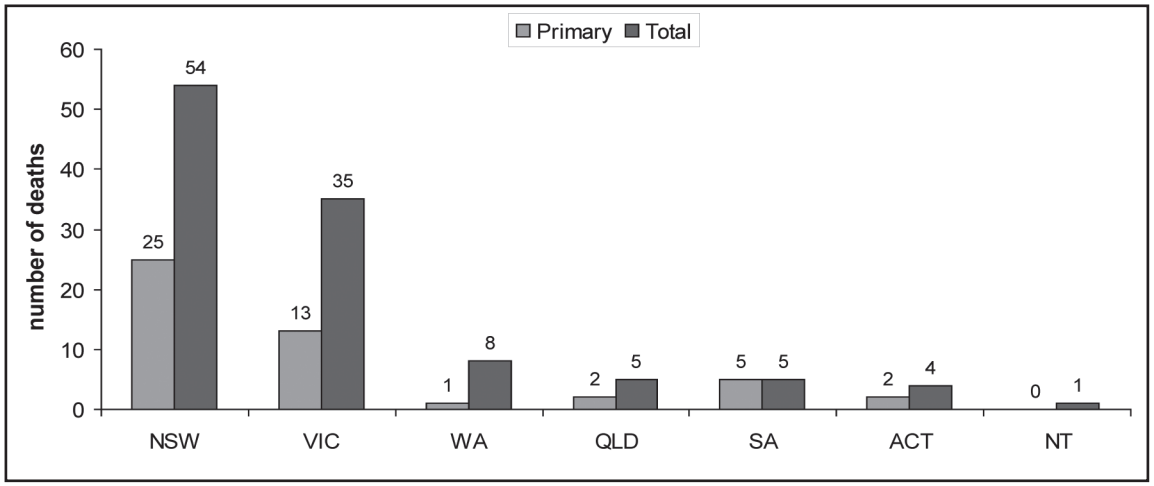


Table 6-1 provides a breakdown of ecstasy-related deaths as a function of age and gender, for all deaths attributed to ecstasy, and for those deaths where ecstasy was deemed to have made a primary contribution. Consistent with the fact that most ecstasy consumption is in the 20–29 years and 30–39 years age groups (AIHW, 2005a), most ecstasy-related deaths were among persons in similar age groups. Males make up about two-thirds of recent ecstasy users (4.4% of males and 2.4% of females reported use in the past year (AIHW, 2005a) and the vast majority of deaths (88%) were among males. This underscores the fact that ecstasy use is usually not, in and of itself, the cause of death, and other factors (e.g. risk-taking behaviour, poly-drug use) are often significant contributors to the death.

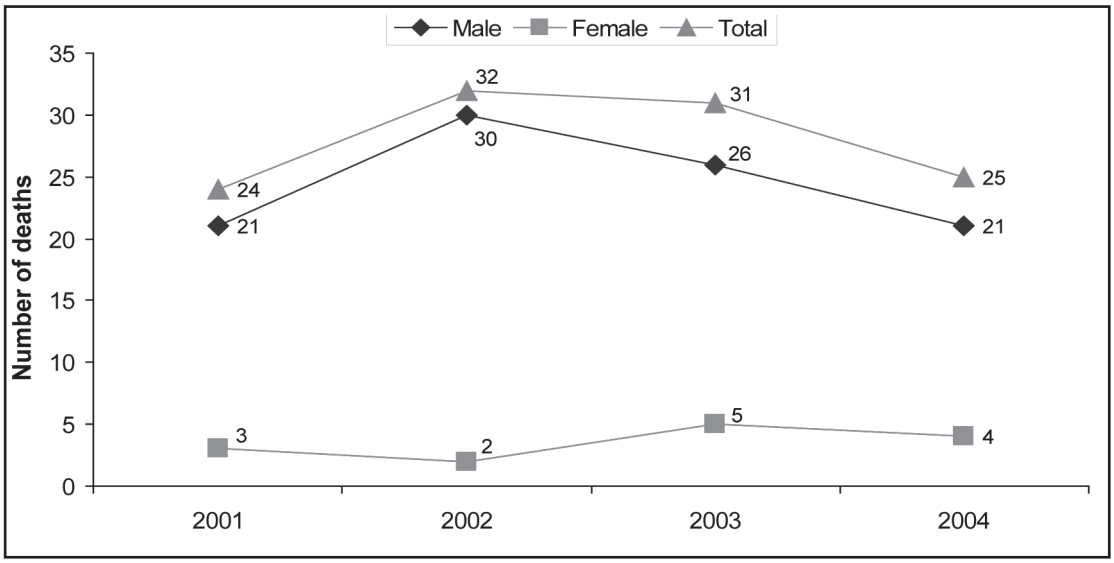
Table 6-1. Age and gender of ecstasy-related deaths, 2001–2004.

Age	Female		Male		Total	
	Total	Primary	Total	Primary	Total	Primary
<18 years	3	1	4	1	7	2
18-25	8	4	37	15	45	19
26-34	2	2	41	18	43	20
35-49	1	1	13	8	14	9
50+	0	0	3	1	3	1
Total	14	8	98	43	112	51

Source: NCIS.

Figure 6-4 shows changes in the number of ecstasy-related deaths in Australia, from 2001 to 2004 as a function of gender. The total number of deaths rose considerably from 2001 to 2002, before declining again in 2004. As the figure shows, this trend is largely accounted for by changes in the number of ecstasy-related deaths among males, with no substantial change in the number of deaths among females where ecstasy made a primary contribution. For females, the number of ecstasy-related deaths has remained quite low from 2001 to 2004, ranging from a low of two in 2002 to a high of five in 2003.

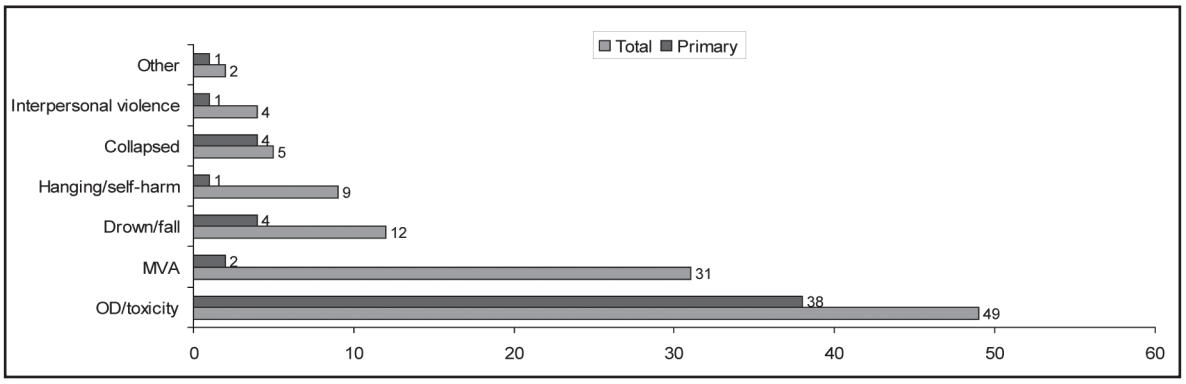
Figure 6-4: Number of ecstasy deaths in Australia, by gender and year, 2001–2004



Finally, Figure 6-5 provides a breakdown of the ecstasy-related deaths from 2001 to 2004, based on coding of a coronial summary of the death. The first bar for each cause of death represents the number of cases in which ecstasy made a primary contribution to the death; the second bar represents the total number of deaths for this cause in which ecstasy was implicated. As the Figure shows, the majority of deaths were in the context of either a motor vehicle accident (31%) or drug toxicity/overdose (49%). Importantly, MDMA was the single drug identified in only three of the 45 drug toxicity deaths, and none of the overdose deaths.

Two implications of these data are that (a) death as a direct and sole result of ecstasy consumption seems to be very rare in Australia, and (b) a substantial proportion of ecstasy-related deaths involve a motor vehicle accident. This has clear implications for harm-reduction strategies and points to a need for education and policing initiatives addressing driving under the influence of ecstasy, as well as other drugs such as alcohol, cannabis and methamphetamine.

Figure 6-5: Summary of cause of death by primary contribution and by total deaths between 2001 and 2004



Note: when multiple causes were listed, the first primary cause listed was coded.
MVA = motor vehicle accident

There are a number of limitations to these data and our interpretation of them. Deaths often involve multiple causes and the relative contribution of different factors may be difficult to

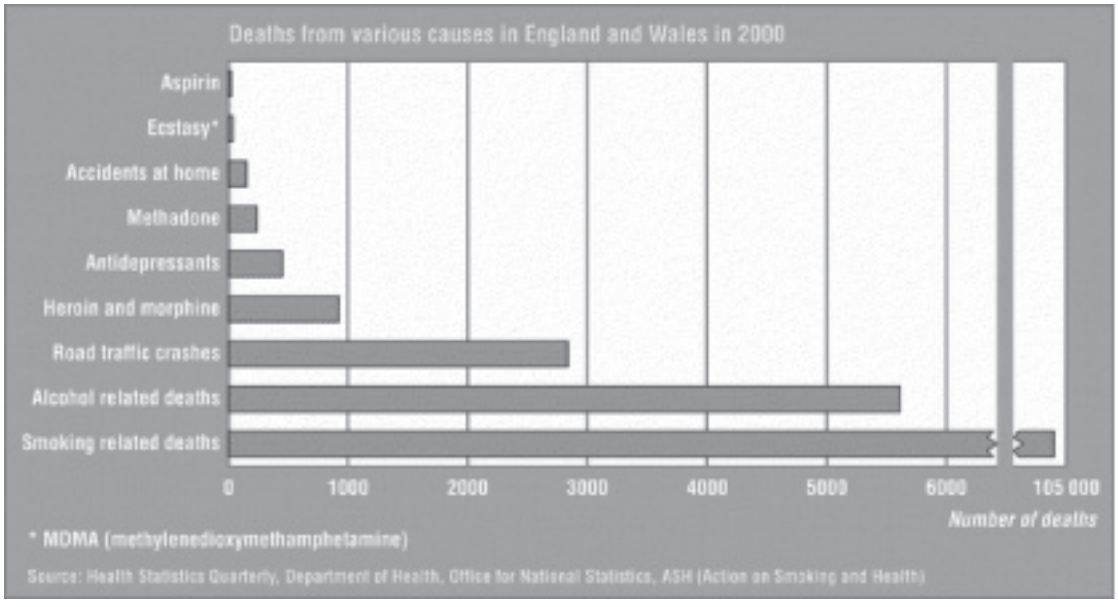
determine post-mortem. For example, the extent of intent to self-harm may not be known. Blood alcohol concentration and relative concentration of drugs detected as present are not recorded in all cases. As noted by the NCIS, nationally consistent coding for drug-related death has yet to be implemented with current data being based on the professional but subjective assessment of pathologists and coronial clerks. Deaths associated with ecstasy may also be related to drugs other than MDMA. There have been at least 12 ecstasy-related fatalities in Australia attributable to PMA, a toxic analogue of MDMA also sold in tablet form (ACC, 2005), and six of these occurred in South Australia between 1995 and 1997 (Byard et al,1998).

In the largest study of ecstasy-related deaths in the UK undertaken to date, Schifano et al (2003) identified 202 deaths between 1996 and 2002 where ecstasy was considered to have made the primary contribution to death. Using data from the National Programme on Substance Abuse Deaths (NP-SAD) database, the authors found a steadily increasing number of deaths each year over the period of the study, with a male:female ratio of 4:1 and 3 out of 4 deaths for those younger than 29 years. In 17% of cases, MDMA was the sole responsible drug implicated in the death whereas the remainder of cases involved a number of other drugs, mostly alcohol, cocaine, amphetamine and opiates.

From toxicological results, MDMA accounted for 86% of cases and MDA 13% of cases, with a single case each for MDEA and PMA. This study concluded that determining the degree of contribution of ecstasy to death is difficult and there is a need for more information on the environmental context of the ecstasy-related deaths to determine the extent of contributory factors, especially poly-drug use and hot, overcrowded venues.

In response to public concerns about ecstasy-related deaths, fueled in part by media attention, the *British Medical Journal* (McKenna, 2002) compiled a league table of major causes of death in England and Wales in 2000, to place these concerns in context (see Figure 6-6). Ecstasy was deemed to have caused slightly more deaths than aspirin, but fewer than methadone or antidepressants and vastly fewer than road traffic crashes. Smoking-related deaths and alcohol-related deaths were highest, with figures of approximately 105,000 and approximately 5,500 respectively. In comparison, only 36 ecstasy-related deaths were reported in 2000. Comparable analysis in Australia has yet to be undertaken, however, it is likely to provide similar results.

Figure 6-6. Number of deaths from various causes in England and Wales, 2000



Source: McKenna (2002).

Given that ecstasy is generally not a primary contributor to death in Australia, ecstasy-related deaths do not provide a good indicator of changes in the ecstasy market. Given this low mortality rate, more relevant to strategic market analysis and investigation of the extent of ecstasy-related harm would be indicator data from hospital presentations and ambulance events. However, these data are, as discussed below, largely unavailable.

Between 2001 and 2004, 51 deaths in Australia were attributed primarily to drugs sold as ecstasy. Ecstasy-related deaths may involve a range of other drug and non-drug factors as well as MDMA. Deaths attributed to ecstasy consumption as the primary contributing factor are relatively few given the volume of use in the general population. Mortality data have limited value in the analysis of the ecstasy market, however further analysis of mortality data is warranted.

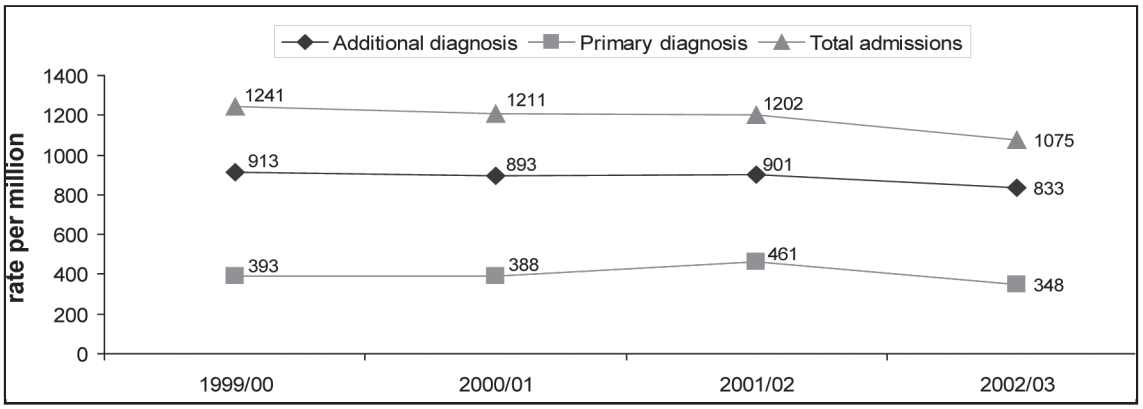
Hospital presentations and ambulance attendances

The AIHW maintain the National Hospital Morbidity Database (NHMD) that is compiled from data supplied by state and territory health authorities in the form of electronic, confidentialised summary records for admitted patients separated in public and private hospitals in Australia. Almost all hospitals in Australia are included: public acute and public psychiatric hospitals; private acute and psychiatric hospitals; and private free-standing day hospital facilities. Patient separations are coded using the International Classification of Diseases (ICD).

While the ICD allows for extraction of data for primary or additional diagnoses related to illegal drugs such as heroin, cocaine, amphetamines and cannabis, it does not do so for ecstasy. Ecstasy and other phenethylamines are included within the broader group of Amphetamine Type Stimulants (ATS) drugs. McKetin and McLaren (2004) provide an overview of ATS-related hospital episodes from NHMD data for 2000–2001. The relative proportion of ecstasy-related separations within the 'amphetamine' group is unknown.

Illustrating this limitation, Figure 6-7 shows the number of hospital admissions for ATS-related problems per million persons aged 15–54 in Queensland, from 1999/00 to 2002/03. There has been a small decline in the rate of admission in this time, from 1,241 admissions per million persons in 1999/00, to 1,075 per million in 2002/03. This decline is reflected in both the rate of primary diagnosis involving ATS drugs (from 393 in 1999/00 to 348 in 2002/03) and the rate of additional diagnosis involving ATS drugs, which fell from 913 in 1999/00 to 833 in 2002/03. At present, it is impossible from these data to draw conclusions regarding the rate of hospital admissions relating to ecstasy.

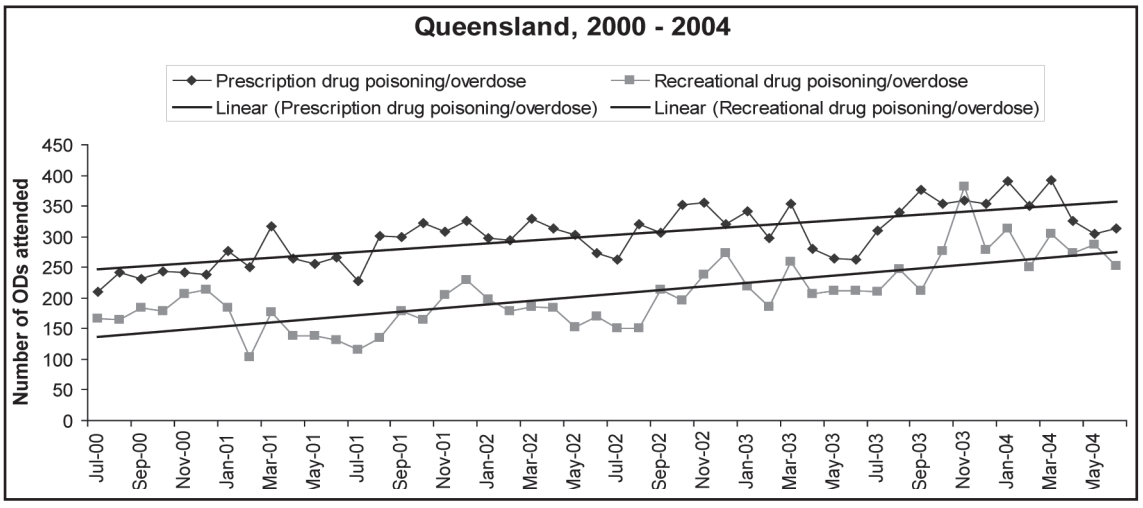
Figure 6-7: Amphetamine hospital admissions by diagnosis type, rate per million persons aged 15–54, QLD 1999/00–2002/03



Source: AIHW

When Queensland Ambulance Service (QAS) paramedics attend an incident they deem to be a drug poisoning or overdose, they record whether the substance involved is believed to be a prescription drug (e.g. benzodiazepines, morphine) or a recreational drug (e.g. heroin, methamphetamine, ecstasy). Figure 6-8 shows the number of prescription drug poisoning/overdose incidents, and the number of recreational drug poisoning/overdose incidents, attended by QAS paramedics between July 2000 and June 2004. As the trend lines show, there has been a consistent increase in the number of such incidents attended by QAS during this time, although it is unclear to what extent this increase reflects an increase in the incidence of overdose, or in the recording of operational activity of QAS. Although more detailed information is recorded on specifically which drugs, including ecstasy, are involved in these occasions of service, this information is not yet available in electronic form.

Figure 6-8: Number of recreational drug and prescription drug poisoning and overdose incidents attended by paramedics in Queensland, 2000–2004



Source: QAS.

Indicator data from hospitalisation and ambulance attendances are unavailable for ecstasy because of the more general recording criteria by these health services using the terms 'amphetamines' and 'recreational drugs' respectively. This lack of appropriate data was one of the reasons for a recent study of drug-related presentations to the Gold Coast Hospital Emergency Department (ED) (Krenske et al, 2004). This study found a considerably higher prevalence of lifetime (16.9%) and recent use (8.5%) of ecstasy among this population, compared with the lifetime (6.1%) and recent (2.9%) prevalence of use found in the general population (AIHW 2005a). The study also found that ED presentations for ecstasy were not distinguished from other ATS drugs in a consistent manner in recorded diagnosis or case notes. Toxicological analysis in such non-fatal presentations was also rare.

Based on the responses of regular ecstasy consumers (Kinner & Fischer, 2005; Stafford et al, 2005b), adverse affects relating to ecstasy use do not usually require hospitalisation or other health care services. Some consumers will, however, go to their general practitioner for non-acute care regarding ecstasy-related problems, possibly without disclosing the cause of their symptoms. Consumers in the EMI study reported concerns about depression, anxiety and sleep disorder that may lead them to present to their GP. However, continuing heavy ecstasy use may eventually lead to more severe problems among those consumers who choose this pattern of use.

Hospital admission and ambulance attendance data are not recorded in a manner that enables analysis for ecstasy-related problems. The revision of ICD10 by the inclusion of a code for phenethylamine drugs (e.g. T43.7) would be a major advance in monitoring adverse ecstasy-related events.

Specialist drug treatment for ecstasy problems

Indicator data collected through specialist drug treatment services provides a valuable, though indirect, measure of certain aspects of illegal drug markets. For example, changing numbers of heroin dependent people enrolled in opiate substitution programs, mainly using methadone and buprenorphine, can inform our understanding of the level of supply in this market. The association between treatment numbers and market size is, however, indirect, as other factors such as treatment service availability and admissions policies, as well as drug supply, affect treatment-seeking behaviour. Help-seeking behaviour can also be a broad indication of the level of harm consumers experience from their drug use. These data, published by the AIHW, are now systematically collected for the National Minimum Dataset (NMDS) by the Alcohol, Tobacco and Other Drug Treatment Services (ATODS) in Queensland[3] and can be used to inform the relative priorities for responding to the harms caused by different drugs and their patterns of use.

Table 6-2 provides a summary of client presentations to Queensland ATODS for substance-related treatment, during the 2003/04 financial year. Data are provided separately for Brisbane, the Gold Coast and Cairns – the three urban centres in which ecstasy consumers were interviewed for the EMI project. In each region, fewer than 1 in 100 clients identified ecstasy as their principal drug of concern, and fewer than 4% of clients identified ecstasy as an additional drug of concern. By contrast, more than a third of clients in each region nominated alcohol as their principal drug of concern, and between one-quarter and one-third nominated either cannabis or amphetamines. Evidently, presentation at specialist drug treatment services for ecstasy-related problems is infrequent, compared with presentation for other legal and illegal drug use.

[3] http://www.aihw.gov.au/drugs/treatment/index.cfm

Table 6-2. Proportion and number of ATODS treatment clients nominating ecstasy as a principal or additional drug of concern, 2003/04.

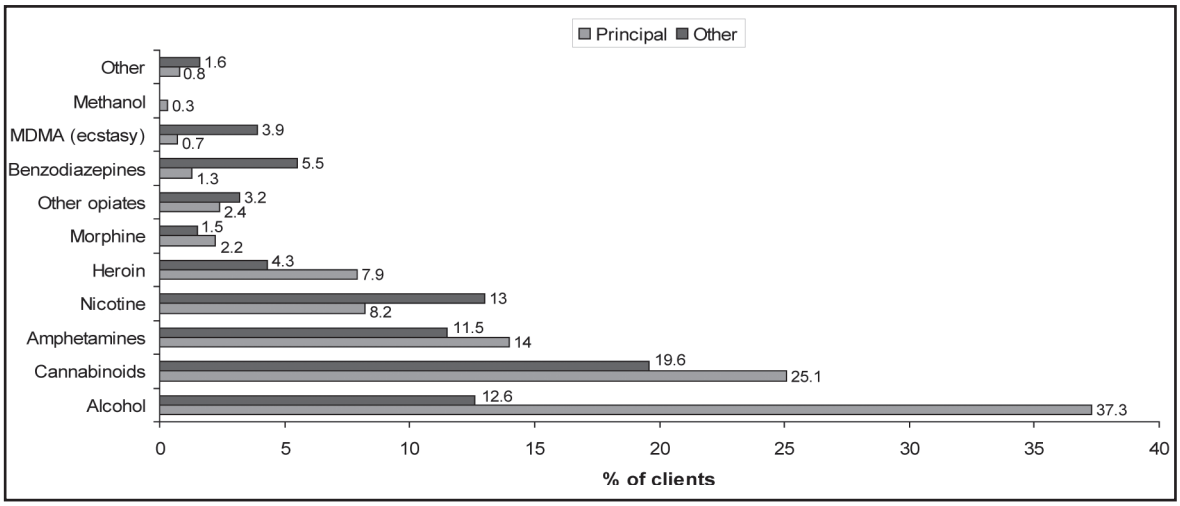
	Brisbane	Gold Coast	Cairns
Ecstasy principal drug of concern	0.7% (n=27)	0.6% (n=5)	0.8% (n=6)
Other principal drug of concern (%)			
Alcohol	37	48	37
Cannabinoids	25	16	13
Amphetamines	14	13	10
Nicotine	8	1	2
Heroin	8	11	6
Morphine	2	3	21
Other opiates	2	6	7
Benzodiazepines	1	2	1
Methanol	0	<1	<1
Ecstasy as other drug of concern	3.9% (n=169)	1.7% (n=17)	2.5% (n=35)
Other drugs of concern among those nominating ecstasy as principal drug of concern			
Amphetamines	56%	0%	50%
Cannabinoids	37%	20%	50%
Alcohol	37%	20%	0%
Nicotine	26%	0%	33%
Other	4%	20%	17%

Source: Queensland Health ATODS.

Of the 27 ATODS clients in Brisbane who did nominate ecstasy as their principal drug of concern, the majority also noted amphetamines as a drug of concern, and substantial minorities also nominated cannabis, alcohol and nicotine. Very few clients presented for treatment in relation to ecstasy use only. Clients were considerably more likely to identify ecstasy as an 'additional drug of concern' than as their principal drug of concern, perhaps reflecting the limited extent to which clients are themselves concerned about their use of the drug. Brisbane clients, for example, were approximately six times more likely to identify ecstasy as an 'additional' rather than a 'principal' drug of concern.

ATODS clients in Brisbane were three times more likely to nominate alcohol as a 'principal' than an 'additional' drug of concern and similarly, clients more often nominated cannabis, amphetamines, heroin and morphine as a principal drug of concern. Other than ecstasy, the only other substances more often noted as 'additional' drugs of concern among Brisbane ATODS clients were nicotine, benzodiazepines (e.g. Valium®) and 'other opiates' such as codeine (see Figure 6-9). Key experts from health services suggest that many clients do not consider their ecstasy use problematic until treatment staff take a drug use history, and their patterns of use highlight ecstasy use as a concern.

Figure 6-9: Proportion of clients presenting to ATODS Brisbane in 2003/04, by drug type



Source: Queensland Health ATODS.

Drug treatment data are a poor indicator of the patterns of consumption and problems associated with ecstasy use in Queensland. Furthermore, these treatment data suggest that relatively few ecstasy consumers seek treatment in relation to their use of ecstasy, and that of those who do, the majority also report problems with one or more other drugs – typically amphetamines, cannabis and/or alcohol. Most regular ecstasy consumers, without other drug-related problems, do not currently seek treatment at specialist drug treatment services.

Needle and syringe exchange services

Needle and syringe exchange services can provide indicator data for hidden populations of injecting drug users. This data source is particularly useful for populations not usually sampled by household population surveys. The annual national Needle and Syringe Program (NSP) cross-sectional survey forms the basis of human immunodeficiency virus (HIV) and hepatitis C surveillance among injecting drug users (IDU) in Australia. Monitoring behavioural indices of risk in addition to prevalence of infection provides important information for planning and implementing prevention and treatment support policies and services. Each year, all clients attending selected NSPs during the designated survey week, in September or October, are asked to complete a brief questionnaire and provide a finger-prick blood sample for HIV and hepatitis C antibody testing. The number of sites on which data has been collected has grown from 34 in 1999 to 48 in 2003. The survey recruits around 2,500 participants with an annual response rate varying from 42% to 50% (Thein, Maher & Dore, 2004).

This source of indicator data is of limited use for ecstasy market analysis, since ecstasy is very rarely injected by those sampled in the Australian NSP survey. Table 6-3 shows that less than 1% of those interviewed indicated that ecstasy was the last drug they injected. This confirms the findings of the EDRS (Breen et al, 2004b; Stafford et al, 2005a) that although some regular ecstasy consumers have injected ecstasy, this is rare among regular consumers, and infrequent among those who have ever injected ecstasy.

Table 6-3. Number (percentage) of respondents by last drug injected and year of survey.

	1999	2000	2001	2002	2003
Last drug injected (%)	N = 2503	N = 2694	N = 2454	N = 2445	N = 2495
Amphetamine	647 (26)	582 (22)	914 (37)	809 (33)	831 (33)
Anabolic steroids	40 (2)	43 (2)	31 (1)	47 (2)	52 (2)
Benzodiazepines	6 (<1)	6 (<1)	11 (<1)	8 (<1)	3 (<1)
Buprenorphine	---	---	---	25 (1)	14 (<1)
Cocaine	60 (2)	32 (1)	164 (7)	29 (1)	26 (1)
Heroin	1333 (53)	1517 (56)	745 (30)	881 (36)	902 (36)
Heroin + Cocaine	49 (2)	75 (3)	105 (4)	42 (2)	25 (1)
Methadone	84 (3)	94 (3)	127 (5)	165 (7)	154 (6)
Morphine	95 (4)	97 (4)	151 (6)	180 (7)	213 (9)
More than one	150 (6)	199 (7)	153 (6)	204 (8)	178 (7)
Other	6 (<1)	8 (<1)	15 (1)	22 (1)	50 (2)
Not reported	33 (1)	40 (1)	38 (2)	33 (1)	47 (2)
Ecstasy in Other	2 (<1)	2 (<1)	7 (<1)	6 (<1)	3 (<1)

Note: Ecstasy has only ever been recorded in the 'other' category. The majority in the 'other' category in 2003 were crystal methamphetamine and the prescription drugs Subutex® and oxycontin.

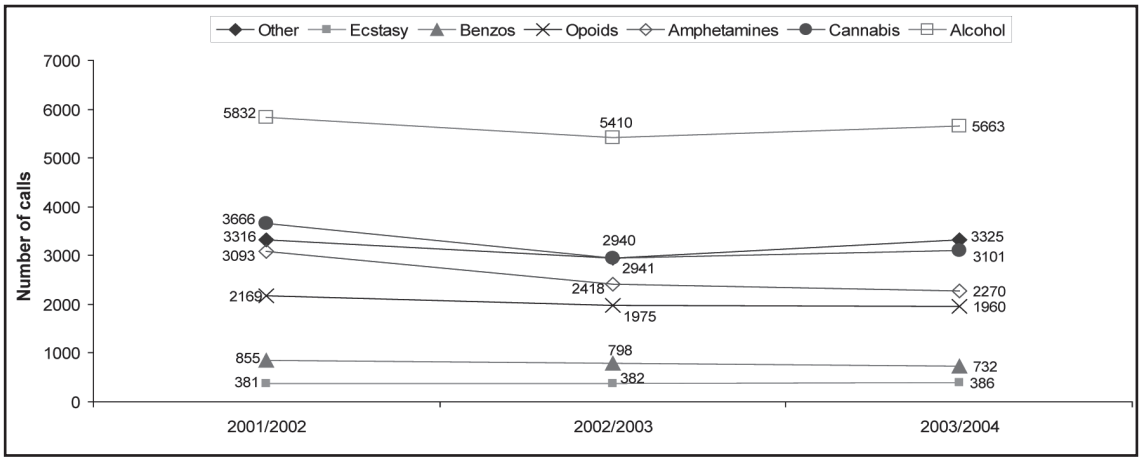
Source: Australian NSP Survey: national data report 1999–2003. (Thein, Maher & Dore, 2004)

Ecstasy consumers rarely inject ecstasy. Regular injecting drug users rarely inject ecstasy. Data from NSP services indicates that ecstasy consumers are unlikely to see NSP as appropriate health services for drug-related problems unless they are also regular injectors of other drugs. If injecting use of ecstasy becomes more prevalent this pattern of health service use may change

Contacts with drug counselling telephone services

Calls to telephone drug counselling services are another potential indicator of the level of harms associated with a particular drug. Changing levels of service use for drug-related problems may indicate change in patterns of drug use and drug-related harms. This, however, does not appear to be the case for ecstasy-related problems. Figure 6-10 shows the number of calls to the Alcohol and Drug Information Service (ADIS) in Queensland regarding ecstasy, from 2001/02 to 2003/04. These telephone calls include: general information calls about ecstasy; enquiries by concerned parents and friends about someone else's ecstasy use; and enquires by ecstasy consumers about their own drug use. There was no substantive change in the number of calls regarding ecstasy over this three-year period, with an average of 383 calls received per annum over the past three years despite increasing prevalence of ecstasy use. By comparison, over the same period there was an average of 5,635 calls regarding alcohol, 3,236 calls regarding cannabis, 2,594 calls regarding amphetamines and 2,035 calls regarding opiates each year. During this time, calls regarding ecstasy constituted just over 2% of calls to ADIS. Relative to the number of persons in Queensland consuming ecstasy, the number contacting ADIS for information regarding ecstasy use is small.

Figure 6-10: Number of phone calls to Alcohol and Drug Information Service (ADIS) in Queensland, 2001/02–2003/04



Source: ADIS.

Data from telephone counselling services suggest that relatively few ecstasy users seek information regarding their use. As such, these data do not currently offer much insight into the nature of ecstasy-related problems or their changing prevalence.

Summary

Indicator data from health systems that record deaths, hospitalisations, specialist drug treatment, needle and syringe services and telephone counselling can inform our understanding of some illegal drug markets. This is the case for heroin, and to a lesser extent, for methamphetamine. Unfortunately, for analysis of the ecstasy market, these data sources currently have little to offer, for two reasons.

First, the ICD coding systems for deaths, hospitalisation and other health care services does not provide the level of specificity required to routinely distinguish ecstasy-related events from the broader categories of ATS events.

Second, ecstasy consumers (including regular ecstasy consumers), do not usually experience problems from their ecstasy use of sufficient gravity to prompt them to seek treatment. Some ecstasy consumers do experience acute problems with their drug use that leads them to hospital emergency departments or more low-level chronic problems requiring a visit to their general practitioner. However, even when these consumers do present to primary health care services, their use of ecstasy is not always identified in treatment records. Service activity data systems do not currently enable these occasions to be identified systematically to establish changes in their prevalence over time. Monitoring these indicator data may be useful, particularly if coding systems are enhanced, to identify whether longer-term problems from ecstasy use do eventuate in the future.

Market interventions by law enforcement

Arrest data

Arrest data relating to illegal drugs are widely used by law enforcement agencies as an indicator of illegal drug market activity. Such data are, however, of only limited value for market profiling in the short term, since such data are heavily influenced by policing activity. In the longer term, however, arrest rates do tend to broadly reflect trends in drug consumption. Clearly, the number of consumers greatly exceeds the number of suppliers, and accordingly, most arrests are of consumers (i.e. for possession). On a national level, arrests for supply typically constitute about 10% of total drug-related offences (Green & Purnell, 1995), although in 2003/04 approximately 16% of drug-related arrests in Queensland were deemed to be of 'providers' (Kinner & Fischer, 2005). The majority of these supply offences involve only small quantities of drugs – often only enough for one person's individual consumption. While offences for heroin or cannabis come to police attention more easily, through either drug-related crimes or paraphernalia, ecstasy offences are more difficult to detect and may arise incidentally through investigations into other matters.

The more effort, resources and technology police devote to supply control for a particular drug, the greater number of detected offences and seizures made. The actual number of drug offences recorded is also limited because it does not necessarily reflect changes in population size. A more useful statistic is the rate of offending per 100,000 population (Sutton & James, 1996). These limitations in arrest data as an intelligence source have been acknowledged for some time. According to Wardlaw (1986, p. 2):

> *The problem is that enforcement [arrest] statistics in this field are largely a measure of police activity and may bear no direct relation to changes in the magnitude of drug use.*

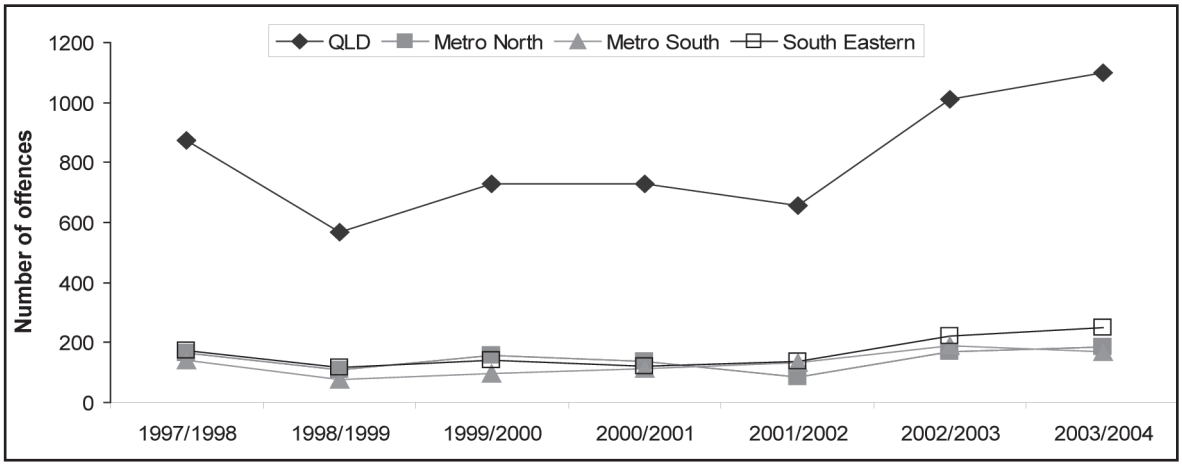
Arrest data therefore bears more of a relationship to drug law enforcement activity and effectiveness than it does to illegal drug market conditions, although the two are clearly related. A key issue in measuring the effectiveness of police drug-related activity is that not all arrests impact the market equally. Those arrests which significantly disrupt supply are obviously of greater importance in market regulation than those affecting peer supply (Dorn, Bucke & Goulden, 2003). This difference has been acknowledged by former AFP Commissioner Palmer (1998, p. 246): *"We [AFP] do not judge our performance on the basis of the value or quantity of drugs seized but rather our success in dismantling, disrupting and deterring the syndicates involved"*. A clear difficulty here is measuring the extent of supply disruption, particularly in markets like ecstasy, where supply chains are fluid and suppliers are easily replaced. The AFP have developed a Drug Harm Index as a method of estimating the organisational impact of their market regulatory activity (McFadden & Mwesigye, 2001; AFP, 2004). This new tool is under review in a number of jurisdictions.

The principal difficulty in applying arrest data to analysis of the ecstasy market is that a number of jurisdictions, including Queensland, do not differentiate between arrests connected with ATS and with phenethylamines (ABCI, 2002, p. 124). Figure 6-11 shows the number of ATS offences cleared by the Queensland Police Service (QPS) from 1997/98 to 2003/04 in Queensland, and in the three south-east Queensland regions that comprise the greatest concentration of such offences.

Overall, the number of recorded ATS offences increased sharply from 2001/02 (657) to 2003/04 (1,099), although this trend is only partially reflected in the figures for south-east Queensland regions. The apparent rise in ATS offences in Queensland is difficult to interpret for two reasons: (a) the ATS category includes amphetamine, methamphetamine and MDMA (ecstasy), and (b) an increase in recorded offences may indicate increased production, distribution and use of the drug class, or it may indicate increased police operational activity around that drug class. Indeed, one key expert from the law enforcement sector interviewed for the EMI study reported an

increased focus by QPS on the ecstasy market in far north Queensland. Nevertheless, it is likely that the increase in ATS arrests has shadowed increased consumption in Queensland of both methamphetamine and ecstasy.

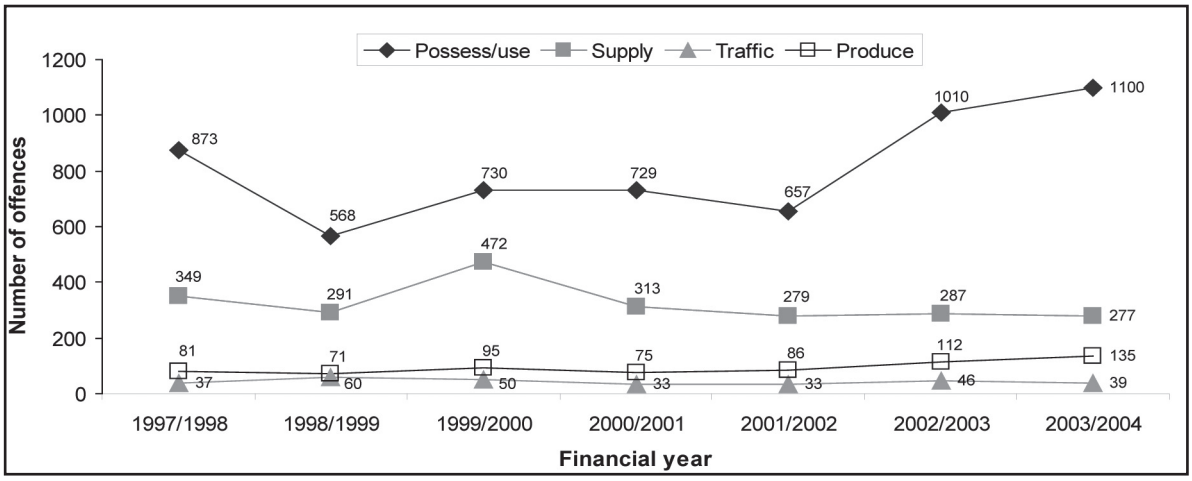
Figure 6-11: Incidents of amphetamine-type stimulant (ATS) possession/use by geographic area, 1997/98–2003/04



Note: Ecstasy-related offences are subsumed within ATS offences.
Source: Queensland Police Service.

A better understanding of arrest data can be gained by disaggregating and comparing consumer and provider arrests. Figure 6-12 shows that the number of ATS drug offences related to supply, trafficking and production in Queensland has remained relatively stable over the past four years, despite an increase in consumption levels during this time. By contrast, the number of offences for possession/use has increased considerably since 1998/99. To the extent that these patterns reflect patterns in the ecstasy market, they suggest increasing policing activity specifically at the retail end of the market.

Figure 6-12: Number of ATS-related arrests in Queensland for possession/use, supply, traffic and produce, 1997/98–2003/04



Source: Queensland Police Service.

The aggregated data on the number of consumers arrested for possession or use of a particular drug over time is not directly indicative of the state of the market. The total number of supplier/trafficker offences is, likewise, less indicative of market activity and more indicative of law enforcement activity, policy and priorities and, to some extent, effectiveness. A decrease in consumer arrests may occur in a market where consumption is increasing, or when the act of possession or use is not considered a police priority. Arrest data also needs to be considered in the context of newer consumer enforcement strategies that use diversion to treatment/education as an alternative to arrest and conviction.

Furthermore, arrests for supply do not have equal impact in achieving strategic objectives of disrupting organised criminal networks in illegal drug markets. Summary data do not reflect these issues and, as with data reflecting drug-related seizures, a deeper level of both reporting and analysis is required. At present, the capacity to carry out such an analysis is limited by the way arrest data is documented and the failure of many agencies to distinguish between methamphetamine and MDMA in arrest and seizure data.

QPS arrest data relating to drug use can provide some indication of market activity, although it needs to be interpreted with some caution. QPS arrest data does not distinguish ecstasy from other ATS substances – and is therefore not particularly useful for the EMI study.

Seizure data

Seizure data provide information regarding what illegal drugs are present in the market, in what locations, forms, purity levels, and combinations of chemical compounds. This market sampling is, however, not necessarily representative of what drugs are present in the market at a particular time and place. Aggregated data on the number, weight and relative purity of drug seizures and of precursor chemical seizures, and the number of clandestine laboratory seizures, while informative about market activity, also reflect policing activity, resources and priorities. These limitations must be acknowledged when using seizure data to assess change in the market over time.

Data regarding ecstasy-related seizures was presented in detail for Queensland, and more generally for Australia, in previous chapters. Overall, seizure data in Australia present a number of problems in terms of accuracy, comparability and consistency. The potential expansion of the National Illicit Drug Logo Database, maintained by the Victorian Police Forensic Services Department, will provide a major contribution to ecstasy market intelligence. Tablet weight, dimensions, purity and other chemical components, colour, logo and score marks for individual tablets, together with detailed photographs, are included in the database. The extent to which the context, total weight and number of tablets for each seizure event will also be captured is not known. New initiatives addressing precursor and clan lab data, described below, may address some of these shortcomings.

Intelligence regarding the contents of illegal drugs can be obtained from sources other than police seizures. Purity and composition data for illegal drugs are usually obtained from three sources: (a) from seizures made by policing agencies at various points along the supply chain, (b) by illegal drug market-research studies and (c) from pill testing undertaken by consumers and suppliers themselves (at the retail market or in some limited cases by public health or consumer organisations as part of wider harm-reduction strategies).

In the Netherlands, the public health organisation Jellinek Prevention has, since the early 1990s, monitored the content of ecstasy pills in Amsterdam. Their data clearly show that MDMA is the predominant chemical in ecstasy pills, although the amount of MDMA in pills dropped from 110 mg in 1994 to 60 mg in 1998 before rising again to around 90 mg in 2001. The drop in MDMA content was specifically a result of large, nationwide seizures of the precursor PMK and other chemicals in 1997. The amount of amphetamine and caffeine in tablets increased during this period, although since 2000, 90% of pills have consistently been predominantly MDMA (Gruppo Abele, 2003, p. 37).

While the Australian Government[4] is currently opposed to pill testing by consumer harm-reduction organisations on the grounds that it may encourage the view that ecstasy consumption can be made safe (Winstock, Wolff & Ramsey, 2001), further public health research involving pill testing at events where ecstasy is likely to be consumed is under consideration in some states. This Events Based Drug Initiative data collection is likely to build on research in South Australia by Camilleri and Caldicott (2004).

Seizure event intelligence at a national level

Information about seizure events and their context within the global, national and regional supply chains can also tell us a great deal about the mechanisms of the supply-side of the ecstasy market. Such information can include the retail price in different locations, the wholesale price at supply chain points for transactions of varying volume, indications of suppliers' costs in terms of start-up capital, precursor chemicals, laboratory equipment, transport and security costs, and thus profit margins for various supply-chain participants. Intelligence from the investigations around seizures also provides a point of reference for profiles of these supply-chain participants, their characteristics, knowledge of the market and of law enforcement strategies, technical skill in manufacture, experience in risk management strategies, trafficking methods and techniques, and other criminal activities. At present, however, there is arguably significant potential to improve the strategic use of this information in analysis of illegal drug markets.

Operationally, drug seizures and the intelligence gathered around the investigations in which seizure events are an outcome can involve a number of agencies. This information is recorded, often by the investigators involved, principally for the purposes of prosecution and organisational accountability. Tactical intelligence to support further operational activity is the first level of analysis applied to this information. Each agency involved may have different approaches to these processes, using different definitions, recording procedures and methods of analysis. One negative outcome of this process is that the next level of analysis, strategic intelligence within agencies and across the law enforcement community, and collaborative research with external organisations, is hampered by gaps, delays and inconsistencies in data.

Strategic analysis of illegal drug markets is a relatively new activity. Definitional issues regarding ecstasy as an ATS tablet of mixed chemical contents have impeded the collection and collation of appropriate data for strategic analysis. Distinguishing precursors for MDMA production from the far more common methamphetamine precursors also presents difficulties when assessing manufacturing outputs. Since a number of jurisdictions do not differentiate between seizures of precursors or clan labs connected to methamphetamine production from those producing phenethylamines (coding both under the inclusive 'amphetamine type stimulants' category), it is not possible to provide a national or jurisdictional breakdown of seizures of ecstasy or ecstasy-related precursors (ACC 2003).

It is not possible, from the data provided for this study by the AFP, to determine which seizure events are joint AFP/Australian Customs at or near the border, and which are AFP alone, AFP/ACC or AFP/state police seizures between the border and the retail market. This means that it is not

[4] MCDS Communiqué 19th May 2005 http://www.nationaldrugstrategy.gov.au/councils/communique_19505.htm

possible to simply combine Australian Customs, AFP (non-Australian Customs) and state police (non-AFP) seizures together to determine the total seizures of ecstasy tablets, powder, precursors and clan labs. This in turn limits our ability to add total seizure volume to the estimate of what is consumed in the market to determine the best estimate of market size.

Australian Customs seizureevent intelligence contains rich detail about mode of border entry, ports of origin and transit, concealment methods and characteristics of traffickers. These data are compiled for intelligence reports and for the maintenance of target profiles. The extent to which this intelligence is systematically integrated with intelligence gathered by the AFP and other agencies, through investigation to generate market profile intelligence is unclear (Sheptycki & Ratcliffe, 2004, pp. 202-203). This apparent lack of systematic information integration within and between law enforcement agencies limits the potential for strategic analysis of intelligence information. Data relating to the ecstasy market may be coded or recorded by the AFP in PROMIS, however, these data were not available for analysis for the EMI study.

The ACC has the challenging task of collating seizure data on drugs, precursors and laboratory equipment detected by the AFP, Australian Customs and state police services. Given the limitations surrounding integration of this seizure data, ACC seizure data presented in the IDDR should be viewed as only an approximation of total seizures. ACC only count AFP seizures that have been chemically analysed, resulting in an undetermined degree of under-estimation of seizure volume. This counting method also presents significant delays in the presentation of data, particularly from states with very heavy forensic workloads. The Commonwealth Attorney General's Department has an Intergovernmental Committee on Drugs (IGCD) project in train to scope the capacity requirements for forensic drug analysis in Australia. Enhanced capacity for forensic laboratories may result in improved quality and timeliness of data regarding ecstasy and other drugs.

Seizure event intelligence at a jurisdictional level

As noted earlier, the intelligence value of drug seizures can be significantly enhanced if the context of the seizure event is documented in a systematic fashion. As most seizures in the retail market involve only small amounts, it is likely that many of these quantities are for personal or peer consumption. Where seizures of more than 10 tablets are made, it is less clear whether the drugs are destined for peer supply and personal consumption, or whether they represent the extreme retail end of the for-profit supply chain. With the current level of aggregation of seizure data, and the exclusion of seizure context information, it is not possible to answer these questions.

Some context information is available for large seizures, typically in the form of limited-release post-operational reports or press releases. Where large QPS seizures occur, case event reports could be used to indicate whether these seizures are part of the intra-state retail supply-chain or are examples of interstate trafficking within a national, mid-level market. Relating the supply-chain context of individual seizure events and groups of like seizures, with different physical forms and different chemical compositions of ecstasy, would provide considerably greater intelligence for both tactical and strategic analysis. Such case reports of significant seizures were not provided for the EMI project.

The spread of seizures across a jurisdiction may reflect less the state of regional markets and more the priority and resources applied to the regulation of the ATS market in a given police region. While QHPSS data identify which QPS unit has made a seizure, in most instances indicating geographical location, many larger seizures are made by units without geographical designations, such as the State Drug Investigation Group (SDIG). This avoidable data limitation impedes regional analysis of seizures data; at present the only way to source this data is from the CRISP operational information system, for each seizure – a very time-consuming process.

Through our review of the data provided by QHPSS, a number of issues regarding seizure data accessibility and usability have arisen. The mechanisms for linking chemical analysis to seizure

event information in CRISP are unclear, if indeed such mechanisms exist. While a QPS property number is assigned to each seizure, a CRISP report number is not. It is unclear if, when seizure analysis is completed, this information is added to the CRISP report for the seizure event. Linking of seizure analysis results with the original crime report, in a systematic fashion, would have clear benefits from a strategic intelligence perspective. At present, it appears that these two data sources are not systematically integrated. Where market profiles are required for the purposes of generating strategic assessment documents, a mixture of key expert recollection and some searching of CRISP for notable cases is used, rather than extraction of reliable data from a continually maintained database of tactical illicit drug market intelligence.

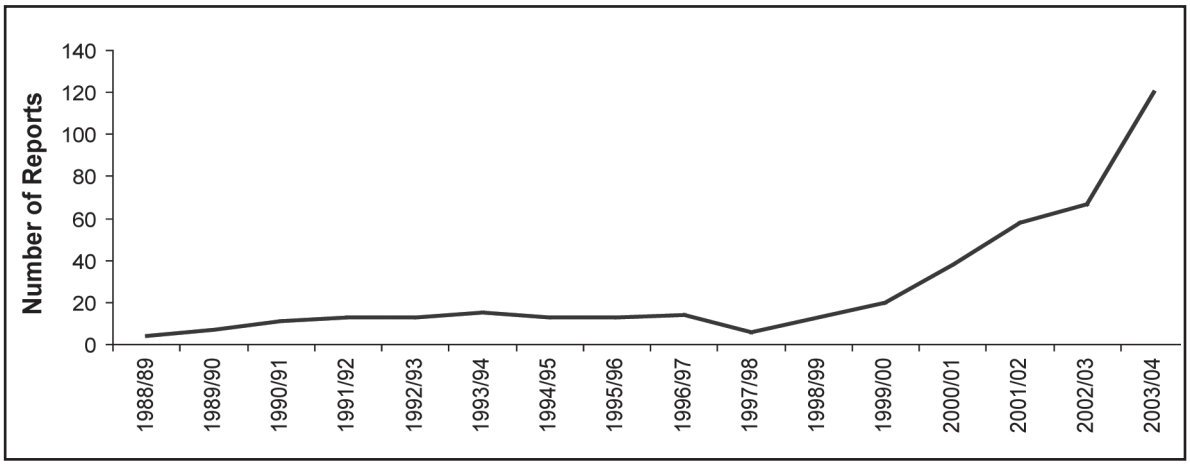
Intelligence from the supply-chain context of seizure events is as important as what is seized; however, this intelligence is not readily accessible or presented in a meaningful manner to encourage better use of available intelligence. Overall seizure data in Australia presents a number of problems in terms of accuracy, comparability and consistency, as well as accessibility.

Intelligence-led policing of illegal drug markets

Extracting seizure-event intelligence from operational information systems in a systematic manner is difficult. Particularly with respect to analysis of subjective, open-text intelligence data, individual entities usually have to be retrieved and examined to extract relevant information. In an attempt to more objectively analyse free-text intelligence data relevant to the ecstasy market, the EMI study undertook a content analysis of the Australian Criminal Intelligence Database (ACID) in an attempt to gauge the relationship between ecstasy intelligence mentions and consumption trends. ACID is a national database holding criminal intelligence on persons, places, vehicles, events and their inter-relationships. The type of information found on ACID includes Crime Stopper reports, operation running sheets, general intelligence reports, Australian Custom Services (Australian Customs) seizure reports and police services activity reports. ACID is accessed via the Australian Law Enforcement Intelligence Net (ALEIN) portal which is operated by the ACC. Some state police services, including QPS, use ACID selectively to manage their intelligence holdings, while others (e.g. the Crime and Misconduct Commission) add holdings for all operations. The AFP follows a similar procedure, although the AFP relies principally on Police RealTime Online Management Information System (PROMIS) for both operational and intelligence purposes, while selectively contributing material to ACID.

Using the ACID search function a total of 698 reports were found in relation to ecstasy in Queensland in the period 1988/89 to 2003/04. Of these reports, 407 (58.3%) referred to unique ecstasy-related offences. These unique reports contained references to 669 individuals allegedly involved in ecstasy-related offences and 493 of these individuals were involved with supply offences. The number of unique ecstasy-related reports registered in ACID showed some degree of growth from 1988/89, but grew exponentially from 1998/99 onwards (see Figure 6-13). These results are more or less consistent with the growth of ecstasy use found in the general population.

Figure 6-13: Number of unique Queensland ecstasy-related reports in ACID, 1988/89 – 2003/04



Source: Data extracted using a search function of ACID.

Ecstasy-related activity is recorded far less frequently in ACID than activity connected to other drugs – especially in the years preceding 1998/99. Drug-related reports in ACID were most common for cannabis during this time. A total 7,529 cannabis-related reports for Queensland were initially found using the ACID search for the period between 1988/89 to 2003/04, compared with 4,623 reports for heroin, 3,369 reports for amphetamine and 698 reports for ecstasy. Overall, the number of cannabis- and amphetamine-related reports increased over time, while the number of heroin-related reports varied significantly across time.

Interpretation of these results is difficult. The results are influenced by a wide range of factors influencing whether, when and how intelligence relating to the ecstasy market is uploaded to ACID. Furthermore, intelligence entities are not all of the same quality[5] or of the same importance to market regulation. Although there is a clear correlation between the increasing number of ecstasy mentions in ACID and the increasing level of ecstasy consumption in the general community over the past decade, the limitations associated with interpreting results and the resource-intensive nature of ACID analysis means that future replication of this task of quantifying intelligence holdings in ACID is probably not warranted.

Amphetamines and Other Synthetic Drugs (AOSD) Determination

More substantial intelligence can be derived from special operations such as the ACC Amphetamines and Other Synthetic Drugs (AOSD) Determination. During 2003 the ACC undertook a special operation with the objective of developing intelligence in relation to the importation, manufacture and trafficking in amphetamines and other synthetic drugs and precursor chemicals to better guide investigative action and policy as part of a more comprehensive national response to these drugs under the National Illicit Drug Strategy (ACC 2004, p. 44).

This special intelligence operation necessitated the ACC's close consultation with jurisdictions to identify people suspected of being involved in the manufacture and distribution of amphetamines, or involved in supplying critical ingredients or equipment. One hundred and ten persons were summonsed to ACC coercive examinations to be questioned on their direct or indirect involvement in criminal activity. As a result of these examinations, the ACC and partner agencies conducted a number of operations to explore the information obtained.

[5] An analysis of ACID ecstasy entities as a function of their reliability (Admiralty Rating) was conducted, but has not been presented here.

Operation Ballynoe, an Established Criminal Networks (ECN) Operation, which was supported by AOSD, led to the seizure of 2,500 ecstasy tablets (MDMA) and $37,500 in August 2003. In September 2003, eight arrests were made, 12.5 kgs of precursor chemical seized and 445 grams of amphetamine was purchased from the target by a covert police officer. Later that month, approximately 4.4 kgs of precursor chemical was seized in a joint operation with Queensland Police. Several examinations were held in November 2003 resulting in a further four arrests. Additional examinations were held in February 2004, resulting in three additional targets being arrested and charged.

Among other outcomes of the Determination, most of which related to amphetamine production and distribution, those relevant to the ecstasy market included:

- A seizure by NSW Police of 400 litres of sassafras oil from an importing company which had imported over 2.5 tonnes of the oil over the past two years. Sassafras oil is a precursor used in the manufacture of MDMA. This company has now voluntarily withdrawn from importing and dealing in this commodity
- A well known private producer of laboratory glassware was identified and summonsed to an examination in Queensland. This person admitted that he had produced and sold 774 reaction vessels to numerous unknown people over an 18 month period. He further admitted to knowingly supplying the amphetamine industry with glassware for a period of five years. He voluntarily closed his operation.

A number of legal and administrative reform issues were also identified and are the subject of discussion with Commonwealth Attorney General's Department with view to legislative change and enforcement practice. These issues include:

- legislative deficiencies and non-uniformity across jurisdictions relating to possession and supply of precursor chemicals
- limited appropriate legislation at a Commonwealth and state level governing the importation and control of pill presses and other related laboratory apparatus including glassware
- regular non-compliance by chemical suppliers with the voluntary National Code of Practice lack of appropriate 'children found in laboratory' legislation.

Also relevant to the ecstasy market has been a number of intelligence products generated by the ACC during 2003 and 2004 that have been informed by the AOSD Determinations.

Time-limited special operations provide an opportunity to focus resources to address specific criminal justice issues, gathering and utilising tactical and strategic intelligence. As we have argued, however, the nature of ongoing operational activity presents a number of impediments to the gathering of strategic intelligence from information systems and operational processes. Where a new area of market regulatory activity arises, however, there is potential to develop new intelligence systems in concert with operational activity. This is the case with the criminal justice sector response to the domestic production of ATS drugs.

Precursor chemical regulation and international collaboration for supply control

The increase in domestic manufacture of ATS drugs in Australia, particularly methamphetamine, has opened up a new area of market regulatory activity for law enforcement agencies. State police services have established organisational units to manage intelligence and inter-agency collaboration for the investigation of clandestine laboratories, diverted chemical precursors and laboratory equipment used in ATS manufacture. This new area of market regulation has presented a number of challenges for law enforcement agencies and in response to these, an increased level of inter-jurisdictional cooperation has arisen. These jurisdictional responses have initiated knowledge transfer and skill sharing through an annual conference[6] and training programs. New legislative

[6] The annual National Chemical Diversion Congress (NCDC).

control measures and industry governance programs are progressively being implemented across jurisdictions to regulate laboratory equipment, pill presses and chemicals that may be diverted to illegal drug production (O'Reilly, 2004; Cherney, O'Reilly & Grabosky, 2005).

At a national level these endeavours are now being coordinated through the National Strategy to Prevent the Diversion of Precursor Chemicals, which commenced in mid 2003 and is managed by the Commonwealth Attorney General's Department with funding of $5.4 million over five years until 2007/08. The implementation of this strategy is led by the National Working Group on the Diversion of Chemical Precursors, originally formed in December 2002. The Working Group, made up of 42 experts from law enforcement, health and industry, is coordinating several projects under the strategy. These activities include the development of a National Clandestine Laboratory Database, enhancements to a National Industrial Chemicals Monitoring Scheme, a framework for research and evaluation of current controls on precursor chemicals, development of awareness-raising activities for key stakeholders and the public, and increased training opportunities for key stakeholders.

Of particular importance for market profiling is the National Clandestine Laboratory Database, which, as an inter-jurisdictional resource, will store and integrate information on seized clandestine laboratories and precursor chemicals from police and forensic agencies in each state and territory. The inclusion of Australian Customs and AFP data on precursor chemical importation seizures will be essential to the success of this initiative. The lack of consistent and accurate data on precursor chemicals and clan labs has been a major impediment to strategic market profiling for ATS drugs, including for the ecstasy market. The National Clandestine Laboratory Database can and should address this shortcoming.

These more recent Australian initiatives have occurred against a broader international response to the trade in precursor chemicals. The UN International Narcotics Control Board (INCB) is coordinating a Multilateral Chemical Reporting Initiative, in concert with Interpol and the World Customs Organisation, to regulate through pre-import certification and monitoring shipments of the principle chemicals essential to large-scale manufacturing of cocaine, heroin and ATS drugs. Under this Initiative, Operation Purple commenced in 1999 as the tracking system for shipments of over 100 kilograms of the key cocaine precursor potassium permanganate. In its first year, 19 shipments involving 2,000 tons of potassium permanganate was stopped by the exporting countries prior to shipment and an additional 13 shipments/169 tonnes were seized. Between 1 January and 1 November 2002, 500 shipments totalling 10,000 tonnes were tracked, 15 suspect shipments (1,184 tonnes) were stopped, and six shipments totalling six tonnes were seized (INCB, 2004b).

INCB Operation Topaz, which commenced in March 2001, mirrors Operation Purple in monitoring acetic anhydride (AA), a chemical commonly used in the manufacture of heroin. Between 1 January and 1 November 2002, 2,800 shipments (300,000 tonnes) were tracked, two suspect shipments (27 tonnes) stopped, and 16 shipments (49 tonnes) seized. According to the UK NCIS (2003), Operation Topaz has identified key trends and diversion routes, and uncovered organisations involved in heroin production. In a number of instances, criminal groups attempting to divert heroin precursors onto the illicit market, established 'paper' companies purporting to manufacture textiles or leather goods, which utilise AA as part of their normal business, which enabled them to import AA legally. Much of this heroin precursor trade in Western Europe centred on Turkey as a transit country for receipt of chemicals, principally from Eastern Europe, but including countries as diverse as France, Syria and South Korea, for heroin manufacture in Turkey and for re-shipment to heroin laboratories in Afghanistan.

At the March 2001 meeting of the 53-member UN Commission on Narcotic Drugs, a resolution was adopted outlining a number of measures governments should take jointly and individually to identify and control ecstasy and other synthetic drug chemicals. These measures include early

warning systems to identify substitute chemicals being used in place of controlled chemicals, collaboration among laboratories to provide a better understanding of illicit manufacturing trends, and enhanced cooperation with the chemical industry.

In June 2001 the INCB launched Project PRISM (Precursors Required In Synthetic Manufacture), which aims to cut off the supply of chemical precursors to clandestine laboratories and to identify and arrest the traffickers.

In December 2002, the operational objectives and parameters for INCB Project PRISM were agreed upon. The project, international in scope, is aimed at addressing the diversion of precursors for amphetamine-type stimulants (ATS) including MDMA, and covers both chemicals and equipment used in the illicit manufacture of ATS. Project PRISM initiated investigations relating to benzyl methyl ketone (BMK), PMK, ephedrine and pseudoephedrine, and a tracking program for safrole. While there have been some investigations of PMK and piperonal seizures under this operation (principally regarding trade between China and Eastern and Western Europe), only limited compliance with the monitoring of the international legal trade in safrole, ephedrine and pseudoephedrine has been achieved (INCB 2004a, p. 22; 2004b, p. 20). Australian Customs acts as the single contact point for domestic and international agencies for Project PRISM requests and activities in Australia and also acts as the focal point for Oceania.

The participation of Australian agencies in these international initiatives has achieved a number of benefits by creating collaborative arrangements with national drug law enforcement and customs agencies in countries along the international illegal drug supply-chains. Beyond the international cooperation demonstrated through monitoring the precursor chemical trade, other collaborative ventures have arisen out of specific investigative operations. To enhance regulation of the ecstasy market, the AFP has opened a liaison office in The Hague as part of the Australian Federal Police Law Enforcement Cooperation Program (AFPLECP). The value of having immediate contact with authorities in the Netherlands has been demonstrated. A joint operation between the AFP and Dutch drug law enforcement authorities in early December 2000 led to the arrest of high-level traffickers and the seizure of 200,000 MDMA tablets (some intended for Australia) and large quantities of cannabis products. This operation was developed from intelligence surrounding the seizure of 50.75 kilograms of MDMA in Australia on 15 January 2000. Other initiatives through the AFPLECP have included:

- seminars presented in Perth, Melbourne, Brisbane, Sydney and Canberra by a team of representatives from the Dutch Synthetic Drugs Unit, the German Bundeskriminalamt, Europol and Interpol
- an Israel–Middle East regional synthetic drug trafficking seminar
- short-term attachments of Australian Federal Police agents to Europol headquarters in The Hague, the Bundeskriminalamt in Wiesbaden and the Dutch Synthetic Drugs Unit in Eindhove, focused on disrupting MDMA trafficking
- inquiries in Europe following the seizure in Australia of 105 kilograms of MDMA concealed in wine cartons in a shipping container from France (ABCI, 2002, pp. 53, 58).

Specific seizures of ecstasy imported into Australia have also involved significant international cooperation with European law enforcement organisations. For example, approximately 195 kg of MDMA tablets concealed in agricultural irrigation piping arrived in Sydney from Belgium by sea cargo in early November 2003. Following the arrest of six persons in Australia, Belgian authorities arrested a further eight persons (two of whom were alleged to be principals of the drug smuggling syndicate) and seized significant evidence in relation to the joint investigation and other criminal matters. A further example involving jurisdictional and international cooperation is an operation in December 2003 where the AFP, Western Australian Police and the United Kingdom National Crime Squad (UK NCS) investigated a transnational MDMA trafficking syndicate resulting in 13 arrests and the seizure of 33 kg of MDMA concealed in a consignment of refrigerators imported

from the United Kingdom. AFP agents arrested nine suspects in Sydney, and two others were arrested in Darwin. Simultaneously, the UK NCS arrested two men in Britain, who were the subject of an extradition application.

A further relevant example of effective international collaboration in ecstasy market regulation is the participation of Australian Customs in Operation Mercure, hosted by the Dutch Customs Service in March 2002, as an exercise in the surveillance and control of air passengers travelling from Europe to America, Canada and Australia carrying synthetic drugs including ecstasy (ACC, 2003, p. 82). Australian Customs (2004a, p. 8) also report an international operation that resulted in the seizure of over 5.5 tonnes of cocaine in Italy as a result of cooperation with other law enforcement agencies.

Regulation of precursor chemicals and laboratory equipment, including pill presses, presents a number of important challenges for criminal justice agencies engaging with industry and the community to prevent local manufacturing of ATS drugs, including ecstasy. Such challenges require more than simple law enforcement and involve a problem-solving approach informed by local, national and international intelligence from diverse internal and external sources. Inter-jurisdictional and international cooperation is key to effective responses, and is relevant to drug law enforcement on a regional, as well as a national and international, level. Substantial progress has been made in recent years and new initiatives in development should build on earlier successes.

Price along the supply chain

Prices are central to understanding drug policy, but they are poorly measured and analytically marginalised. The development of better price data, along with their analysis, would serve well both researchers and policy makers (Caulkins & Reuter, 1999, p. 1, 263).

While new areas of business for law enforcement in regulating illegal drug markets, such as precursor chemical control, provide opportunity to demonstrate innovation and cooperation, existing areas of intelligence gathering also offer potential gains in supply control. One of these areas is monitoring and impacting on drug prices at different supply-chain levels.

In legal markets the price of goods and services is a basic indicator of changing market conditions. As a general rule, if demand increases faster than supply, prices will rise. If supply is reduced, and demand remains constant or rises, prices will also rise. Prices are likely to fall if demand reduces and/or supply increases. The relationship between these variables is dynamic and rates of change are influenced by, and in turn influence, a range of factors.

The fundamental principles of supply and demand hold true for illegal drug markets, albeit with some important caveats. The most important of these relates to perceived drug purity or 'quality'. As there is no legal regulation of drug quality in illegal markets, the relative purity and the amount of the active ingredient in the tablet or powder a consumer purchases can vary markedly. Retail price may remain the same, but what that price will buy in terms of pure drug weight can vary from one occasion of purchase to the next.

In most instances illegal drug market analyses report retail price for a usual unit of consumption (e.g. an ecstasy tablet), although in some cases the retail price for a larger purchase, such as a gram, is also identified. These retail prices are presented as an average or median, sometimes within an upper and lower range, for a given city or state. This information is usually drawn from police investigations, covert operations or from regular consumer early-warning research systems like the IDRS and EDRS.

Price along the ecstasy supply chain in Europe

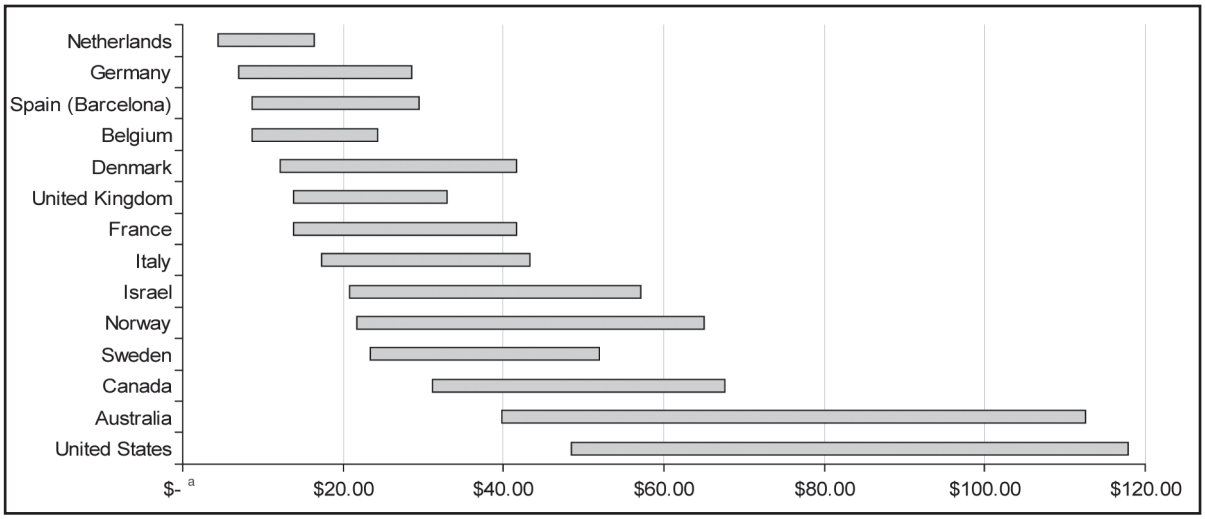
UK commentators[7] made the following observations regarding price along the ecstasy supply chain in 2003:

- £30: the amount growers are paid for each kilogram of essential oil extracted from the sassafras tree bark.
- Chemical companies, often based in China, then convert the oil into piperonyl for legitimate uses such as pesticides and perfumes. The compound, however, is also the raw ingredient for ecstasy.
- £65: the amount paid for the piperonyl by fake companies pretending to want the chemical compound for legitimate purposes.
- £1,000 rising to £4,000 per kilogram: the amount paid for the piperonyl by ecstasy factories, mostly in Benelux and Eastern Europe.
- The ecstasy factories process the piperonyl with other chemicals to create 3-4-methyl-enedioxymethamphetamine (MDMA) powder, which is then formed into tablets.
- £20,000 to £40,000 per kilogram: the amount paid by dealers for ecstasy tablets (1 kg of MDMA powder can create about 10,000 pills).
- £30,000 /£50,000: the value of a kilogram of ecstasy tablets on the street – each pill is sold for £3/£5.

A number of law enforcement agencies monitor retail prices as a regular component of drug market profiling. International estimated retail prices (in AU$) for ecstasy tablets in 2002 are provided in Figure 6-14. These data, compiled by Gruppo Abele (2003), suggest that Australia may be an attractive location for the distribution of ecstasy, given the high price per unit, although the Australian price range presented here is considerably higher than that reported in the EDRS (Breen et al, 2004; Stafford, 2005a) or in the 2001–2002 AIDR (ACC, 2003) and the 2002–2003 IDDR (ACC, 2004a). The US retail price also exceeds other estimates made by the US DEA (2001). The price differences between countries nevertheless illustrate that Australia is currently an attractive market for the sale of ecstasy, with the profit per tablet considerably higher than that reported in the UK.

[7] Special report by J. Doward and T. Thompson. Sunday September 28, 2003. *The Observer*. http://observer.guardian.co.uk/focus/story/0,6903,1051205,00.html

Figure 6-14: Estimated retail price range for ecstasy in selected countries 2002



[a] Australian dollars

Source: Dutch Police USD, DEA Country Reports and UK NCIS 2002 (Gruppo Abele, 2003).

Comparative retail price can be an indicator of both local availability and length of supply chain from manufacture. Clearly, in countries where ecstasy is manufactured, the drug is cheaper because of both ready availability and the lower costs of distribution. This is also true to some extent of neighbouring countries (e.g. the United Kingdom) to manufacturing centres (e.g. the Netherlands). Countries further from the centre of manufacture may pay a proportionately higher price to cover both the actual costs of transport, and the perceived increase in risk associated with transhipment. Given the potential for high financial return in countries more distant from European centres of ecstasy manufacture (such as Australia), there is increased profit incentive to both supply these more distant markets, and also for these markets to establish local centres of manufacture.

Much less frequently reported by law enforcement agencies is price and sale volume in the mid level and wholesale segments of the supply chain. In most drug supply chains, drugs change hands a number of times from manufacture to retail sales. At various stages, the product may be re-packaged into smaller units, and at these stages the purity of the drug may also be diluted with other substances to increase its bulk, and thus the profit margin. While this is less likely to occur for ecstasy which is distributed in tablet form at a wholesale level, price is likely to vary considerably, being less at a wholesale than at a retail level. The price paid for larger quantities of ecstasy at various points along the supply chain is, therefore, a key indicator of the state of the market.

Table 6-4 presents estimated wholesale and retail prices per ecstasy tablet in various countries, collated by the US DEA. While these prices are not entirely consistent with those presented above in Figure 6-14, they nevertheless illustrate the considerable profit margin, often 400% to 500%, between wholesale and retail levels that is common in the European ecstasy market.

Table 6-4. Estimated wholesale and retail ecstasy price per tablet.

Country	Wholesale US$	Retail US$
Netherlands	$1.00 - $2.00	$7.00 - $12.00
Belgium	$1.00 - $2.00	$7.00 - $12.00
Italy	$4.00 - $5.00	$25.00 - $30.00
Scandinavia	$5.00 - $8.00	$10.00 - $20.00
UK	$1.00 - $3.00	$15.00 - $18.00
Ireland	$1.00	$10.00
Germany	na	$5.00 - $15.00
Switzerland	na	$6.00 - $35.00
Spain	$2.00 - $3.00	$4.75 - $17.00
France	na	$20.00 - $30.00
Poland	na	$3.00
Czech Republic	na	$13.00
Hungary	na	$5.00 - $7.50
Romania	na	$6.00 - $8.00
Slovenia	na	$9.00 - $15.00
United States	$8.00 - $10.00	$20.00 - $40.00

na: not available
Note: Amounts shown in US dollars.
Sources: DEA Country Offices: The Hague, Rome, Copenhagen, London, Vienna, Berlin, Madrid, Paris, Bern, 2000. (DEA 2001)

Price differentials inducing amateur trafficking

Gruppo Abele (2003) argued that internal European retail price differentials have initiated low level drug trafficking by tourists to the Netherlands who fund their travel by drug resale in home cities where retail prices are higher. This initially opportunistic trafficking activity has become increasingly professional over time. Similarly, the price differentials between Europe and Australia are clearly a significant incentive for both amateur and professional traffickers. The high number of low weight ecstasy seizures entering Australia via the postal system, particularly those originating from Britain (see Chapter three), may in part be explained by the traditionally high numbers of young Australians using the UK as a working holiday destination. The temptation of high quality ecstasy at a quarter of the Australian price could induce some expatriates to share their cheap access with family and friends at home. This issue warrants further investigation, with a view to developing a targeted information and education campaign on the seriousness of such criminal offences and the relatively high risk of detection given recent enhancements in postal screening technology.

Declining retail price in Europe

Ecstasy has become significantly cheaper in Europe over time. Retail price depends on transaction setting, quantities involved and relations between suppliers and customers, while at the production level the price and availability of the main precursor PMK are also important factors. According to Dutch police[8], 90% of a producer's financial investment is in precursors and 10% in glassware and lab equipment. In the Netherlands, ecstasy in the early 1990s sold retail for an average of 16–18 euros[9], with a range of 9–23 euros. Ten years later, field research among clubbers in the Netherlands indicates a retail price as low as 3 euros where purchased privately, but with peer selling, in clubs or parties, at 7 euros. Dutch police estimate the normal retail range at 4–5 euros. The wholesale and intermediate prices per tablet are reported to be 0.90 euros from production tabletting off premises, 1.50 euros wholesale and 2.70 euros at the intermediate level. By the time these tablets reach their principle market of raves or clubs in the UK, they are frequently priced at 15 euros, or in the United States where they may sell for as much as 40 euros.

Dutch police estimate the production cost of a tablet in an established production lab to be 0.25 euros, which includes transport and premises rental. Field researchers interviewing mid-level dealers in Amsterdam estimated that production costs can be as low as between 0.15 and 0.20 euros. At wholesale and intermediate levels of the supply chain, for well connected customers, the price is progressively reported as: 0.35–0.40 euros per tablet for lots of 100,000 pills; 0.50 euros for 10,000, 0.55–0.60 euros for 5,000; 0.70–0.75 for 1,000, 1.00 euro for 500, and 1.50 euro for 100 pills. Dutch researchers have found that:

> *In ten years time the price at the intermediate, 10,000 pill level had dropped 900%. According to two dealers interviewed, who work at the 10,000 pill level, the market has become saturated. It has changed from a seller's market into a buyer's market. Supply is overwhelming while demand is slowly dwindling (Gruppo Abele, 2003, p. 37).*

Prices in surrounding countries of Belgium and Germany have also fallen to similar levels and there is some evidence of both manufacturers and wholesalers being forced to stockpile pills in the absence of sufficient demand. Pearson and Hobbs (2001, p. 22) detail the influence of volume of purchase on unit price along the UK supply chain:

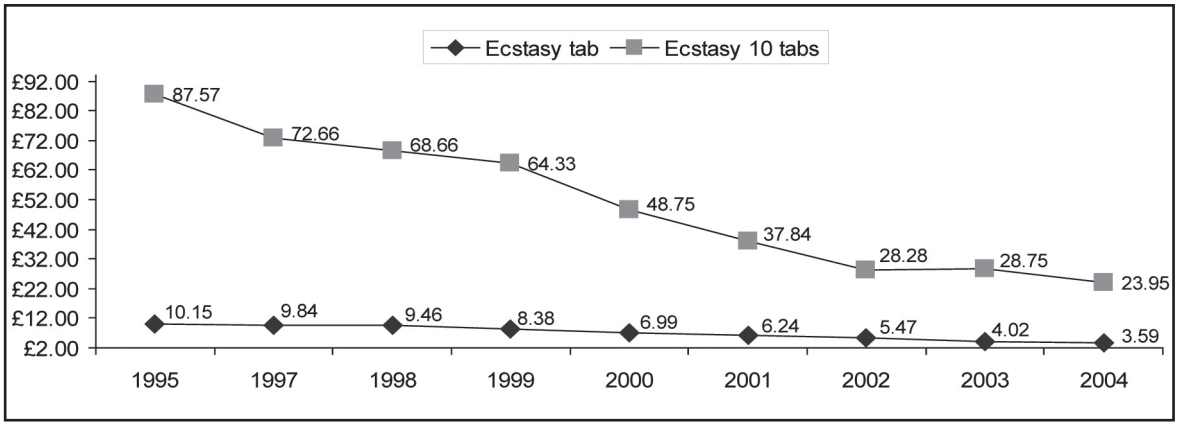
> *The market for ecstasy and related pills works strictly on a quantity discount basis. Ecstasy pills can be bought for a unit cost of 0.50 pence direct from a Dutch-based laboratory or pillmaker in loads of 100,000 or 200,000 for importation, and there will be a mark up as these are sold in smaller loads of 10,000 to 20,000 pills. Alternatively, a Dutch-based middleman will supply UK nationals with loads of 10,000 to 30,000 tablets at a unit price of £1.00 that have been bought direct from the manufacturer at 0.50p. A lower-level UK dealer will be able to purchase at a unit cost of £2.50 to £3 when buying a couple of thousand per week. These will be sold by this mid-to-low level dealer at £5 per pill to people buying in units of hundreds who are typically retail level dealers supplying networks of friends. The cost to the consumer varies, according to quality and how well acquainted retailer and end-point consumer are, but could be as little as £7.50 or as much as £10 to £15 when purchased in clubs.*

[8] USD (2002) Jaaverslag 2001. Helmond: Unit Synthetische Drugs, May 2002. This series, in Dutch, is an excellent resource for monitoring the centre of the global ecstasy market.

[9] One euro in 2001 equalled about AUS$2.

In the UK, ecstasy prices have been consistently falling since 1995 according to the Independent Drug Monitoring Unit[10] (see Figure 6-15) and the prevalence of ecstasy use has declined in the last two British Crime Surveys (Aust, Sharp & Goulden, 2002; Condon and Smith, 2003). This level of strategic analysis of price along the supply chain within Australia has yet to be undertaken, however as the above discussion has illustrated, comparative inventory size and stock turnover rates in Queensland and Australia would be valuable indicators of the market state, if they were available.

Figure 6-15: Ecstasy price trends in the UK, 1995–2004



Source: Independent Drug Price Monitoring Unit, UK (2004).

The UK National Criminal Intelligence Service acknowledges in their 2004/05 and 2005/06 National Threat Assessment that:

> *There is a considerable price difference per ecstasy tablet between the UK and Australasia, and this may make the trafficking of ecstasy between these destinations highly profitable for organised criminals (NCIS, 2005, p. 24).*

Price along the supply chain in Australia

Jurisdictional variations in retail price within Australia may be indicative of the relative market size in each state or territory. It is reasonable to assume that the lower the average retail price, the larger the market and/or the greater availability of products. Based on recent ecstasy price data collected as part of the national EDRS project, there appears to be considerable jurisdictional variation in the nature of ecstasy markets within Australia. The median price of a tablet of ecstasy ranged from $30 in Victoria in 2003 and 2004 to $50 in the Northern Territory and Tasmania in 2003 and $50 in the Northern Territory and Western Australia in 2004 (Stafford et al, 2005a). The majority of ecstasy consumers in all jurisdictions reported that the retail price was stable, although slightly more believed that the retail price had decreased between 2003 and 2004. Few regular consumers perceived an increase in price in the six months preceding their interview (Breen, Degenhardt et al, 2004).

Table 6-5 presents the median price and range of prices paid by regular ecstasy consumers across Australian jurisdictions in 2003 and 2004, based on PDI data. Consumer perceptions of changes in retail price are also provided. Nationally, the median price has remained stable at $35 per tablet, however prices seem to be somewhat higher in Tasmania, Western Australia and the Northern Territory, and slightly lower in Victoria. Despite strong central tendency in median

[10] http://www.idmu.co.uk/drugpricetrend9403.htm. Cited by DrugScope http://www.drugscope.org.uk/druginfo/drugsearch/ds_results.asp?file=\wip\11\1\1\ecstasy.html.

price, the price range reported by regular consumers can be considerable, with a national retail price range of $7–$80 in 2004 (Stafford et al, 2005a). This range represents the extremes of some consumers purchasing at the wholesale level of the supply chain at a significantly discounted rate, while others, in the Northern Territory for example, pay a premium price, presumably due to limited local supply. In 2004, across all states and territories, the average of the lower level price was $19 and the average upper level price was $60.

Table 6-5. Median price, price range and retail price change reported by regular ecstasy consumers 2003 and 2004.

	Median price ($)		Price range ($)		Price increased %		Price stable %		Price decreased %		Price fluctuated %		Don't know %	
	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004	2003	2004
Aust	na	35	na	7-80	8	6	64	61	16	18	10	12	3	2
NSW	35	35	20-55	13-50	12	3	59	59	25	29	3	6	2	3
ACT	35	35	25-40	20-50	5	9	61	63	27	15	8	12	0	1
VIC	30	30	20-50	13-45	7	8	59	59	22	16	9	14	3	2
TAS	50	40	30-50	30-50	5	6	72	64	15	15	8	13	0	2
SA	35	35	20-50	25-60	2	4	67	69	19	19	11	7	1	1
WA	40	50	25-50	15-80	10	4	68	62	12	19	6	13	4	2
NT	50	50	20-80	15-80	15-80	9	58	66	3	6	18	20	6	13
QLD	35	35	17-50	17-65	9	6	63	53	12	22	13	13	4	4

Note: na = not available

Source: EDRS regular ecstasy users interviews in 2003 (N=809) and 2004 (N=852). (Stafford et al, 2005a)

In Australia, information regarding ecstasy prices by volume and along the supply chain are collected by the ACC and published in the IDDR. The most current such data is provided in Table 6-5 below (ACC, 2005). The process of price data collection for the IDDR is by no means systematic and many jurisdictions do not provide data for all transaction quantities. Individual policing agencies collect this information as a part of investigations, and this intelligence is also used to inform covert operations. As is the case with much of the data available from law enforcement databases, these data could be more valuable from a strategic perspective if linked to specific seizure events, which would provide a context within which to interpret the numbers.

Table 6-6. Phenethylamine prices by state and territory, 2003-2004 ($).

Weight	NSW	Vic	Qld	SA	WA	Tas	NT	ACT
1 tablet	30-70	25-35	35-60	35	35-50	30-70	50-80	40-60
10 tablet (per tab.)	na	25-30	28-45	na	28-40	45-50	na	na
25-100 tablets (per tab.)	na	25-30	22.5-35	na	28-40	30	30-50	na
100-1000 tablets (per tab.)	na	15-25	na	na	20-40	19-27	18-50	na
1000+ tablets (per tab.)	na	15-20	na	na	28-40	na	na	19

Note: na = not available

Source: ACC (2005, Table 36).

Interviews with both market regulators from policing agencies and with suppliers in the EMI study indicate the price at similar market levels of $16 per tablet for transactions between 5,000–10,000 tablets.

Walker (1999) has built on the United Nations Drug Control Programme (UNDCP) price data to develop a model for estimating total illegal drug revenues and for modeling global money laundering flows in Australia. This research involved splitting the supply chain into stages (production, wholesaling and retailing) and calculating revenues for each stage in the supply chain. However, because the data are based on the very broad UNDCP Annual Report Questionnaires (ARQ), doubts remain about the validity of the resulting estimates (Levi, 2002). Nevertheless, greater use of economic analysis of supply-chain price movements, particularly at importation and the mid-level of distribution, could provide early strategic intelligence of changes in market circumstances, and could assist in the targeting of law enforcement resources at various points along the supply chain.

Price change as a strategic objective

Increasing the retail price of illegal drugs has traditionally been considered a key objective of drug law enforcement agencies. The logic has been that higher prices will provided a disincentive to new market entrants and will reduce the level of consumption among those already in the market. Price information is also a market indicator that is relatively easily and cheaply obtainable in most retail drug markets.

Broadly speaking, a decline in price may occur either because demand falls or because supply rises. Conversely, therefore, an increase in price may result from either increased demand or reduced supply. Some researchers have, however, suggested that price increases and reductions may have asymmetrical effects on the demand for drugs. When price falls, new users may enter the market and become dependent users, who then find it difficult to reduce their consumption when prices rise. One implication of this view is that law enforcement efforts to reduce supply, and thus drive up price and reduce consumption, may not be as effective as law enforcement strategies designed to reduce demand and thus reduce the number of consumers entering and participating in the market. Low prices may enable more consumers to participate in the market more frequently, but higher prices will not have the same rate of effect in discouraging consumption (Wagstaff & Maynard, 1988).

The view that supply-reduction strategies will have limited impact upon the consumption patterns of dependent users may have some merit, however, this principle is less relevant to markets for drugs that do not typically produce dependence. In the language of economics, the concept of drug dependence translates into inelasticity of demand[11], however most ecstasy users are not dependent – for many consumers, use is self limiting and involves purchases of small quantities; if ecstasy is in short supply, non-dependent users may opt to use one of a range of licit or illicit alternatives. With respect to the ecstasy market in particular, therefore, demand should be considered elastic in response to price changes, and there is, at least theoretical, support for the role of supply reduction strategies in regulating the market.

One aspect of dependent drug use that may drive buyers to open markets is their regularity of demand, which may exhaust the patience and supplies of social networks. Law enforcement strategies that drive the price of drugs associated with dependence higher may also drive the dependent consumer to acquisitive crime to pay the higher price (Edmunds, Hough & Urquia, 1996). There is an old police adage: 'drug squad success creates more work for the burglary

[11] The elasticity of demand refers to the extent to which demand will vary as a function of other market factors such as price. An increase in price will have less impact on demand among dependent than among non-dependent users (Thomas 1992); the demand among dependent users can thus be described as relatively 'inelastic'.

squad'. However, for poly-drug users for whom ecstasy is the drug of choice, dependence is less of an issue, and they may therefore be more sensitive to increases in price, driving them to consume less ecstasy, or to choose alternative combinations of intoxicants such as alcohol, cannabis and methamphetamine.

There is a growing body of research on price in illegal drug markets, initiated by the work of Caulkins and others (Saffer & Chaloupka, 1995; Yuan & Caulkins, 1998; Caulkins & Reuter, 1999; MacDonald, 2004). What is clear from this research is that the difference in price at manufacture and at the retail is greater than for any other commodities; several times greater than the price of gold. Price varies along the supply chain with the greatest profit margins in the middle market, not at manufacture or at retail sales. What is less clear in the literature is the impact of drug law enforcement on price, and whether increasing the retail price of a drug is the most effective strategy in reducing either drug use or drug-related harm (Caulkins & Reuter, 1998).

Lower retail prices may reduce supplier profit margins, particularly where the costs and risks of supply chain movement are increased. This is the subject of further study by Dorn, Levi and King (2005, pp. 39-40), who have recently identified a further research agenda for the role of price in illegal drug market regulation. In particular, they propose the following:

- Historical, case-by-case study of the relationship between prices and volume of supply, in source, transit and distribution zones, before and after significant interventions that change either price or supply in drugs. This will require considerable improvements in measurement of both prices and volumes.
- Exploration of the implications of policy objectives aiming at decreases in price in source zones and increases in prices close to and at retail level – what would be the expectation at intermediate stages in the supply chain?
- Should decreased supply be the aim at all levels of the market (low price means less potential for profit)?
- Exploration of the extent to which (a) very low prices and/or (b) large price drops might reduce profits sufficiently to discourage traffickers.
- Exploration of whether different traffickers respond differently to such price changes.

There is scope for further analysis in Australia of both court proceedings and crime reports to identify the profit margin at different levels of the supply chain, and in different settings and volumes for different drugs. The current level of analysis of these issues by Australian law enforcement agencies could not be determined within the timeframe and scope of the EMI study.

It may be that increasing awareness of the profitability of drug trafficking is perceived as creating an incentive to new supplier entrants to the market. The result though is more limited analysis of this key market indicator.

While the accuracy of the estimated retail value of seizures made in Australia has improved over time, it is evident that in some law enforcement agencies there still persists an attitude among some officers that it is in their organisation's interests to always report the total value of seizures at the highest dollar value possible. This often inaccurate use of seizure data and operational intelligence is encouraged by the media. In the long term, such inaccuracy undermines the credibility of law enforcement organisations in the community and among other professionals monitoring illegal drug market trends. It also brings into question the appropriateness of research into measures of organisational effectiveness, such as the AFP's Drug Harm Index, which relies on accurate dollar valuations of seizures. Consumer price data derived from the EDRS and the IDRS are more likely to be reliable than anecdotal reports from police informants.

Careful monitoring of drug price and purity, in concert with changing patterns of consumption and seizures of supply, are essential to profiling illegal drug markets. Further research on the price/volume of transactions at wholesale and mid levels of the supply chain can better inform change in the market and the impact of market regulation. Policy objectives involving price need to balance changing consumption levels with the profitability of illegal markets for suppliers.

Improving intelligence systems

Most strategic and operational intelligence resides within law enforcement operational systems such as CRISP in QPS, PROMIS in the AFP and Drug LAN within Australian Customs. Extracting, collating and analysing data from individual entries in these systems for intelligence purposes is difficult for agency staff and more so for researchers from outside these agencies. While security issues constrain external access, as entities usually identify individuals of interest, the information systems themselves have limited functionality for retrieving de-identified quantative data. While rich in descriptive data, coding and classification systems are not sophisticated and offer limited scope for quantative analysis of illegal drug market dynamics.

Adopting the Australian Bureau of Statistics Australian Standard Classification of Drugs of Concern (ABS, 2000) into police operations systems may be a first step in addressing these limitations. The Broad Group Stimulants and Hallucinogens (coded 3) contains among other Narrower Groups Amphetamines (coded 31) and Phenethylamines (coded 34). MDMA (coded 3405) is one of ten drugs identified with the group of Phenethylamines. This classification system also allows coding of physical form for each drug type. This improvement to seizure recording processes could also be informed by similar recent changes to the harmonisation of such data management by the criminal justice sector in the UK in response to European Union recommendations[12] (Taylor, 2003). Similar enhancement to health data systems through the adoption of an ICD10 code for Phenethylamines is also desirable.

Despite the limitations of the indicator data sources identified in this chapter, when the available indicators are drawn together with an understanding of supply and demand, as detailed in previous chapters, a reasonable picture of the Queensland ecstasy market can be provided. The market profile presented in this report has been developed using a range of tools, and can be replicated in other jurisdictions. A central outcome of this study has been the acknowledgement that law enforcement modeling of illegal drug markets must include a detailed understanding of the demand, as well as the supply-side of the market. This outcome is also a key finding of the supply control evaluation undertaken by Sutton and James (1996. p. 99) and detailed in their Recommendation 11. The inclusion of summary demand data and market size estimates in future editions of ACC's principle intelligence publication, the Illicit Drug Data Report, would be a significant enhancement to illegal drug market profiling in Australia.

While tactical intelligence from successful and unsuccessful operations is collected and shared among policing agencies, it is not collated and analysed in a systematic and routine manner that provides accurate and current market profiles at a state or national level. To the best of our knowledge, strategic intelligence does not currently make best use of internal data and information systems, nor does it as a matter of course incorporate open source material from drug market regulators in the health and welfare sectors regarding patterns of consumption and patterns of drug-related harm.

The Key Research Questions identified by the NDLERF research brief provide the framework for the conclusion of this report and are presented in the following section.

[12] See Appendix E.

Results summary

Introduction

A summary of the conclusions drawn from this is study is provided in relation to the specific research questions posed in the NDLERF research brief.

Market characteristics

What are the principal distribution channels of ecstasy across Queensland and within Australia?

Ecstasy enters the Australian market by two methods: by importation and from local manufacture. There is limited local manufacture in Australia of ecstasy tablets that are predominantly MDMA. Attempts at production have occurred and will continue, but large scale, continuous local production is not likely in the near future, given the lack of skilled 'cooks' and the effectiveness of precursor chemical and laboratory equipment regulation. Some tablets containing little or no MDMA are manufactured in Australia or imported from Asia. These tablets may be sold as ecstasy in order to capitalise on high levels of local demand. Most ecstasy in the Australian market, based on seizure analysis, is imported, although the ratio of imports to local, non-MDMA tablet production and non-MDMA tablet imports fluctuates.

Ecstasy manufactured in Europe predominantly enters the Australian market via Sydney and Melbourne by sea cargo, with possible transit in South East Asia. A proportion of this ecstasy is then distributed to Queensland (most probably by road) to the Gold Coast and to Brisbane – the centres of the Queensland ecstasy market. There is evidence of some direct importation from Europe into Brisbane (and Perth) by air passengers, parcel couriers and postal packages, but the volume is low compared to what enters via Sydney and to a lesser extent Melbourne. Most ecstasy transported from interstate is transited to the Gold Coast and/or Brisbane before a proportion is moved on to other regional locations within Queensland. However, it is acknowledged that some ecstasy moves directly from Sydney or Melbourne to holiday destinations in the Whitsundays and the Cairns regions. Demand is very strong in Brisbane and the Gold Coast where the population of potential consumers and nightlife venues for distribution and use are concentrated.

It can reasonably be assumed that the general pattern of distribution from Sydney and Melbourne to secondary, but still sizable markets, is equally applicable in other states. The importation of ecstasy by a range of modes directly to other Australian capital cities will continue to occur, but it is unlikely to reach the volume entering Sydney and Melbourne. The evidence base for this general pattern of distribution is limited and much more research and intelligence gathering on 'middle market' structures between importation and retail markets is necessary.

How is ecstasy distributed within localised drug markets?

Retail markets are a very diverse mix of: consumers supplying other consumers at cost, without cash profit but with drug profit or 'petrol money', or for a modest profit; consumers who consciously choose to become suppliers to friends, and friends of friends, for cash profit as a continuing supplement to their regular employment; and the more traditional 'professional' drug supplier for whom trafficking is their principal occupation in terms of time and income. In terms of numbers, the former groups of peer supply variants are by far the largest group, but those who regularly supply for profit, though fewer, move considerable volume and can make an additional income easily equivalent to the average wage. This latter group acts as the cut-out between the

social networks of consumer peer supply and the professional trafficker who may be part of, or have connections with, organised criminal networks.

There is little evidence to suggest that ecstasy is commonly sold in open street markets. Some ecstasy is obtained in semi-open markets inside licensed premises, but most appears to be purchased in closed markets. Ecstasy purchases in closed markets are usually facilitated by known persons and occur in private dwellings. It is likely that a proportion of ecstasy transactions observed in licensed premises had been previously arranged by telephone between known market participants, rather than opportunistic purchases between consumers and suppliers who do not know each other. Transactions in nightclubs are only the visible side of a much larger market.

Is the ecstasy being manufactured/acquired in Queensland or is it being sourced from interstate/overseas?

There are some attempts at local production of MDMA, but at present these appear to be few and largely unsuccessful in terms of volume of output. A recent seizure in the first quarter of 2005, however, suggests that large-scale production in Queensland has been attempted. It is likely that some pressing of pills containing some or no MDMA and other substances such as methamphetamine and ketamine occurs in Queensland. Further detailed analysis of the supply chain context of local clandestine laboratory detections and drug seizures would provide more intelligence on this issue.

The different stages of MDMA production may be performed by different individuals or groups who specialise in particular phases of the production process. These phases include sourcing precursor chemicals, precipitation of MDMA salts from precursor chemicals, producing MDMA powder from MDMA salts and pill pressing. It is worth noting, however, that the recent Gold Coast clan lab seizure indicates that there are currently few individuals in Queensland with MDMA production skills. In this case, an individual was brought in from overseas in order to produce MDMA and, perhaps, to teach other individuals how to produce MDMA. The issue of specialisation of the production process in ecstasy manufacturing, and the skill levels for different synthesis route, using different precursor chemicals requires further investigation.

The vast majority of ecstasy pills consumed in Queensland are likely to be either of European origin, imported through the Sydney or Melbourne markets, or non-MDMA tablets pressed in and for local markets. Monitoring fluctuations in tablet seizure purity and composition can indicate changing availability of imported, high-MDMA content ecstasy, in tablet or powder forms, compared with locally blended and pressed tablets of mixed contents. Intelligence gathered from suppliers and informants during investigations on the supply chain context of clan lab and precursor chemical detection and drug seizures could provide evidence to support these hypotheses about the sources of ecstasy in the Queensland market.

What are the principal barriers to entry into the ecstasy market for users and for dealers?

Consumers

There are few barriers to young people entering the ecstasy market as consumers. The first challenge is establishing contact with a supplier. First contact is usually through peer social networks active in leisure activities that include nightclubs and youth music events; however, the prevalence of poly-drug use may mean that some initiate ecstasy consumers first obtain ecstasy from previously established suppliers of other drugs. The cost of ecstasy is also a barrier to market entry. The average price of $35 per tablet may prevent market entry for very young people in particular, who may find intoxication from alcohol or cannabis cheaper and more accessible. Access to licensed entertainment venues or events where ecstasy is often consumed may also be a barrier to consumers under 18 years of age, highlighting the importance of enforcing liquor licensing laws. Given increased use of ecstasy in contexts other than licensed premises, however, this is becoming progressively less of a barrier to market entry for this age group.

The typical pattern of ecstasy consumption for consumers surveyed in the EMI study involved taking one to two tablets orally, two to four times per month or less. The results also suggest that elevation beyond this level of use is often self-limiting. This is possibly due to the pharmacological properties of ecstasy, the ways in which ecstasy use is managed by users and the social context of use. It is worth pointing out, however, that ecstasy use is likely to occur in the context of other illegal and legal drug use, which may cause significant problems for the consumer.

Consumers perceive the use of ecstasy to be less risky than the use of heroin, methamphetamine or other drugs contextually related to ecstasy such as GHB or ketamine. The risks of ecstasy use are seen as only slightly higher than those for cannabis or alcohol. This perception is based on shared information about relatively low levels of short-term harm actually experienced by most regular consumers. Ecstasy-related deaths are (accurately) seen as rare events related to overdose, poor management of intoxication, hot environments, pre-existing health conditions, driving whilst intoxicated or inadvertent consumption of PMA. The actual risks of MDMA consumption, particularly in the long term, are under-emphasised by consumers, who perceive that scientific research has not conclusively demonstrated significant harm from low levels of use. Consumers also perceive that the risk of arrest for possession, or for peer supply of ecstasy, is low.

Suppliers

Market entry for suppliers can take a number of routes. At the retail end of the market, peer-supplying consumers can evolve into regular suppliers on a more or less full-time basis if they can establish regular sources of supply from the middle level of the national supply chain. This progression requires some capital or credit, and a level of trust that may be based on existing social or family relationships. Whether such a 'career move' is temporary or sustained is an issue warranting further research. Examples can be found of relatively naïve young people who move from regular use and peer supply to wholesale distribution in local Gold Coast and Brisbane markets. These individuals often do not have previous criminal records and do not fit profiles of criminal drug traffickers. Often, they do not perceive their market activity as a serious criminal matter.

There are numerous examples of inexperienced suppliers undertaking direct importation (typically small volume) from Europe to realise the substantial wholesale price variations between Europe and Australia. These more opportunistic importers in the ecstasy market differ substantially from those involved in the importation of heroin and crystal methamphetamine from Asia. Among such suppliers, the postal system is often used as a mode of entry. Further investigation of the volume of these trans-shipments over time, by individual suppliers and their middle-level supply chain access points in Europe, may provide intelligence to inform preventative strategies.

While it is possible that more professional suppliers' careers may evolve from these naïve consumer suppliers, it is more likely that professional suppliers will enter the ecstasy market from other illegal drug markets such as cannabis or methamphetamine. Indeed there appears to be considerable overlap in the mid-levels of the national supply chains for these markets. This is evidenced by mixed drug seizures, and arrest of mid-level ecstasy suppliers with a history of supplying other drugs such as cannabis, methamphetamine and cocaine. Equally significant is the potential for supply chain overlap at the importation level, where South East and East Asia transit of European manufactured ecstasy may be handled by experienced heroin traffickers. The potential for ecstasy supply along these established trafficking routes merits law enforcement scrutiny.

Other suppliers may enter the ecstasy market from diverse criminal backgrounds, attracted by the high profits and lifestyle associated with distribution. A key marker for individuals earning high illegal drug-related profits is their difficultly in concealing an income stream, or assets, that are not derived from legitimate employment or businesses. From the data collected through the EMI study it is not possible to make confident assertions about barriers to entry, and continued supply

activity, in the middle levels of the ecstasy supply chain in Australia. There is considerable scope for ethnographic research at this market level, as has occurred in the UK and in the US. What can be assumed from the analysis of clandestine laboratory detection and seizure data is that there still exists considerable barriers to local manufacture of quality MDMA ecstasy tablets in Australia. These barriers are principally access to the relevant precursor chemicals and skilled labour experienced in the MDMA manufacturing process.

What is the principal structure of local ecstasy markets in Queensland?

Local ecstasy markets in Queensland are inextricably connected to the national and international ecstasy markets. Queensland suppliers source most of their ecstasy from Sydney and Melbourne and most of this ecstasy in turn is imported from the Netherlands. There is some evidence, however, of the importation of ecstasy from overseas directly into Queensland. The importation of ecstasy from overseas or from interstate is carried out by both amateur and professional suppliers.

The supply structure of the Queensland ecstasy market involves multiple individuals or groups organising access to goods and their distribution. These individuals or groups are primarily motivated by profit and operate in response to high consumer demand. Although the organisational structure of supply is characterised by different levels, no one individual or group controls the market. The structure is fluid, transitory and diverse. The level of organisation involved in local supply networks generally depends on the volume of ecstasy that is being sourced, where it is being sourced from and the mode of transportation being used to convey the product.

Most consumers and the key supply networks of the Queensland ecstasy market are concentrated in Brisbane and the Gold Coast. Some significant secondary markets exist along the Queensland coastline – particularly in locations with established nightlife and tourism – such as Cairns and the Whitsunday Islands. The level of demand and supply does not exist to the same extent in rural Queensland as it does in other more populated regions.

What indicators could be used to assess the functioning of local ecstasy markets?

Important indicators of the size and functioning of the ecstasy market in Queensland are those measuring consumption and consumer behaviour. Seizures in local retail markets provide a sample – probably not representative – of what drugs (purity, contents, physical form) are present in a given location at a given time; however, local seizures must be placed within national and international supply-chain contexts. This intelligence cannot be drawn from available indicator data but is embedded in the rich qualitative information gathered through investigations at specific supply-chain points. The number of seizures and, to some extent, the weight of seizures are, like arrests, a function of the intensity and effectiveness of policing activity, and thus a very imperfect indicator of market conditions. The inability to distinguish phenethylamine (ecstasy-related) arrests and seizures of drugs from other ATS arrests and seizures in a number of state jurisdictions is a major impediment to developing strategic intelligence for ecstasy market profiling.

Indicators relevant to the heroin market are not relevant to the ecstasy market. Opioid substitution therapy (including methadone maintenance) and needle and syringe exchange indicator data have no relevance in ecstasy market profiling. The extent to which ecstasy is involved in hospitalisations and deaths cannot be determined from existing health information systems because of the shortcomings in the relevant coding systems. An International Classification of Disease code for phenethylamine-related events is warranted. Our research, however, indicates that ecstasy-related mortality and morbidity is low, although better monitoring in Emergency Departments and possibly in primary care settings may provide more insight into acute harms from ecstasy use.

Drug treatment and counselling data likewise have little to offer ecstasy market profiling, as both occasional and regular ecstasy consumers do not generally seek assistance from these services.

Among those who do present to drug treatment services with ecstasy-related problems, ecstasy is typically deemed a 'secondary drug of concern', with other ATS drugs or cannabis typically the 'primary drug of concern'. Mild, chronic problems (disturbed sleep patterns, anxiety, etc.) associated with ecstasy use may be dealt with by general practitioners. However, these may not be acknowledged as ecstasy-related by consumers, and thus not recorded as such.

Developing drug market profiles at more local regional levels is difficult, as any useful analysis is hampered by the lack of consumption or indicator data from law enforcement or health services. Given the low level of contact between ecstasy consumers and either health or law enforcement agencies, there is a clear need for ongoing monitoring of the ecstasy market through regular surveys such as the EDRS. Ecstasy market profiling at a regional level is probably not warranted given the relatively low level of harms, in both health and criminal justice terms, associated with ecstasy use.

Patterns of ecstasy use

Who are the principal ecstasy user groups and in what environments is ecstasy used?

Approximately 1.2 million Australians aged 14 years or over had tried ecstasy and over 550,000 people had used ecstasy within the last 12 months in 2004. The proportion of Australians reporting lifetime use of ecstasy grew from 3.1% in 1993 to 7.5% in 2004. Recent ecstasy use is less prevalent in Queensland compared to some other Australian states, however recent use in Queensland doubled from 1.7% in 2001 to equal the national average of 3.4%. Males are significantly more likely than females to use ecstasy but this difference is smaller for those in their late teens and early twenties. The average age of initiation to ecstasy use, 21 years, is generally later than the average age of onset to a range of other illegal drugs (including cannabis, amphetamines and heroin).

Ecstasy consumers tend to be reasonably well educated and to be either working or in full-time study. Furthermore, compared with other illicit drug users, ecstasy consumers are less likely to be involved in criminal activity (other than illegal drug possession) or to have contact with drug treatment services. Nevertheless, ecstasy consumers are more likely to be involved in criminal activity than the general population.

The most common location for first obtaining ecstasy is a friend's home, while the most common place of first use is a nightclub or pub. Ecstasy is consumed in a range of locations including nightclubs/raves, private parties, friends' homes and consumers' homes. The practice of consuming ecstasy in a private location and then moving on to a public location to experience its effects is also common and reflects consumers' desire to minimise the risk of detection by law enforcement and other authorities. The use of ecstasy in private social settings appears to be increasingly common. The association of ecstasy use exclusively with specific public dance events is less relevant than it has been in the past. There is some indication that the use of ecstasy tablets is now more common than use of other ATS drugs, with ecstasy the second most commonly used illegal drug in Australia after cannabis.

How is ecstasy administered and is poly-drug use prevalent amongst ecstasy users?

The EMI study showed that regular ecstasy consumers are likely to consume ecstasy on a weekly to monthly basis and that a median of two tablets is consumed in a session of use. Daily use is very rare. This study also found that experimentation, fun and opportunity are among the most frequently endorsed reasons for why ecstasy is first consumed. Ecstasy use appears to be planned as part of specific social events rather than as opportunistic use.

Swallowing ecstasy tablets is by far the most common route of administration and the ability to consume orally is considered one of the attractions of the drug. Injecting ecstasy is rare among consumers for whom ecstasy is their drug of choice and among regular injecting drug users. Ecstasy injecting does, however, occur among people who regularly inject methamphetamine or, to a lesser extent, heroin. There is some evidence of a market segment for higher purity ecstasy powder that may be taken orally with a drink or possibly intranasal as is common with cocaine.

There is increasing evidence to suggest the normalisation of ecstasy use. EMI participants suggested that the seemingly innocuous mode of consumption (swallowing a tablet) has contributed significantly to this process. The common practice of using alcohol to achieve intoxication (i.e. as a 'party drug') may also contribute to this process. The consumption of ecstasy generally occurs in a context of other drug use**.** This poly-drug use is mainly with alcohol, tobacco and to some extent with cannabis or methamphetamine powder or paste. Use of opiates among regular ecstasy users is not common. Experience with cocaine may occur in jurisdictions where this drug is more readily available.

What health data is available that reflects ecstasy use/misuse?

The majority of ecstasy consumers do not come into contact with health agencies or law enforcement agencies as a result of their ecstasy use. Data from specialist drug treatment services indicate that relatively few clients who use ecstasy present with this drug as their primary drug of concern. For the relatively small number of clients who do present with ecstasy as an additional drug of concern, their main drugs of concern are usually alcohol, cannabis and amphetamines.

However, the extent of contact between ecstasy consumers and both health and law enforcement agencies may be under-estimated due to shortcomings in the data systems in both sectors. For example, where a person presents to an emergency department with acute ecstasy-related problems, this presentation is often coded under a broader category for all ATS drugs, thus making it impossible to distinguish ecstasy-related presentations, or deaths, from other ATS drugs in the data sets maintained by state Health Departments or the Australian Institute of Health and Welfare. Similarly, where Ambulance Services data for illicit drug-related events is collected, events related to ecstasy are usually not recorded separately.

The revision of the International Classification of Disease (10th edition) to include a more specific level of coding for phenethylamine drugs (e.g. T43.7) would be a major advance in monitoring adverse ecstasy-related events in health service data systems. Despite these shortcomings, it is possible to identify ecstasy-attributed deaths within the National Coroners Information System. The level of attribution to ecstasy in deaths with multiple causes requires careful consideration. In many cases where ecstasy has been identified as a contributor to deaths this contribution has not been to the level of other illicit drugs and certainly not to the extent reported in the media.

Surveys of populations in which ecstasy use occurs are conducted by a number of agencies. The most important of these are the National Drug Strategy Household Survey (NDSHS), conducted every three years, the most recent being in 2004 with a representative sample of nearly 30,000 Australian over 13 years of age. Other sources of open intelligence on consumption are the two national drug monitoring systems – the Illicit Drug Reporting System and the Ecstasy and Related Drugs Reporting System (EDRS). These monitoring systems each report on a non-random sample of 100 regular drug users that act as 'sentinels' for drug markets in each state or territory. Other surveys are undertaken on a regular basis of Australian secondary students, police detainees (DUMA), and needle and syringe exchange clients. These are less relevant to the ecstasy market.

Given the wide variety of substances that may be passed off as ecstasy, how do users know whether they are getting ecstasy, and how do they determine the quality of the drug?

The extent to which the content of tablets sold as ecstasy varies is not systematically monitored in Australia. State forensic services test the amount of MDMA in most, but not all, tablet or powder ecstasy seizures. Information on the variety of substances in tablets, their ratio and purity are not routinely collated and disseminated in most jurisdictions. However, analysis in Victoria of seizures between 1998 and 2003 provided considerable insight into these changing patterns of tablet composition.

It is clear that a proportion of ecstasy tablets sold in Australia contain methamphetamine or a blend of methamphetamine and ketamine. However, currently in the Australian ecstasy market a large proportion of ecstasy tablets are mainly MDMA, particularly if imported directly from Europe, or are predominantly MDMA but blended with methamphetamine, if pressed in Australia. Seizures of non-MDMA phenethyliamine tablets in Australia, such as MDA or more rarely PMA, appear to be less common than in past years.

The EMI study of consumers found that there was a diversity of opinion on the extent to which tablets purchased contained MDMA. Many consumers stated they 'did not know' or 'did not care' so long as they 'had a good time.' The extent to which consumers are attracted and attached to ecstasy tablets with particular physical appearance and logos is unclear. Postings by Australian ecstasy consumers on the Bluelight or similar Internet discussion lists clearly indicates that logos and physical descriptions are used in attempts to identify 'quality' tablets in a given location and time, that meet consumer expectations. These discussions are also used to warn peer consumers of poor quality or dangerous tablets. Bluelight participants are unlikely to be representative of all ecstasy users, or even of all regular ecstasy users. These websites provide information on the characteristics of different types of ecstasy, offer access to pill testing kits that enable users to test for the presence of MDMA, or seek information from other users about particular brands currently available in different local markets.

The most common way of establishing the content of ecstasy tablets is, however, to consume and experience the substance, or to speak with peers who have used the 'same' tablet. Fewer than one in five regular ecstasy consumers in the EMI study used pill testing kits or the Internet as an information source. The provision of pill testing facilities by consumer groups or harm-reduction organisations is currently opposed by Australian governments. It is, however, undertaken in some European countries.

The risks associated with ecstasy use at levels of one or two tablets consumed weekly or less frequently are not known. Consumers do not perceive a high level of risk with this pattern of consumption but are aware of greater risks at higher levels of consumption or from long-term use. Ecstasy use is generally planned and managed by most consumers. Consumers often plan their consumption to coincide with particular events and so that its effects are experienced at particular times. Various strategies are also implemented to deal with the negative effects of ecstasy including eating healthy foods before consuming, drinking sufficient water, consuming in a supportive context and researching its effects before using. The post-intoxication period is often also planned, including the use of minor tranquilisers, such as benzodiazepines, to moderate adverse effects associated with ecstasy use and lack of sleep.

Implications for law enforcement

What lessons have been learned from the implementation of the research template in Queensland that could be of benefit to other jurisdictions in their implementation of similar research programs?

Developing and maintaining profiles of illegal drug markets requires a considerable commitment of time and resources. It is important to acknowledge that the ecstasy market is firstly a national market, in an international context, and secondly a state or regional market. Effective regulation, therefore, requires effective coordination and collaboration across jurisdictional boundaries and by all relevant agencies, including both health agencies and state and federal law enforcement agencies.

The operational focus of supply-control drives information systems that collect data about both policing activity and market circumstances. Extracting data from these systems for strategic intelligence purposes, at both state and federal levels, is difficult, time consuming and compromised by the often tactical orientation of the databases involved. Furthermore, at present there appears to be a lack of clarity in the roles of organisations involved in maintaining these databases.

Existing operational systems in both law enforcement and health sectors are still orientated towards illegal drug markets dominated by heroin, and to a lesser extent cannabis. ATS drug markets, including that for ecstasy, require changes in how events related to these drugs are described and recorded. National and international trends indicate that the markets for ATS drugs are likely to continue to expand. While new intelligence initiatives in monitoring domestic production of ATS drugs have commenced, significantly more work is required to revise how existing information systems collect, analyse and disseminate intelligence about ecstasy.

Multiple analytical tools are required for gathering and interpreting intelligence about various aspects of illegal drug markets. All tools and combinations of tools have limitations that need to be acknowledged. Different illegal drug markets may require different combinations of tools and different sources of both quantitative data and intelligence. For example, health service indicator data are valuable for analysis of the heroin market, but much less valuable for the ecstasy market. Monitoring both retail price and drug purity are important, but so too is price and volume of transactions at mid levels of the supply chain.

Intelligence gathered through seizures of drugs, precursor chemicals and clandestine laboratories is crucial to drug market profiling. Current systems for providing data on such seizure events require urgent attention to ensure that the quality, currency and relevance of these systems not only meet agency requirements but also effectively contribute to national strategic intelligence efforts. Market profiles for individual state jurisdictions should be embedded in a valid, national analysis of the market to maximise their value. Much more could be made of the supply-chain context of seizure events, rather than relying solely on the number and weight of seizures by drug type.

Current consumer-focused research such as the NDARC-managed ERDS and IDRS could further enhance market intelligence collection by including supply-side questions, such as those appended to the 2004 EDRS in Queensland for the EMI study. The research capacities generated through these monitoring systems, and through the AIC-managed DUMA and DUCO, provide fertile ground for building both supply and demand-side research agendas on illegal drug markets.

Engaging with illegal drug consumers in a research context can also provide access to suppliers for analysis of the middle levels of supply chains. This research focus, while difficult, provides significant potential in understanding how illegal drug markets work, and how law enforcement can be most effective in minimising the harms caused by this trade. Examples of collaborative drug market research are already in place with DUMA and there is potential to include more market-orientated research in the IDRS and EDRS monitoring systems for regular drug users. The UK

Home Office has in place a supply-side research agenda that could inform strategic intelligence methodologies in this field in Australia.

Overall, what is lacking from law enforcement analysis of illegal drug markets is the inclusion of demand-side intelligence. Understanding consumption patterns and consumer behaviour, knowledge and attitudes enables change in the size of the market to be estimated, and allows consumer responses to drug policy and their interface with suppliers to be monitored. Research agencies monitoring the demand-side of the market can provide this information in a timely and appropriate format for inclusion in strategic market assessment. There are some good examples of how law enforcement agencies have engaged with these researchers and effectively articulated what demand-side information is most relevant to them.

Conclusions

A combination of analytical tools and data sources is required to profile the demand and supply of any drug market. Monitoring consumption patterns and analysing the details of seizure events are the best sources of intelligence for this task in the ecstasy market. Indicator data from the health sector and from arrests are less useful in the ecstasy market.

Ecstasy use is widespread in some sectors of the population, particularly among urban young people aged 19–25 years. Consumption of ecstasy is likely to continue to increase in the short term, and in the context of concurrent poly-drug use. Ecstasy use is perceived by consumers as risky, but less so than the use of many other drugs. Ecstasy is used in diverse settings, not just nightclubs and raves. Retail supply is typically initiated and maintained through networks of social peers.

Ecstasy consumed in Australia is still predominantly MDMA tablets produced in Europe which are either sold as imported, or crushed and re-tabletted at a lower purity. Import is by diverse modes but predominantly in volume by sea cargo. Other tablets of mixed contents are produced in Australia and to a lesser extent imported from Asia. The proportion of ecstasy originating from various sources, and the actual tablet contents, fluctuate over time. Precursor chemicals are an international trade and production processes may be both segmented and specialised, or a single process on an experimental or commercial scale.

Importation, wholesale and mid-level supply is undertaken by both amateur and professional traffickers at different supply-chain points, some specialising in ecstasy but others with experience in other drug markets. Sydney and Melbourne are the principal ports of entry and centres of consumption and distribution to other states. Some direct importation to Queensland and other states does occur. Retail markets are a vast social network of peer supply for both cash profit and for other social purposes. Retail prices are stable and availability is high but purity and tablet contents fluctuate.

Strategic, as well as tactical, intelligence is required for effective market regulation. There is a significant role for open source intelligence and collaborative research, particularly in monitoring demand. The key area of market regulation is border protection and the prevention of domestic production using precursor chemical control strategies. Disrupting and dismantling organised criminal networks involved in drug markets is difficult. However, this focus is by far more effective in containing market growth than seeking to reduce demand by the arrest of consumers and peer suppliers.

References

ABCI (1998). Clandestine Laboratory Intelligence Bulletin April-June 1998. Canberra: Australian Bureau of Criminal Intelligence.

ABCI (1999). Australian illicit drug report 1997-1998. Canberra: Australian Bureau of Criminal Intelligence.

ABCI (2000). Australian illicit drug report 1998-1999. Canberra: Australian Bureau of Criminal Intelligence.

ABCI (2001). Australian illicit drug report 1999-2000. Canberra: Australian Bureau of Criminal Intelligence.

ABCI (2002). Australian illicit drug report 2000-2001. Canberra: Australian Bureau of Criminal Intelligence.

ABS (2000). Australian standard classification of drugs of concern. Canberra: Australian Bureau of Statistics.

ABS (2003). Population by age and sex: Australian states and territories. Canberra: Australian Bureau of Statistics. http://www.ausstats.abs.gov.au/ausstats/subscriber.nsf/Lookup/8D20E39E9752A4E3CA256E0000816517/$File/32010_jun%202003.pdf

ACC (2003). Australian illicit drug report 2001-2002. Canberra: Australian Crime Commission. http://www.crimecommission.gov.au/html/pg_aidr2001_02.html

ACC (2004). Illicit drug data report 2002-2003. Canberra: Australian Crime Commission.

ACC (2005). Illicit drug data report 2003-2004. Canberra: Australian Crime Commission.

AFP (2004). AFP Drug Harm Index. *Australian Federal Police Research Note*, No. 5.

AIHW (2002). 2001 National Drug Strategy Household Survey: detailed findings. Canberra: Australian Institute of Health and Welfare. http://www.aihw.gov.au/publications/phe/ndshs01df/ndshs01df.pdf

AIHW (2005a). 2004 National Drug Strategy Household Survey: first results. Canberra: Australian Institute of Health and Welfare. http://www.aihw.gov.au/publications/phe/ndshs04/ndshs04.pdf

AIHW (2005b). 2004 National Drug Strategy Household Survey (State and Territory Supplement). Canberra: Australian Institute of Health and Welfare.

AIHW (2005c). Alcohol and other Drug Treatment Services National Minimum Data Set (AODTS-NMDS): online data cubes. Canberra: Australian Institute of Health and Welfare. www.aihw.gov.au/drugs/datacubes/index.html

Attorney-General's Department (2004). Annual report 2003-2004. Canberra: Attorney-General's Department. http://www.ag.gov.au/agd/WWW/agdhome.nsf/Page/RWP0370028A52297654CA256F42007C6F32

Aust, R., Sharp, C. & Goulden, C. (2002). Prevalence of drug use: key findings from the 2001/2002 British Crime Survey. Findings 182. London: Home Office. http://www.homeoffice.gov.uk/rds/pdfs2/r182.pdf

AUSTRAC (2004). Annual Report 2003-2004. Canberra: Australian Transactional Reports and Analysis Centre.

Australian Customs (2004a). Annual report 2003-2004. Canberra: Australian Customs Service. http://www.customs.gov.au/site/page.cfm?u=4283

Australian_Customs (2004b). Safrole and isosafrole in essential oils. Australian Customs Notice No. 2002/24. Sydney: Australian Customs Service. http://www.customs.gov.au/webdata/resources/notices/ACN04212.pdf

Bammer, G., Hall, W., Hamilton, M. & Ali, R. (2002). Harm minimization in a prohibition context - Australia. *Annals of the American Academy of Political & Social Science.*, No. 582.

Barham, L., Bramley-Harker, E., Hickman, M., Hough, M. & Turnbull, P. (2003). Sizing the market for powder cocaine - is a new approach need? *Howard Journal*, 42(4), 366-373.

Barker, B. & Degenhardt, L. (2003). Accidental drug-induced deaths in Australia 1997-2001., *Technical Report No. 163.* Sydney: University of New South Wales National Drug and Alcohol Research Centre. http://ndarc.med.unsw.edu.au/ndarc.nsf/c2fabb74f3f54c22ca256afc00097c53/b8146849c43711c1ca256f5d00135db5/$FILE/TR.163.PDF

Beyer, L. (2002). Organised crime and illegal drug importation: challenges in analysis. *Journal of the Australian Institute of Professional Intelligence Officers*, 10(2), 4-17.

Bramley-Harker, E. (2001). Sizing the UK market for illicit drugs., *RDS Occasional Paper No. 74.* London: Home Office. http://www.homeoffice.gov.uk/rds/pdfs/occ74-drugs.pdf

Breen, C., Degenhardt, L., Roxburgh, A., Bruno, R., Fetherston, J., Jenkinson, R., Kinner, S., Moon, C., Proudfoot, P., Ward, J. & Weekley, J. (2004a). Australian drug trends 2003: findings of the Illicit Drug Reporting System. Sydney: University of New South Wales National Drug and Alcohol Research Centre. http://ndarc.med.unsw.edu.au/ndarc.nsf/c2fabb74f3f54c22ca256afc00097c53/0ebd782881ce432aca256d1800099ea4/$FILE/Mono.51.pdf

Breen, C., Degenhardt, L., White, B., Bruno, R., Chanteloup, F., Fischer, J., Johnston, J., Kinner, S., Moon, C., Proudfoot, P. & Weekley, J. (2004b). Australian party drug trends 2003: findings from the Party Drugs Initiative (PDI). Sydney: University of New South wales National Drug and Alcohol Research Centre. *Monograph No 52*. http://ndarc.med.unsw.edu.au/ndarc.nsf/c2fabb74f3f54c22ca256afc00097c53/0ebd782881ce432aca256d1800099ea4/$FILE/Mono.52.pdf

Breen, C., White, B., Degenhardt, L. & Roxburgh, A. (2004c). Examining differences between younger and older party drug users (PDU). *Party drug trends bulletin*, April 2004.

Bridges, J. (1999). Can economics add to the illicit drug debate? *Drug and Alcohol Review*, 18(3), 251 - 252.

Browne, D., Mason, M. & Murphy, R. (2003). Drug supply and trafficking: an overview. *Howard journal*, 42(4), 324-334.

Bull, M. (2003). Just treatment: a review of international programs for the diversion of drug-related offenders from the criminal justice system. Brisbane: Queensland University of Technology.

Buxton, J. (2003). Vancouver drug use epidemiology. Vancouver: Canadian Community Epidemiology Network on Drug Use. http://www.ccsa.ca/ccendu/pdf/report_vancouver_2003.pdf

Byard, R., Gilbert, J., James, R. & Lokan, R. (1998). Amphetamine derivative fatalities in South Australia - is "Ecstasy" the culprit? *American Journal of Forensic Medicine and Pathology*, 19(3), 261-265.

Camilleri, A. & Caldicott, D. (2004). Underground pill testing, down under. *Forensic Science International*, 151(1), 53-58.

Cass, B., Lockyer, V., Thai, N.& White, P. (2002). Drug detection in air and containerised sea cargo and small craft: Audit Report No.54. Canberra: Australian National Audit Office. http://www.anao.gov.au/WebSite.nsf/Publications/4A256AE90015F69BCA256BCF0002CC75/$file/Audit%20Report%2054.pdf

Caulkins, J. & Reuter, P. (1998). What price data tell us about drug markets. *Journal of Drug Issues*, 28(3), 593.

Caulkins, J. & Reuter, P. (1999). The meaning and utility of drug prices. *Addiction*, 91, 1261-1264.

Caulkins, J. (2002). Law enforcement's role in a harm reduction regime., *Crime and Justice Bulletin*. http://www.lawlink.nsw.gov.au/lawlink/bocsar/ll_bocsar.nsf/vwFiles/CJB64.pdf/$FILE/CJB64.pdf

Cherney, A., O'Reilly, J. & Grabosky, P. (2005). The governance of illicit synthetic drugs., *Monograph series*. Adelaide: National Drug Law Enforcement Research Fund. http://www.ndlerf.gov.au/pub/governance_synthetic_drugs.pdf

Chesher, G. (1990). Some views on Ecstasy. *Modern Medicine of Australia*, April 1990, 76-85.

Chivite-Matthews, N., Richardson, A., O'Shea, J., Becker, J., Owen, N., Roe, S. & Condon, J. (2005). Drug misuse declared: findings from the 2003/04 British Crime Survey. London: Home Office. http://www.homeoffice.gov.uk/rds/pdfs05/hosb0405.pdf

CMC (2003). Amphetamine: still Queensland's no. 1 drug threat. *Crime and Misconduct Commission Crime Bulletin*, No. 5.

CMC (2004). Organised crime markets in Queensland: a strategic assessment. *Crime and Misconduct Commission Crime Bulletin No. 6*. http://www.cmc.qld.gov.au/library/CMCWEBSITE/CrimeBulletin_06_OrganisedCrimeMarketsinQld.pdf

Condon, J. & Smith, N. (2003). Prevalence of drug use: key findings from the 2002/2003 British Crime Survey, Findings. London: Home Office. http://www.homeoffice.gov.uk/rds/pdfs2/r229.pdf

Cox, G. (2003). Approaches to estimating drug prevalence in Ireland: an overview of methods and data sources. Dublin: National Advisory Committee on Drugs. http://www.nacd.ie/publications/Est_Drug_Prev.pdf

Curtis, R. & Wendel, T. (2000). Towards the development of a typology of illegal drug markets. In M. Natarajan, & M. Hough (Eds.), *Illegal drug markets: from research to prevention policy.* New York: Criminal Justice Press.

DCPC (2004). Inquiry into amphetamine and 'party drug' use in Victoria. Final Report . Melbourne: Parliament of Victoria. Drugs and Crime Prevention Committee. http://www.parliament.vic.gov.

au/dcpc/Reports/DCPC-Report_Amphetamine_2004-05-05.pdf

DEA (2001). Ecstasy: rolling across Europe. Washington D.C.: US Drug Enforcement Agency. http://www.usdoj.gov/dea/pubs/intel/01008/01008.pdf

DEA (2003). Drug Intelligence Brief. Vietnam: Country Brief. Washington, DC: US Drug Endorcement Agency. http://www.usdoj.gov/dea/pubs/intel/03050/03050.html

DEA (2004). Drug Intelligence Brief. China: Country Brief. Washington, DC: US Drug Enforcement Agency. http://www.usdoj.gov/dea/pubs/intel/03081/03081.html

Degenhardt, L., Barker, B. & Topp, L. (2004). Patterns of ecstasy use in Australia: findings from a national household survey. *Addiction*, 99(2), 187-195.

Degenhardt, L., Day, C., Dietze, P., Pointer, S., Conroy, E., Collins, L. & Hall, W. (2005). Effects of a sustained heroin shortage in three Australian States. *Addiction*, 100(7), 908-920.

DHS (2000). Drugs in a multicultural community: an assessment of involvement. Melbourne: Victorian Government Department of Human Services, Public Health Division. http://www.health.vic.gov.au/drugservices/pubs/drugsmulti.htm

Dobinson, I. (1993). Pinning a tail on a dragon: the Chinese and the international heroin trade. *Crime and Delinquency*, 39(3), 373-384.

Dorn, N., Murji, K. & South, N. (1992). *Traffickers: drug markets and law enforcement.* London: Routledge

Dorn, N., Oette, L. & White, S. (1998). Drugs importation and the bifurcation of risk: Capitalization, cut outs and organised crime. *British Journal of Criminology*, 38(4), 537-560.

Dorn, N., Bucke, B. & Goulden, C. (2003). Traffick, transit and transaction: a conceptual framework for action against drug supply. *Howard Journal*, 42(4), 348-365.

Dorn, N., Levi, M. & King, L. (2005). Literature review on upper level drug trafficking. London: Home Office. http://www.homeoffice.gov.uk/rds/pdfs05/rdsolr2205.pdf

Downing, J. (1986). The psychological and physiological effects of MDMA on normal volunteers. *Journal of Psychoactive Drugs.*, 18(4), 335-340.

Duff, C. (2005). Party Drugs and Party People: Examining the 'Normalization' of Recreational Drug Use in Melbourne, Australia. International Journal of Drug Policy, 16, pp. 161–170

Edmunds, M., Hough, M. & Urquia, N. (1996). Tackling local drug markets., *Crime Detection and Prevention Series Paper; 80.* London: Home Office. http://www.kcl.ac.uk/icpr/publications/Tackling%20local%20drug%20markets%20cdps80.pdf

Edwards, A. & Gill, P. (2003). After transnational organised crime? The politics of public safety. In A. Edwards, & P. Gill (Eds.), *Transnational organised crime: perspectives on global security.* London: Routledge/Taylor and Francis Group.

EMCDDA (2002). Handbook for surveys on drug use among the general population. Lisbon: European Monitoring Centre for Drugs and Drug Addiction. http://www.emcdda.eu.int/?nnodeid=1380

Europol (2002). Europol XTC catalogue 2002. Luxembourg: Europol.

Fischer, J. & Kinner, S. (2005). Queensland trends in ecstasy and related drug markets 2004: findings of the Party Drug initiative (PDI). Sydney: National Drug and Alcohol Research Centre.

Fitzgerald, J., Broad, S. & Dare, A. (1999). *Regulating the street heroin market in Fitzroy/ Collingwood.* Melbourne: Victorian Health Promotion Foundation

Fitzgerald, J. (2002). A political economy of doves (ecstasy). *Contemporary Drug Problems*, 29(1), 201-224.

Frischer, M., Hickman, M., Kraus, L., Mariani, F. & Wiessing, L. (2001). A comparison of different methods for estimating the prevalence of problematic drug misuse in Great Britain. *Addiction*, 96, 1465-1476.

Gamble, L. & George, M. (1997). 'Really useful knowledge': The boundaries, customs, and folklore governing recreational drug use in a sample of young people. In D.M.R. P. G. Erickson, Y. W. Cheung, & P. A. O'Hare (Ed.), *Harm reduction: A new direction for drug policies and programs*. Toronto: University of Toronto Press.

Gamma, A., Jerone, L., Liechti, M. & Sumnall, H. (2005). Is ecstasy perceived to be safe? A critical survey. *Drug & Alcohol Dependence*, 77(2), 185-193.

Gascoigne, M., Dillon, P. & Copeland, J. (2004). Sources of ecstasy information: use and perceived credibility., *NDARC Technical Report 202.* Sydney: University of New South Wales National Drug and Alcohol Research Centre. http://ndarc.med.unsw.edu.au/ndarc.nsf/c2fabb74f3f54c22ca256afc00097c53/a25a609fe2cd807cca256f5d0010e323/$FILE/TR.ES202.pdf

Gossop, M., Darke, S. & Griffiths, P. (1995). The severity of dependence scale (SDS): psychometric properties of the SDS in English and Australian samples of heroin, cocaine and amphetamine users. *Addiction*, 90, 607-614.

Gowing, L., Henry-Edwards, S., Irvine, R. & Ali, R. (2001). Ecstasy: MDMA and other ring-substituted amphetamines. Adelaide: Drug and Alcohol Services Council. http://whqlibdoc.who.int/hq/2001/WHO_MSD_MSB_01.3.pdf

Gowing, L., Henry-Edwards, S., Irvine, R. & Ali, R. (2002). The health effects of ecstasy: a literature review. *Drug and Alcohol Review*, 21(1), 53-63.

Green, P. & Purnell, I. (1995). Measuring the success of law enforcement agencies in Australia in targeting major offenders relative to minor offenders. Adelaide: National Police Research Unit. www.acpr.gov.au/pdf/ACPR127.pdf

Grob, C. (2000). Deconstructing ecstasy: the politics of MDMA research. *Addiction Research*, 8(6), 549-588.

Gruppo Abele (2003). Synthetic drugs trafficking in three European cities: major trends and the involvement of organised crime. Turin: Gruppo Abele.

Hall, W.D., Ross, J.E., Lynskey, M.T., Law, M.G. & Degenhardt, L.J. (2000). How many dependent heroin users are there in Australia? *Medical Journal of Australia*, 173(10), 528-531.

Hammersley, R., Khan, F. & Ditton, J. (2002). *Ecstasy and the rise of the chemical generation.* London: Routledge

Hando, J., Darke, S., O'Brien, S., Maher, L. & Hall, W. (1998). The development of an early warning system to detect trends in illicit drug use in Australia: the Illicit Drug Reporting System. *Addiction Research*, 6, 97-113.

Hansen, D., Maycock, B. & Lower, T. (2001). 'Weddings, parties, anything...', a qualitative analysis of ecstasy use in Perth, Western Australia. *International Journal of Drug Policy*, 12(2), 181-199.

Hartnoll, R., Lewis, R., Mitcheson, M. & Bryer, S. (1985). Estimating the prevalence of opioid dependence. *The Lancet*, January 26th, 203-205.

Hibell, B. & Andersson, B. (2002). European school survey project on alcohol and other drugs (ESPAD 03): project plan. Stockholm: Swedish Council for Information on Alcohol and Other Drugs.

Hickman, M., Taylor, C., Chatterjee, A., Degenhardt, L., Frisher, M., Hay, G., Tilling, K., Wiessing, L., Griffiths, P. & McKetin, R. (2002). Estimating drug prevalence: review of methods with special reference to developing countries. *UN Bulletin on Narcotics*, LIV(1 and 2), 15-33.

Hickman, M., Higgins, V., Hope, V. & Bell's, M. (2004). Estimating prevalence of problem drug use: multiple methods in Brighton, Liverpool and London. London: Home Office. http://www.homeoffice.gov.uk/rds/pdfs04/rdsolr3604.pdf

Hill, D., Wilcox, S., Gardner, G. & Houston, J. (1987). Tobacco and alcohol use among Australian secondary school children. *Medical Journal of Australia*, 146, 125-130.

Hill, D., White, V., Williams, R. & Gardner, G. (1993). Tobacco and alcohol use among Australian secondary school students in 1990. *Medical Journal of Australia*, 158, 228-234.

Hobbs, D. & Dunninghan, C. (1998). Glocal organised crime: context and pretext. In V. Ruggiero,N. South, & I. Taylor (Eds.), *The new European criminology.* London: Routledge.

Holland, J.E. (2001). *Ecstasy : the complete guide : a comprehensive look at the risks and benefits of MDMA.* Rochester, VT: Park Street Press

Homel, R. (1988). *Policing and punishing the drinking driver: A study of general and specific deterrence.* New York: Springer-Verlag

Hough, M. & Edmunds, M. (1999). Tackling drug markets: an eclectic approach. *Studies in crime and crime prevention*, 8(1), 107-131.

Huttunen, J. (2004). The Australian Illicit Drug Intelligence Program, *Challenges & Changes: 17th International Symposium on the Forensic sciences.* Wellington NZ: Australian and New Zealand Forensic Science Society.

INCB (2004a). Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances. New York: United Nations. International Narcotics Control Board. http://www.incb.org/e/ind_tr.htm

INCB (2004b). Report of the International Narcotics Control Board for 2003. Vienna: International Narcotics Control Board. http://www.incb.org/e/ar/2003/index.htm

Jansen, K. (1999). Ecstasy (MDMA) dependence. *Drug and Alcohol Dependence*, 53(2), 121-124.

Johnston, L., O'Malley, P. & Bachman, J. (2002). Monitoring the future national survey results on adolescent drug use: overview of key findings, 2001. Bethesda, Maryland: National Institute on Drug Abuse.

Kinner, S. & Fischer, J. (2005). Queensland Drug Trends 2004. Findings from the Illicit Drug Reporting System., *NDARC Technical Report No. 214.* Sydney: University of New South Wales, National Drug and Alcohol Research Centre.

Krenske, L., Mazerolle, P., Fowler, G., Fanning, A. & Najman, J. (2004). Exploring drug use: prevalence and patterns among emergency department patients. Brisbane: Crime and Misconduct Commission. http://www.cmc.qld.gov.au/library/CMCWEBSITE/ExploringDrugUse.pdf

Larson, A., Stevens, A. & Wardlaw, G. (1994). Indirect estimates of 'hidden' populations: capture recapture methods to estimate the numbers of heroin users in the Australian Capital Territory. *Social Science and Medicine*, 39, 823-831.

Letcher, T. & White, V. (1999). Australian secondary students' use of over-the-counter and illicit substances in 1996., *National Drug Srategy (NDS) Monograph Series No. 33.* Canberra: Commonwealth Department of Health and Aged Care.

Levi, M. (2002). Money laundering and its regulation. *Annals of the American Academy of Political & Social Science. Special Issue: Cross-National Drug Policy*, 582, 181-194.

Lynch, M., Kemp, R., Krenske, L., Conroy, A. & Webster, J. (2003). Patterns of amphetamine use: initial findings from the Amphetamines in Queensland research project. Brisbane: Crime and Misconduct Commission. http://www.cmc.qld.gov.au/templates/CMCWEBSITE/icon_sib_pdf.gif

MacDonald, Z. (2004). What price drug use? The contribution of economics to an evidence-based drugs policy. *Journal of economic surveys*, 18(2), 113-152.

Maher, L. (1997). *Sexed work: gender, race, and resistance in a Brooklyn drug market* Oxford: Clarendon Press

Maher, L. & Dixon, D. (1999). Policing and public health. *British journal of criminology*, 39(4), 488-511.

Maher, L. & Dixon, D. (2001). The cost of crackdowns: policing Cabramatta's heroin market. *Current issues in criminal justice*, 13(1), 5-22.

Makkai, T. (1999). Drug Use Monitoring in Australia (DUMA): A brief description, *Research and Public Policy Series no 21.* Canberra: Australian Institute of Criminology. http://www.aic.gov.au/publications/rpp/21/full_report.pdf

Makkai, T. (2000). Drug transactions: some results from the DUMA project., *Australian illicit drug report 1998-1999* (pp. 91-100). Canberra: Australian Bureau of Criminal Intelligence.

Makkai, T. & McGregor, K. (2003). Drug Use Monitoring in Australia: 2002 annual report on drug use among police detainees., *Research and Public Policy Series no 47.* Canberra: Australian Institute of Criminology. http://www.aic.gov.au/publications/rpp/47/RPP47.pdf

Makkai, T. & Payne, J. (2003). Drugs and crime: a study of incarcerated male offenders., *AIC Research and Public Policy Series no. 52.* Canberra: Australian Institute of Criminology. http://www.aic.gov.au/publications/rpp/52/RPP52.pdf

McCoy, A. (1973). *The politics of heroin in Southeast Asia.* New York: Harper Colophon Books

McCoy, A. (1980). *Drug Traffic.* Sydney: Harper and Row

McCoy, A. (1991). *The politics of heroin: CIA complicity in the global drug trade* New York: Lawrence Hill Books

McCoy, A. (1999). Lord of drug lords: one life as lesson for US drug policy. *Crime, Law & Social Change*, 30, 301-331.

McFadden, M. & Mwesigye, S. (2001). Estimating the economic value of the AFP fraud and drug investigations. *The Journal of the Australian Federal Police Platypus Magazine*, 73 (11-14.).

McKenna, C. (2002). Ecstasy is low in league table of major causes of deaths. *BMJ*, 10 (September 2002), 308.

McKetin, R. & McLaren, J. (2004). The methamphetamine situation in Australia: a review of routine data sources. Adelaide: Australiasian Centre for Policing Research.

MCDS (2001). National Action Plan on Illicit Drugs 2001 to 2002-03. Canberra: Ministerial Council on Drug Strategy. http://www.nationaldrugstrategy.gov.au/pdf/illicitactionplan.htm

MCDS (2004). The National Drug Strategy: Australia's integrated framework 2004-2009. Canberra: Ministerial Council on Drug Strategy. http://www.nationaldrugstrategy.gov.au/pdf/framework0409.pdf

Measham, F., Aldridge, J. & Parker, H. (2001). *Dancing on drugs: risk, health and hedonism in the British club scene.* London: Free Association Books

Measham, F. (2004a). Play space: historical and socio-cultural reflections on drugs, licensed leisure locations, commercialisation and control. *International Journal of Drug Policy*, 15 (5-6), 337-345.

Measham, F. (2004b). The decline of ecstasy, the rise of 'binge' drinking and the persistence of pleasure. *Probation Journal*, 51(4), 309-326.

Milner, L., Mouzos, J. & Makkai, T. (2004). Drug Use Monitoring in Australia: 2003 annual report on drug use among police detainees. *Research and Public Policy Series no 58.* Canberra: Australian Institute of Criminology. http://www.aic.gov.au/publications/rpp/58/RPP58.pdf

Moore, D. (1992). Recreational drug use, with particular reference to amphetamines, ecstasy and LSD, amongst a social network of young people in Perth, Western Australia. Perth, Curtin University: National Centre for Research into the Prevention of Drug Abuse.

Moore, D. (1995). Raves and the Bohemian search for self and community: a contribution to the anthropology of public events. *Anthropological Forum*, 7(2), 193-214.

Morrison, S. (1997). The dynamics of illicit drugs production: future sources and threats. *Crime, Law & Social Change*, 27, 121-138.

Murtagh, C. (2002). Ecstasy - do you get what you pay for? A study of NSW police seizures 2000 and 2001. Sydney: Division of Analytical Laboratories.

Nasmyth, P. (1985). Ecstasy (MDMA). *The Face*, No. 66.

NCIS (2003). United Kingdom Threat Assessment of Serious and Organised Crime 2003. Class A drugs trafficking. London: National Criminal Intelligence Service. http://www.ncis.co.uk/ukta/2003/threat03.asp

NCIS (2005). United Kingdom Threat Assessment. The Threat from Serious and Organised Crime 2004/5 - 2005/6. London: National Criminal Intelligence Service. http://www.ncis.co.uk/ukta/2004/UKTA_2004-05_2005-06.pdf

Nicholas, R. (2003). The impact of general law enforcement on the illicit drug market: a discussion paper prepared for the Commissioners' Drugs Committee of the Conference of Police Commissioners of Australasia and the South West Pacific Region by the Australasian Centre for Policing Research. Adelaide: Australasian Centre for Policing Research. http://www.acpr.gov.au/pdf/drugs/Impact%20of%20general.pdf

Nichols, D. (1986). Differences between the mechanism of action of MDMA, MBDB and the classic hallucinogens. Identification of a new therapeutic class: entactogens. *Journal of Psychoactive Drugs*, 18(4), 336.

O'Reilly, J. (2004). Governance of synthetic drugs. *Platypus Magazine, June, 2004. (*pp. 4-8).

Palmer, M. (1998). Editorial - Reducing the supply of illict drugs. *Drug and Alcohol Review*, 17(3), 245-247.

Panagopoulos, I. & Ricciardelli, L. (2005). Harm reduction and decision making among recreational ecstasy users. *International Journal of Drug Policy*, 16, 54-64.

Parker, H., Williams, L. & Aldridge, J. (2002). The normalization of 'sensible' recreational drug use: further evidence from the North West England longitudinal study. *Sociology*, 36:(4), 941–964.

Pearson, G. & Hobbs, D. (2001). Middle market drug distribution Research Study No 227. London: Home Office.

Pearson, G. & Hobbs, D. (2003). King pin? a case study of a middle market drug broker. *Howard Journal*, 42(4), 335-347.

Pudney, S. (2001a). The growth of illicit drugs markets in the UK 1978-99., *Discussion Papers in Public Sector Economics. No. 01/7.* Leicester: University of Leicester. http://www.le.ac.uk/economics/research/RePEc/lec/lpserc/pserc01-7.pdf

QCC (1999). Project Krystal: a strategic assessment of organised crime in Queensland. Brisbane: Queensland Crime Commission. http://www.cmc.qld.gov.au/library/CMCWEBSITE/Krystal.pdf

QCC (2001). The 'Ecstasy' market in Queensland, *Queensland Crime Commission Crime Bulletin 3.* Brisbane. http://www.cmc.qld.gov.au/library/CMCWEBSITE/CrimeBulletin_03_Ecstacy.pdf

QPS (1999). Project LERNA: a strategic assessment of the illicit heroin and amphetamine markets in the Ipswich local government area. Brisbane: Queensland Police Service.

QPS (2000). Project ARKO: a strategic assessment of the illicit heroin and amphetamine markets in the North Coast Region. Brisbane: Queensland Police Service.

Quinn, C. (2004). Illicit tablet market in Victoria., *Party Drug Trends Bulletin. June 2004*. http://ndarc.med.unsw.edu.au/ndarc.nsf/c2fabb74f3f54c22ca256afc00097c53/8ec8644632096dfaca

256e8b00148035/$FILE/PDI%20JUNE%202004.pdf

Ratcliffe, J.H. (2004). The structure of strategic thinking. In J.H. Ratcliffe (Ed.), *Strategic Thinking in Criminal Intelligence*. Sydney: The Federation Press.

Rengert, G., Chakravorty, S., Bole, T. & Henderson, K. (2000). A geography of illicit drug markets. In M. Natarajan, & M. Hough (Eds.), *Illegal drug markets: from research to prevention policy*. New York: Criminal Justice Press.

Reuter, P. (1983). *Disorganised crime: the economy of the visible hand*. Cambridge, MA.: MIT Press

Reuter, P. (1996). The mismeasurement of illegal drug markets. In S. Pozo (Ed.), *Exploring the underground economy: studies of illegal and unreported activity*. Kalamazoo, MI.: W. E. Upjohn Institute for Employment Research.

Reuter, P. & Haaga, J. (1989). The organization of high-level drug markets: an exploratory study. Santa Monica Calif: RAND Corporation.

Saffer, H., & Chaloupka, F. (1995). The demand for illicit drugs. *National Bureau of Economic Research Working Paper Series*, Working Paper No. 5238. Cambridge, Mass: National Bureau of Economic Research Working Paper Series.

Saunders, N. (1993). *E for Ecstasy*. London: Published by Nicholas Saunders

Saunders, N. (1997). *Ecstasy reconsidered*. London: Published by Nicholas Saunders

Schifano, F., Oyefeso, A., Corkery, J., Cobain, K., Jambert-Gray, R., Martinotti, G. & Ghodse, A. H. (2003) Death rates from ecstasy (MDMA, MDA) and poly-drug use in England and Wales 1996-2002, Human psychopharmacology: clinical and experimental, 18, 519-524.

Schulte, C., Mouzos, J. & Makkai, T. (2004). Drug Use Monitoring in Australia: 2003 annual report on drug use among police detainees. Canberra: Australian Institute of Criminology. http://www.aic.gov.au/publications/rpp/65/

Schulte, C., Mouzos, J. & Makkai, T. (2005). Drug Use Monitoring in Australia: 2004 annual report on drug use among police detainees. Canberra: Australian Institute of Criminology. http://www.aic.gov.au/publications/rpp/58/

Shand, F. & Mattick, R. (2002). Clients of treatment service agencies: May 2001 census findings., *National Drug Strategy Monograph No. 47*. Canberra: Commonwealth Department of Health and Aging. http://www.health.gov.au/internet/wcms/publishing.nsf/Content/phd-drugs-mono47-cnt.htm/$FILE/mono47.pdf

Shand, F., Topp, L., Darke, S., Makkai, T. & Griffiths, P. (2003). The monitoring of drug trends in Australia. *Drug and alcohol review*, 22(1), 61-72.

Sheptycki, J. & Ratcliffe, J. (2004). Setting the strategic agenda. In J. Ratcliffe (Ed.), *Strategic Thinking in Criminal Intelligence*. (pp. 194-210). Sydney: The Federation Press.

Shewan, D., Dalgarno, P. & Reith, G. (2000). Perceived risk and risk reduction among ecstasy users: the role of drug, set, and setting. *International Journal of Drug Policy*, 10(6), 431-453.

Shulgin, A. (1986). The background and chemistry of MDMA. *Journal of Psychoactive Drugs*, 18(4),

291-304.

Shulgin, A.T. & Shulgin, A. (1992). *PIHKAL: phenethylamines I have known and loved.* California: Transform Press

Solowij, N., Hall, W. & Lee, N. (1992). Recreational MDMA use in Sydney: a profile of 'Ecstacy' use and their experiences with the drug. *British Journal of Addiction*, 87(8), 1161-1172.

Spooner, C., McPherson, M. & Hall, W. (2004). The role of police in preventing and minimising illicit drug use and its harms. Adeliade: National Drug Law Enforcement Research Fund. http://www.ndlerf.gov.au/pub/prevent_illicit_drug.pdf

Stafford, J., Degenhardt, J., Agaliotis, M., Bruno, R., Chanteloup, F., Fischer, J., Johnston, J., Kinner, S., Moon, C., Proudfoot, P., White, B. & Weekley, J. (2005a). Australian party drug trends 2004: findings of the Party Drugs Initiative (PDI). Sydney: National Drug and Alcohol Research Centre. http://ndarc.med.unsw.edu.au/ndarc.nsf/c2fabb74f3f54c22ca256afc00097c53/c574838507c422ebca25705a00009118/$FILE/Mono.57.pdf

Stafford, J., Degenhardt, J., Black, E., Bruno, R., Buckingham, K., Fetherston, J., Jenkinson, R., Kinner, S., Moon, C. & Weekley, J. (2005b). Australian drug trends 2004: findings of the Illicit Drug reporting System (IDRS). Sydney: National Drug and Alcohol Research Centre. http://ndarc.med.unsw.edu.au/ndarc.nsf/c2fabb74f3f54c22ca256afc00097c53/c574838507c422ebca25705a00009118/$FILE/Mono.55.pdf

Sutton, A. & James, S. (1996). Evaluation of Australian drug anti-trafficking law enforcement. Adelaide: National Police Research Unit. www.acpr.gov.au/pdf/ACPR128.pdf

Taylor, R. (2003). Review of drug seizure and offender statistics., *National Statistics Quality Review Series.* London: Home Office. www.statistics.gov.uk/methods_quality/ quality_review/downloads/Final_Report.doc

Thein, H., Maher, L. & Dore, G. (2004). Australian NSP survey: prevalence of HIV, HCV and injecting and sexual behaviour among IDUs at Needle and Syringe Programs. National Data Report 1999 - 2003. Sydney: The University of New South Wales, National Centre in HIV Epidemiology and Clinical Research. http://www.med.unsw.edu.au/nchecr/Downloads/NSP_Survey_complete_reduced.pdf

Thomas, J. (1992) Informal Economic Activity. London: Harvester Wheatsheaf.

Topp, L., Hall, W. & Hando, J. (1997). Is there a dependence syndrome for ecstasy?, *NDARC Technical Report 51.* Sydney: University of New South Wales National Drug and Alcohol Research Centre.

Topp, L. & Mattick, R. (1997). Choosing a cut-off on the severity of dependence scale (SDS) for amphetamine users. *Addiction*, 92, 839–845.

Topp, L., Hando, J., Dillon, P., Roche, A. & Solowij, N. (1998). Ecstasy use in Australia: patterns of use and associated harm., *NDARC Monograph Series No. 39.* Sydney: National Drug and Alcohol Research Centre. http://ndarc.med.unsw.edu.au/ndarc.nsf/c2fabb74f3f54c22ca256afc00097c53/0ebd782881ce432aca256d1800099ea4/$FILE/Mono.39.PDF

Topp, L., Hando, J., Dillon, P., Roche, A. & Solowij, N. (1999). Ecstasy use in Australia: patterns of use and associated harm. *Drug and Alcohol Dependence*, 55(1-2), 105-115.

Topp, L., Barker, B. & Degenhardt, L. (2004). The external validity of results derived from ecstasy

users recruited using purposive sampling strategies. *Drug and Alcohol Dependence*, 73(1), 33-40.

Topp, L., Breen, C., Kaye, S. & Darke, S. (2004). Adapting the illicit drug reporting system (IDRS) to examine the feasibility of monitoring trends in the markets for 'party drugs'. *Drug and Alcohol Dependence*, 73 (2), 189-197.

UNODC (2002a). Developing an integrated drug information system. Global Assessment Programme on Drug Abuse Toolkit Module I. Viena: United Nations Office on Drugs and Crime. http://www.unodc.org/pdf/gap_toolkit_module1.pdf

UNODC (2002b). Conducting school surveys on drug abuse. Global Assessment Programme on Drug Abuse Toolkit Module 3. Vienna: United Nations Office on Drugs and Crime. http://www.unodc.org/pdf/gap_toolkit_module3.pdf

UNODC (2003a). Ecstasy and amphetamines: Global Survey 2003. Vienna: United Nation Office on Drugs and Crime. www.unodc.org/pdf/publications/report_ats_2003-09-23_1.pdf

UNODC (2003b). Estimating prevalence: indirect methods for estimating the size of the drug problem. Global Assessment Programme on Drug Abuse Toolkit Module 2. Vienna: United Nations Office on Drugs and Crime. http://www.unodc.org/pdf/gap_toolkit_module2.pdf

UNODC (2003c). Global illicit drug trends 2003: full report. Vienna: United Nation Office on Drugs and Crime. http://www.unodc.org/pdf/trends2003_www_E.pdf

UNODC (2004a). *World drug report. Volume 1: Analysis.* Vienna: United Nation Office on Drugs and Crime.

UNODC. (2004b). World drug report. Volume 2: Statistics. Vienna: United Nation Office on Drugs and Crime. http://www.unodc.org/pdf/WDR_2004/volume_2.pdf

Wagstaff, A., & Maynard, A. (1988). Economic aspects of the illicit drug markets and drug enforcement policies in the United Kingdom. *Home Office Research Study No. 95*. London: Home Office.

Walker, J. (1999). Logical approach to the quantification of global money laundering from the international illicit drugs trade. Canberra: AUSTRAC.

Wardlaw, G. (1986). Uses and abuse of drug law enforcement statistics. *Trends and issues in crime and criminal justice*, No. 1. Canberra: Australian Institute of Criminology.

Weatherburn, D. & Lind, B. (1995). *Drug law enforcement policy and its impact on the heroin market.* Sydney: NSW Bureau of Crime Statistics and Research

Weatherburn, D. & Lind, B. (1997). The impact of law enforcement activity on a heroin market. *Addiction*, 92(5), 557-570.

Weatherburn, D., Lind, B. & Forsythe, L. (1999). *Drug law enforcement: Its effects on treatment experience and injection practices.* Sydney: NSW Bureau of Crime Statistics and Research

Weatherburn, D., Topp, L., Midford, R. & Allsop, S. (2000). *Drug Crime Prevention and Mitigation: A Literature Review and Research Agenda.* Sydney: NSW Bureau of Crime Statistics and Research

White, B., Stafford, J., Breen, C. & Degenhardt, L. (2004). Gender differences among party drug users in Australia. *Party drug trends bulletin*, October 2004. Sydney: University of New South Wales, National Drug and Alcohol Research Centre.

White, V. (2001). Australian secondary students' use of over-the-counter and illicit substances in 1999., *NDS Monograph Series No. 46.* Canberra: Commonwealth Department of Health and Aged Care. http://www.health.gov.au/internet/wcms/publishing.nsf/Content/phd-drugs-mono46-cnt.htm/$FILE/mono46.pdf

White, V. & Hayman, J. (2004). Australian secondary students' use of over-the-counter and illicit substances in 2002., *NDS Monograph Series No. 56.* Canberra: Commonwealth Department of Health and Aging. http://www.nationaldrugstrategy.gov.au/pdf/mono56.pdf

Williams, P. (1995). The international drug trade: an industry analysis. *Journal of Conflict Studies*, 16(1), 153-183.

Williamson, S., Gossop, M., Powis, B., Griffiths, P., Fountain, J. & Strand, J. (1997). Adverse effects of stimulant drugs in a community sample of drug users. *Drug and alcohol dependence*, 12(397-413).

Winstock, A.R., Wolff, K. & Ramsey, J. (2001). Ecstasy pill testing: harm minimization gone too far? *Addiction*, 96(8), 1139-1148.

Yuan, Y. & Caulkins, J.P. (1998). The effect of variation in high-level domestic drug enforcement on variation in drug prices. *Socio-Economic Planning Sciences*, 32(4), 265-276.

Zinberg, N. (1984). *Drug, set, and setting: the basis for controlled intoxicant use.* New Haven: Yale University Press

Appendix A

Surveys and data sets

Table 1. Representative surveys and key variables.

Data source	Key variables available	Sample size
National Drug Strategy Household Survey (NDSHS) 2004	Key variables: gender; age; marital status; ATSI origin; country of birth; main language spoken at home; work status; education level; qualification; income; postcode Key ecstasy variables: opinion on penalties if found in possession of ecstasy; difficulty/ease of obtaining ecstasy; use of ecstasy with other drugs; proportion of friends using ecstasy; age first used; failed attempt to stop/cut down use ecstasy; use of ecstasy in last month/week/year; source of ecstasy; number of tablets/pills of ecstasy normally has in a day; drugs used when ecstasy not available; injection of ecstasy; weekly amount spent on ecstasy in last year	29,445
NDSHS 2001	Similar to NDSHS 2004	26,744
NDSHS 1998	Similar to NDSHS 2004	10,340
NDSHS 1995	Similar to NDSHS 2004	3,850
NDSHS 1994 (urban ATSI supplement)	Similar to NDSHS 2004	2,993
NDSHS 1993	Similar to NDSHS 2004	3,500
NDSHS 1991	Similar to NDSHS 2004	2,850
NDSHS 1988	Similar to NDSHS 2004	2,257
NDSHS 1985	Similar to NDSHS 2004	2,791
Crime and Misconduct Commission (CMC) 2004	Key variables: age group; sex; postcode; QLD region; country of birth; language; ATSI status; marital status; employment; income Key ecstasy variables: ever used ecstasy; difficulty in obtaining ecstasy	3,344
CMC 2003	Similar to CMC 2004	3,370
CMC 2002	Similar to CMC 2004	3,060

Table 2. Sentinel surveys of special populations and key variables.

Data source	Key variables available	Sample size
Amphetamines in Queensland (AIQ) 2003	*Type of survey: sentinel sample of amphetamine users in Queensland* Key variables: gender; age; education; housing; indigenous/ethnic status; employment; income Key ecstasy variables: ever used ecstasy; age first used ecstasy; ecstasy route of administration; use of ecstasy in last six months; average spent per day on ecstasy in last six months	690
Drug Use Monitoring in Australia (DUMA) Brisbane 2002	*Type of survey: police arrestees drug use* Key variables: age category; post code; gender; education; marital status; work status Key ecstasy variables: ever tried ecstasy; age first tried ecstasy; use of ecstasy in past twelve months; days used ecstasy in past 48 hours/month; injection (and times) of ecstasy in past month/year	701
Drug Use Monitoring in Australia (DUMA) Southport 2002	*Type of survey: police drug use arrestees* Key variables: same as DUMA Brisbane Key ecstasy variables: same as DUMA Brisbane	388
Ecstasy And Related Drug Reporting System (EDRS) & Ecstasy Market Indicators (EMI) 2004	*Type of survey: cross-sectional targeted survey* Key ecstasy variables: age tried ecstasy; age using ecstasy regularly; how mainly used ecstasy in last six months; methods of administration; number days used last six months; average use; use of other drugs with ecstasy; price per tab; price change last six months; purity/strength; ease of access; how do you pay for ecstasy; number people purchased ecstasy from last six months; benefits/risks of ecstasy use; number of ecstasy tablets usually obtained; confident of MDMA content; effects and legal status of ecstasy; ease in obtaining ecstasy	230
EDRS 2004	Similar to PDI & EMI 2004	161
EDRS 2003	Similar to PDI 2004, but also contains additional key ecstasy variables: ecstasy (lowest price); ecstasy (highest price); side effects / social / financial problems from ecstasy; legal /work problems from ecstasy	136
EDRS 2001	Similar to PDI 2003	115
EDRS 2000	Similar to PDI 2003	50

Table 2 continued.

Data source	Key variables available	Sample size
Ecstasy user data 1997	*Type of survey: cross-sectional targeted survey* Key variables: gender; age; postcode; education; employment status; ever been in prison Key ecstasy variables: age first tried/used ecstasy; ecstasy use in last six months; methods of administration; average ecstasy use in one session; ecstasy binged on in last six months; reasons for ecstasy use; risks associated with ecstasy; sources of ecstasy information/support; ecstasy cost; change of price in last six months; purity of ecstasy; purity change in last six months; easy to get ecstasy; how pay for ecstasy	60
Illicit Drug Reporting System (IDRS) 2004	*Type of survey: cross-sectional targeted survey* Key ecstasy variables: ever used; ever injected; ever smoked; ever snorted; ever swallowed; number days used last six months; aggressive on ecstasy	129
IDRS 2003	Similar to IDRS 2004	135
IDRS 2002	Similar to IDRS 2004	104
IDRS 2001	Similar to IDRS 2004	112
IDRS 2000	Similar to IDRS 2004	101

Table 3. School student surveys and key variables.

Data source	Key variables available	Sample size
Australian Secondary Students Alcohol and Drugs Survey (ASSADS) 2002	*Type of survey: representative survey of secondary school students (government, catholic and independent) from each state and territory, 1984-2002.* Key variables: postcode; age; gender; ATSI; language spoken at home Key ecstasy variables: frequency of ecstasy use; use of other substances with ecstasy	23,417
Drug Arm Schoolies Survey (DASS) 2003	*Type of survey: representative survey, limited to those who had just finished secondary school* Key variables: gender; age; date of birth; NESB; ATSI; Australian resident status Key ecstasy variables: use of ecstasy in last day/week/month/year; days used ecstasy; ecstasy route of administration	1,648
DASS 1999-2002	Identical to DASS 2003	

Appendix B

EMI addendum to PDI 2004 survey, Queensland

This year we have added some more questions about ecstasy use to the survey
The first few questions are about when you FIRST used ecstasy.

FIRST USE

To what extent do you agree with each of the following statements on why you <u>FIRST</u> used ecstasy? ***(answer each question)***

		Not at All	A Little	A Lot
1.	Someone offered it to me	1	2	3
2.	I was curious	1	2	3
3.	Peer pressure	1	2	3
4.	To have a good time	1	2	3
5.	Instead of drinking alcohol	1	2	3
6.	Instead of using other drugs	1	2	3

7. WHO did you <u>FIRST</u> get or buy ecstasy from? ***(one answer allowed)***

- Friend..... 1
- Partner..... 2
- Acquaintance..... 3
- Workmate 4
- Family member 5
- Known supplier..... 6
- Unknown supplier..... 7
- Can‘t remember/Don‘t know…… 8
- Other…… 9

  (Specify) _____

8. WHERE did you <u>FIRST</u> get or buy ecstasy? (one answer allowed)

- Nightclub/Pub 1
- Raves/doofs/dance party 2
- Work 3
- My home 4
- Friend's home 5
- Known suppliers home 6
- Public location* 7
  eg. car, car park, train station, park, cafe
- Can't remember/don't know 8
- Other 9
  (Specify) _____

9. Where did you <u>FIRST USE</u> ecstasy? ***(one answer allowed)***

- Nightclub/Pub 1
- Raves/doofs/dance party 2
- Work 3
- My home 4
- Friend's home 5
- Someone else's home 6
- Public location* 7
  eg. car, car park, train station, park, cafe
- Can't remember/don't know 8
- Other 9
  (Specify) _____

The next few questions are about buying ecstasy ***IN THE LAST 6 MONTHS***.

CURRENT USE

In the last six months have you used the following CONTACT methods to get or buy ecstasy? (answer each question)

		Yes	No
10.	I was contacted by a friend or acquaintance	1	0
11.	I contacted a friend or acquaintance	1	0
12.	Telephone (mobile or land-line)	1	0
13.	Email	1	0
14.	Website or Chat room	1	0
15.	I went to a someone else's home	1	0
16.	I met someone at a nightclub or pub	1	0
17.	I met someone at a rave/doofs/dance party	1	0
18.	I met someone in a public location* eg. car, car park, train station, park, cafe	1	0
19.	Other (Specify) _____	1	0

20. In the last six months what contact method have you USUALLY used to get or buy ecstasy? (one answer allowed)

- I was contacted by a friend or acquaintance 1
- I contacted a friend or acquaintance 2
- Telephone (mobile or land-line) 3
- Email.....4
- Website or Chat room 5
- I went to someone else's home 6
- I met someone at a nightclub or pub 7
- I met someone at a rave/doofs/dance party.....8
- I met someone in a public location*
  eg. car, car park, train station, park, café 9
- Other (Specify) _____ 10

21. In the last six months who did you <u>USUALLY</u> get or buy ecstasy <u>FOR</u>? (one answer allowed)

- Yourself only .....1 (*go to question 27*)
- Yourself and others …….. 2
- Others only …… 3

In the last six months how often did you get or buy ecstasy for EACH of the following reasons? (answer each question)

		Never	Almost never	Sometimes	Almost always	Always
22.	To give away as a gift	1	2	3	4	5
23.	To pass on at cost price	1	2	3	4	5
24.	To exchange for other drugs, goods or services	1	2	3	4	5
25.	To sell for cash profit	1	2	3	4	5
26.	Other (*Specify)* _____	1	2	3	4	5

27. In the last six months, HOW OFTEN did you get or buy ecstasy? (one answer allowed)

- Every day..... 1
- Once a week or more..... 2
- About once a month..... 3
- Every few months 4
- Once or twice a year 5

When you get or buy ecstasy… (answer each question)

		Number of ecstasy tabs
28.	How many tabs do you USUALLY obtain	
29.	What is the LEAST number you have ever obtained	
30.	What is the MOST number you have ever obtained	

31. Do you USUALLY take ecstasy in a different place to where you want to feel its effects? (one answer allowed)

Yes 1

No 0

Why do you take ecstasy in a different place to where you feel its effects? (answer each question)

		NA	Not at All	A Little	A Lot
32.	To avoid being caught by police	9	1	2	3
33.	To avoid being caught by staff at venue	9	1	2	3
34.	To avoid losing the ecstasy before using it	9	1	2	3
35.	To avoid being seen taking ecstasy by other people	9	1	2	3
36.	To feel the effects of the ecstasy when arriving at an event	9	1	2	3
37.	To know the effects of the ecstasy before going out	9	1	2	3
38.	Other (*specify*) _____	9	1	2	3

If ecstasy was unavailable to you on a particular occasion, would you consider getting or buying each of the following INSTEAD (answer each question) …

		Yes	No	Maybe
39	Alcohol	1	2	3
40.	Cannabis	1	2	3
41.	Speed	1	2	3
42.	LSD	1	2	3
43.	GHB	1	2	3
44.	Ketamine	1	2	3
45.	Heroin	1	2	3

Would the following factors reduce your ecstasy use? (answer each question)

		Not at all	A Little	A Lot
46.	Price of ecstasy went up a lot	1	2	3
47.	Purity of ecstasy went down a lot	1	2	3
48.	Ecstasy became very hard to get	1	2	3
49.	Chances of being caught by police were higher	1	2	3
50.	Penalties for ecstasy use were increased	1	2	3
51.	Negative effects of ecstasy on your physical health	1	2	3
52.	Negative effects of ecstasy on your mental health	1	2	3
53.	Negative effects of ecstasy on your work/study	1	2	3
54	Negative effects of ecstasy on your relationships	1	2	3
55.	Friends stopped using ecstasy	1	2	3

Do you think you will still be using ecstasy… (answer each question)

		Yes	No	Maybe
56.	In 12 months time?	1	2	3
57.	In two years time?	1	2	3
58.	In five years time?	1	2	3
59.	In ten years time?	1	2	3

The next few questions are further questions about the price of ecstasy.

Price

In your opinion to what extent do EACH of the following influences the price of the ecstasy you get or buy? (answer each question)

		Increases price	Decreases price	No influence	Don't know
60.	Knowing your supplier well	1	2	3	4
61.	Supplier being close to the original source	1	2	3	4
62.	Higher MDMA content/purity of tabs	1	2	3	4
63.	Decreased availability of a particular 'brand' or logo of ecstasy	1	2	3	4
64.	Decreased availability of ecstasy generally	1	2	3	4
65.	Special times of year (e.g. New Year, O-Week, etc)	1	2	3	4
66.	Not planning/arranging your purchase in advance	1	2	3	4
67.	Buying a larger quantity of ecstasy	1	2	3	4
68.	Increased police activity	1	2	3	4
69.	Buying ecstasy at a public venue (e.g. club, rave)	1	2	3	4

70. Do you negotiate a price with your supplier(s)? (one answer only)

- Always 1
- Sometimes 2
- Rarely 3
- Never 4

Content

71. Are you confident of the MDMA content of ecstasy BEFORE taking the tab? (one answer only)

- Not confident 1
- A little confident 2
- Very confident 3

72. Are you confident of the MDMA content of ecstasy AFTER taking the tab? (one answer only)

- Not confident 1
- A little confident 2
- Very confident.....3

How do you usually establish the CONTENTS AND PURITY of the tabs ecstasy you use? (answer each question)

		Often	Sometimes	Never
73.	Based on personal experience	1	2	3
74.	Based on what supplier says	1	2	3
75.	Based on what friends say	1	2	3
76.	Information on the Internet	1	2	3
77.	Pill testing kit	1	2	3
78.	Other (specify) _____	1	2	3

Can you tell me whether you think the following statements are true or false? (answer each question)

		True	False	Don't know
79.	Logos are a good indication of what the tab will be like	1	2	3
80.	Most of the ecstasy you get or buy in Queensland contains little or no MDMA	1	2	3
81.	Most of the ecstasy you get or buy in Queensland is mainly MDMA	1	2	3
82.	I do not care what is in the ecstasy tabs I take, so long as I have a good time	1	2	3
83.	There is a big difference between the different types of ecstasy and the effects they give me	1	2	3
84.	The positive effects of ecstasy are very similar to the positive effects of speed	1	2	3
85.	The positive effects of ecstasy are very similar to the positive effects of weak LSD?	1	2	3
86.	Using ecstasy should be legal	1	2	3
87.	Selling ecstasy should be legal	1	2	3

The next set of questions are about ecstasy distribution and manufacture

Distribution and Manufacture of Ecstasy

To what extent do you agree with the following statements about the distribution and manufacture of ecstasy? (answer each question)

		Not At All	A Little	A Lot	Don't Know
88.	I could not get more than 10 ecstasy tabs at one time	1	2	3	4
89	If I wanted to I could get more than 100 tabs at one time	1	2	3	4
90.	I have a supplier who is close to the manufacture of ecstasy	1	2	3	4
91.	I have a supplier who knows an ecstasy importer	1	2	3	4
92.	I would never get more than 10 ecstasy tabs at the one time	1	2	3	4

To what extent do you agree that ecstasy is.. (answer each question)

		Not At All	A Little	A Lot	Don't Know
93.	Made in Queensland	1	2	3	4
94.	Made interstate	1	2	3	4
95.	Made overseas	1	2	3	4

To what extent is it possible.. (answer each question)

		Not At All	A Little	A Lot	Don't Know
96.	To get the chemicals to make ecstasy, in Queensland	1	2	3	4
97.	To get the chemicals to make ecstasy, interstate	1	2	3	4
98.	To get the chemicals to make ecstasy into Australia, from overseas	1	2	3	4

99. In your opinion who makes and distributes the ecstasy you get?

[Write overleaf if more space required.]

The next few questions are about ecstasy use and the law

These statements about ecstasy-related legal offences and penalties in Queensland. Are they true or false? (Answer each question)

		True	False	Don't Know
100.	Being under the influence of ecstasy is illegal	1	2	3
101.	Driving while under the influence of ecstasy is illegal	1	2	3
102.	You could be imprisoned for 3 years for have just one ecstasy tab in your possession	1	2	3
103.	If you gave ecstasy to someone under 18 years you could be imprisoned for 20 years.	1	2	3
104.	It is an offence to tell someone how to make ecstasy	1	2	3
105.	Police can detain and search you or your car without a warrant if they suspect that you possess ecstasy	1	2	3

In your opinion, what degree of control should there be over use of each of the following drugs? (*use scale below*)

Illegal:

1. Illegal with automatic severe penalties for use and/or possession.
2. Illegal, but with less severe penalties for a first offence.
3. Illegal, but just a fine and no conviction.

Legal:

4. Legal, but only available on prescription from a doctor.
5. Legal, but not commercially marketed (i.e., no advertising).
6. Legal and commercially marketed (i.e., advertising).

		Illegal			Legal		
106.	Tobacco	1	2	3	4	5	6
107.	Alcohol	1	2	3	4	5	6
108.	Cannabis	1	2	3	4	5	6
109.	Heroin	1	2	3	4	5	6
110.	Speed	1	2	3	4	5	6
111.	Ecstasy	1	2	3	4	5	6

112. What is your USUAL fortnightly take home net income (after tax and including all sources of income)?

$ _____

113. Are you a citizen or permanent resident of Australia [circle one]?

Yes ……..... 1

No 0

Thank You for your time

Qualitative Interview Eligibility Criteria:

❑ Demonstrated knowledge of the ecstasy market OR sells ecstasy for profit.

Appendix C

Indicator data source for EMI study

Arrests

- Queensland Police Service (QPS) arrest data

Seizures

- Australian Customs Service seizure data
- Australian Federal Police (AFP) seizure data
- Queensland Health Pathology and Scientific Services (QHPSS) seizure data

Law enforcement intelligence sources

- Australian Criminal Intelligence Database (ACID) mentions
- Protected intelligence assessments, post-operational reports, briefings and bulletins

Morbidity

- Australian Institute of Health and Welfare Mortality Database (AIHWMD)
- National Coroners Information System (NCIS).

Mortality

- Australian Institute of Health and Welfare National Hospital Morbidity Database (AIHW NHMD)

Drug treatment

- Australian Institute of Health and Welfare National Minimum Dataset for Alcohol, Tobacco and Other Drug Treatment Services AIHW (NMDS ATODS)
- Alcohol and Drug Information Service (ADIS) telephone counseling data
- National Needle and Syringe Program (NSP) cross-sectional survey data

Ambulance attendances

- Queensland Ambulance (QAS) attendance data

Appendix D

Bluelight Internet forum thread on unknown dealers

Yesterday when I [was] going to the train station from uni I was having a smoke. Some guy just asks me if I had a spare ciggie, so I gave him one. Him and his mate offer me a beer which I thought was really cool. I stood there and talked with them, since they gave me a beer for a ciggie. After a while of talking they asked me if I took drugs etc. Just as it happens he was a dealer selling gas, which I fink [think] is speed. He said his stuff was 'good shit' but all dealers say that about their stuff. I thought I'd get his number to be polite and in case I felt like experimenting with speed.

Back to my main point, can you trust a dealer you just met on the street (in terms of quality) or should u stick to someone u regularly use or a dealer of a friend?

Short answer. No.

A dealer fundamentally [h]as your life in his or her hands. They could tell you its gas when it's really crushed Sudafed with sodium hydroxide. You should always be able to trust your dealer very well (either through the fact he is your friend, or the fact, if you get crook, he will go down), and just cause he offered you a beer doesn't mean he is trustworthy.

Also, if you are only just beginning with speed, don't get it off the street. Get it off someone you trust who can give you an idea of its strength with a bit more validity.

I never buy off the street anymore. It's too dangerous; you can get jacked, either through dodgy or bunk shit; you can get bashed; or you could get arrested.

I guess if you asked anyone on here (as I presume most of you are into HM) [harm minimisation] then they would always go with a dealer they regularly use or after that one they have heard good things about from friends. Most people would only buy off someone they didn't know if they had no other alternatives if they wanted to score. I've never bought off the street but I've bought off people I didn't know in clubs and raves (something I try to do as little as possible). The guy at the rave was really cool and let me test it and everything, the guy at the club was rude and when I asked him if we could go and do the deal in the toilets so I could see what it looked like, he was like fuck that. It all comes down to what options are available to you, but if you think about it another way nearly all dealers you don't know in the first place only after buying off them will you decide whether they are worth knowing, and only then will you know if their shit is good.

I try not to trust a dealer, period!

I have one now, who is a good friend of a good friend. Very trust worthy, and would buy back products off me (same price) that I thought weren't up to standard or worth the money.

This is one exception; otherwise don't trust a dealer, especially one you met on the street.

You should try speed for the first time with one of your mates who has done it before. Generally it's a very bad idea to trust someone off the street. I have bought something off the street once and that wasn't just a random off the street, it was on Nye [New Year's Eve] and I had to go meet this guy outside a rave and sell him a pill for my mate, then he goes u want sum wipper, and I was pretty luvved up at the time, so I would of trusted a goat.

Absolutely not. The only thing you can trust is your own experiences, in an industry where everything is unregulated. Buying off the street is putting you at complete risk.

I agree with shorza that dealers are essentially untrustworthy, but if you present yourself as a trustworthy client, you can generally build something resembling a business relationship. With a street dealer there is no opportunity to do so.

The only good reason to buy from the street: absolute need. If you have no option aside from horrible withdrawals or buying off the street, do it. Otherwise, there are better options available.

Thread continues ….

Source: Bluelight Australian Drug Discussion downloaded on 17.02.05 http://www.bluelight.nu/vb/forumdisplay.php?s=82f05af7a45e4820977cd686fbe994ef&forumid=45&r=123589

Appendix E

The Council of the European Union recommendations for the harmonisation of the collection of drug seizure and diverted precursors seizure statistics among Member States.

Key Elements	Additonal Elements
1. General information	
Date of seizure	Type of place of seizure
Place of seizure	Reporting authority
	Method of detection
	Use of technical means or resources
2. Drugs seized	
Type of drug	Logo and marks
Appearance	
Amount	
Price	
Purity	
3. Chemical substances (precursors and others)	
Type of substance	Method of detection
Amount	Commercial markings
Price	Category of recipient
Country of origin	Information on (potential) end product
Country of destination	Number of persons involved
Method of acquisition	
Status (e.g. seizure, interception)	
4. Personal possession or consumption	
Age	Country of residence
Sex	Profession
Nationality	
5. Trafficking	
Source country or region	Type of trafficking
Transit countries/regions	Means used for trafficking
Country/region of final destination	Method of concealment
	Number of persons involved
6. Cultivation	
Type of cultivation	Estimated yield
	Region of cultivation
	Methods of obtaining seeds
	Methods of obtaining cuttings
	Equipment

Key Elements	Additional Elements
	Number of persons involved
7. Manufacture	
Type of detected production area	Estimated production
Production procedure	Period of activity
	Location area
	Presence of logo/markings
	Presence of pill machine
	Information on punch
	Method of obtaining equipment
	Number of persons involved
8. Diversion of drugs from licit channels	
Place where diversion took place	Destination of diverted product
Method of diversion	Legal (offical) destination
	Number of persons involved
9. Persons involved (other than personal possession)	
Nationality	Age
Country of residence	Sex
Type of criminal group	Profession
Role in group	

Source: Taylor (2003; pp. 47-51)