CRIME BULLETIN

CRIME AND MISCONDUCT COMMISSION

QUEENSLAND

CRIME BULLETIN SERIES

NUMBER 4

APRIL 2002

ISSN: 1442-5815

This bulletin is also available on www.cmc.qld.gov.au/PUBS.html.

Information on this series and other CMC publications can be obtained from:

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The Illicit Market for ADHD Prescription Drugs in Queensland

Introduction

In November 2000, the former Queensland Crime Commission[1] pointed to the amphetamine market as the highest risk crime market in Queensland (QCC 2000). It also noted a perception among users that amphetamine use was not addictive and found that the younger end of the market considered it more acceptable because it had less stigma attached to it than injecting drugs. As a result of that report, the QCC hypothesised that the amphetamine-based prescription drugs for treating Attention Deficit Hyperactivity Disorder (ADHD),[2] — methylphenidate and dexamphetamine — had the potential to become catalysts for subsequent amphetamine use. This bulletin tests that hypothesis and concludes that, while there is a minor problem with the illicit diversion and abuse of ADHD prescription drugs in Queensland, this does not necessarily lead to amphetamine use.

ADHD prescription drugs and their effects

What is ADHD?

> While there is no proven cure for ADHD at this time, and the cause is unclear, research is ongoing to learn more about the role of the brain in ADHD and the best ways to treat the disorder. (AAP 2001)

ADHD is a diagnosis applied to children and adults who consistently display certain characteristic behaviours over a prolonged period (Jaksa 1998). At the core of these behaviours are:

- distractibility (poorly sustained attention to tasks)
- impulsivity (impaired impulse control and delay of gratification)
- hyperactivity (excessive activity and physical restlessness).

Clinical experience has shown that the most effective treatment for ADHD is a combination of medication (when necessary), therapy or counselling to learn coping skills, and ADD coaching for adults (Jaksa 1998).

ADHD prescription drugs

As methylphenidate and dexamphetamine are the exclusive treatment options in about 90 per cent of all cases of ADHD, this bulletin will refer to these stimulants or their compounds only.

ADHD prescription drug brand names include Ritalin® and Attenta® (methylphenidate hydrochloride), Dexedrine® (dexamphetamine) and Adderall® (dexamphetamine and amphetamine mixture).

The purpose of ADHD medication is to lengthen attention span, decrease distraction and provide more opportunity for effective learning.[3] Side effects of the medication include headaches, sleep problems and loss of appetite (Elias 2001).

In recent years, the prescribing of methylphenidate and dexamphetamine as an adjunct to the management of ADHD has increased significantly in Australia. In 1994, Australia was the fifth highest consumer of methylphenidate in the world (Queensland Health 1996). Australian Government statistics show that, in terms of dexamphetamine prescriptions per 1000 head of population in 1999–2000, Western Australia had the highest rate (43.2%), followed by Tasmania (16.3%), South Australia (10.2%), New South Wales (9.5%), the Australian Capital Territory (8.5%), Queensland (8.2%) and

1 The Queensland Crime Commission merged with the Criminal Justice Commission on 1 January 2002 to form the Crime and Misconduct Commission (CMC).

2 Often called Attention Deficit Disorder (ADD).

3 See MedicineNet, Inc. website: www.medicineNet.com.

Victoria (6.7%) (Parliament of Australia 2001). It appears that children in Western Australia are considerably more likely to be prescribed ADHD drugs than children in other Australian States and Territories.

Crime risk considerations

Although there is considerable ongoing public and professional debate about the legitimate use (or potential overuse and abuse) of ADHD prescription drugs in society, this bulletin focuses on the risk posed by their criminal abuse through diversion from legitimate treatment to the illicit drug market.

Parran and Jasinski (1991) observed that with any controlled drug an increase in prescribing is accompanied by an increase in illicit diversion and by abuse of the drug by chemically dependent individuals. Such drugs can be diverted through various methods, including 'doctor shopping', obtaining them from patients to whom they have been lawfully prescribed and bartering with drug dealers.

Methylphenidate is listed as a dangerous drug in schedules 2 and 5 of the Drugs Misuse Regulation 1987, with trafficking carrying a maximum penalty of 25 years' imprisonment. As dexamphetamine is not listed in any schedule of the Drugs Misuse Regulation, there is no current penalty for trafficking in this drug.

However, both methylphenidate and dexamphetamine are controlled drugs under schedule 8 of the Health (Drugs and Poisons) Regulation 1996.[4] Owing to their nature and toxicity, they are also classed as specified condition drugs under section 78 of the Health (Drugs and Poisons) Regulation and have additional supply and use restrictions. Doctors can only prescribe these drugs for the treatment of narcolepsy,[5] brain damage (for a child aged between four and 18 years) and for ADD/ADHD (for a child aged between four and 18 years), except where prior approval of the Chief Executive of Queensland Health has been obtained. Paediatricians and child psychiatrists are able to prescribe ADHD drugs to a child of any age (from birth to 18 years) for the treatment of brain damage or ADD. Prescriptions must also be endorsed with the words 'specified condition'. Pharmacists are advised that prescriptions that fail to comply with these additional restrictions cannot be legally dispensed (Queensland Health 2001). In addition, doctors are required to notify the Chief Health Officer of lengthy treatment (over two months) with methylphenidate and dexamphetamine.

Health issues

The abuse of ADHD prescription drugs is a potential problem for society, the public health system and law enforcement agencies.

Research clearly indicates similarities between the pharmacological and behavioural effects of these drugs and amphetamines and cocaine. Stimulants of this type have a marked abuse potential, and their misuse can have severe adverse medical and social consequences (Goldman et al. 1998) including long-term damage to brain cell structure and function (Baker 2001).

Amphetamines, cocaine, methylphenidate and dexamphetamine are all central nervous system stimulants and all produce similar immediate, long-term and withdrawal effects. Methylphenidate-induced stimulation produces a decreased sense of fatigue, an increase in motor activity and mental alertness and mild euphoria. Effects of withdrawal and misuse may include agitation, hostility, tremors, tachycardia (accelerated heartbeat), heart palpitations, hypertension and drug craving (Baldwin & Anderson 2000). Psychotic episodes, paranoid delusions, hallucinations and other behavioural characteristics have also been linked to methylphenidate abuse (DEA 2000).

The extent of the problem

This bulletin seeks to analyse the abuse potential of ADHD prescription drugs in Queensland from international, domestic and market perspectives. The current situation in Queensland is then analysed in the light of these perspectives to assess the prevalence of abuse of ADHD prescription drugs and the crime risk they pose.

International perspective

United States

United States research has reported a trend for methylphenidate to be diverted into illicit markets and abused. The problem was first noted by the DEA in 1995 when it conducted an extensive review of the use, abuse liability, actual abuse, illicit diversion and trafficking of methylphenidate in response to a petition to lower the regulatory controls on methylphenidate (DEA 2000). The review concluded that methylphenidate had a high potential for abuse and that the incidence of abuse was rising.

In a press release at the time, the DEA reported that a significant number of children and adolescents were diverting and abusing ADHD medication and that students were giving and selling their

4 Schedule 8 drugs were previously called dangerous drugs.

5 A condition characterised by an uncontrollable desire for sleep.

Data sources and limitations

This bulletin draws on information collected and published by Australian agencies such as the Australian Bureau of Criminal Intelligence (ABCI), Queensland Health, the Australian Institute of Health and Welfare (AIHW) and the Illicit Drug Reporting System (IDRS). It also draws on information from international agencies such as the (US) Drug Enforcement Administration (DEA) and the (United Nations) International Narcotics Control Board (INCB).

Additional information was obtained from discussions with health professionals including clinical health directors, consultant psychologists, social workers and Queensland Health employees. Other data sources include publications accessed through the Internet, worldwide journals/databases, magazine and newspaper articles, and books on methylphenidate and dexamphetamine.

The information provided here is intended to give the reader an overview of the historical context of illicit ADHD prescription drugs and any coincidental current crime market trends. Readers who require more detailed information should refer to the sources listed at the end of this bulletin.

Most Australian information contained in this bulletin relates to the period 1992 to 1996. As there is limited current and publicly available information on the abuse of ADHD prescription drugs in Australia or their diversion from legitimate treatment to the illicit drug market, a large amount of the information contained here is based on inferences drawn from overseas information, much of which is anecdotal.

medication to classmates (DEA 1995). Poison-control data, emergency room data and high school surveys all indicated that the abuse of methylphenidate had increased significantly since 1990. The DEA (2000) also noted that, in 1994, 1 per cent of US school seniors reported the illicit use of methylphenidate or dexamphetamine. In 1999 this figure had risen to about 3 per cent. However, the full extent to which methylphenidate and dexamphetamine is being abused remains unknown and further research is required.

Sweden

When methylphenidate was introduced into Sweden in the 1960s, it was promoted and prescribed for weight loss.

Amphetamine addicts recognised the abuse potential of the new drug when amphetamine became difficult to obtain in the late 1960s. An illegal market was created with addicts buying methylphenidate from patients who had readily obtained the drug to treat obesity. As a result of this escalation in street abuse, Sweden withdrew methylphenidate from the market in 1968.

Sweden's experience led to the US declaring methylphenidate a controlled drug in 1971 (Diller 1998).

South Africa

According to South African research (Parran & Jasinski 1991), users abusing methylphenidate had little difficulty in obtaining it from doctors, hospitals and specialised clinics, although this research is now somewhat dated.

General

The INCB is the UN agency that monitors drug addiction and abuse throughout the world. In its annual reports of 1995 and 1996, the INCB highlighted several cases of abuse and warned of the increasing abuse of methylphenidate worldwide, especially in the United States. It reported that in the US the number of methylphenidate-related emergency room mentions for people aged 10–14 in 1995 reached the level of cocaine-related mentions for that age group (INCB 1996).

According to the DEA and the INCB, Ritalin was among the top 10 most common controlled drugs involved in drug thefts and was diverted and abused by health professionals as well as drug addicts (DEA 2000; INCB 1996).

Domestic perspective

Australia

Law enforcement intelligence reports indicate a brief instance of small-scale illicit diversion and abuse of ADHD prescription drugs in Tasmania in the 1990s. Other anecdotal reports suggest isolated instances of children selling their ADHD medication in some Australian schools for around AU$2 a tablet (ABCI 1997).

Queensland

Cases of illicit diversion and abuse of ADHD prescription drugs in Australia and Queensland are largely infrequent and anecdotal. However, enough concern was raised in Queensland over the escalating consumption of methylphenidate and dexamphetamine for Queensland Health to produce a report about the trends of consumption from 1991 to 1995 (Queensland Health 1996). It found that Queensland experienced a 490 per cent increase in consumption over this four-year period.

Reports also suggest that the availability of illicitly diverted dexamphetamine and methylphenidate tablets has increased during recent years in Queensland (McAllister 2001). Anecdotal information suggests that in 2001 methylphenidate was available in some Queensland schools for between AU$2 and AU$4 a tablet (CMC information 2002).

Anecdotal information from health workers also suggests that the high availability of amphetamines and increase in amphetamine users in Queensland, particularly South-East Queensland, are responsible for the current low number of cases of illicit diversion and abuse of methylphenidate and dexamphetamine. This suggestion is assessed from a market perspective in the next section.

Market perspective

Like all markets, the illicit market for ADHD prescription drugs must be considered in the context of supply and demand.

Supply

Unlike amphetamines, ADHD prescription drugs are produced legally and are readily available on prescription. As Australia was the fifth highest consumer of methylphenidate from 1992 to 1994 (Queensland Health 1996), any increase in abuse may be associated with the large increases in the availability of the drug.

Overseas anecdotal evidence indicates that the illicit diversion of ADHD prescription drugs occurs by drug thefts, prescription forgery, 'doctor shopping' and illegal sales to others. DEA information (2000) suggests that those who are illegally using methylphenidate and dexamphetamine products are obtaining them from people who have been prescribed these medications for ADHD. Adolescents do not have to rob a pharmacy or forge a prescription when they have little difficulty obtaining the drug from classmates at school.

From the supply perspective, the widespread availability by prescription of methylphenidate and dexamphetamine has the potential to escalate illicit diversion, abuse and addiction among adolescents.

Demand

To identify market trends, it is important to understand the demand factors affecting the illicit market for ADHD prescription drugs — that is, users, drug preferences, acceptability, routes of administration, street names and prices.

Users. There is little information about the demographic characteristics of those who abuse ADHD prescription drugs. Studies suggest that there is not a high abuse potential for very young children as they do not like the effect of higher doses and generally do not self-administer the drug (Diller 1998). It has been reported in the US city of Baltimore that illicit diversion and abuse largely occurs among middle and upper middle-class school students (NIDA 2000), although this may not be so in Australia. However, by contrast, Parran and Jasinski (1991) report that those who abuse methylphenidate are generally older with long histories of poly-substance abuse.

While there is no empirical information on the demographics of ADHD abuse in Queensland, adult ADHD patients tend to be of low socioeconomic status with poor academic and job performance (Queensland Health 1996).

Drug preferences. Anecdotal evidence indicates that drugs such as ecstasy are often sought for their psychoactive effects — that is, to get high or to stay awake for extended periods. The tendency to abuse stimulant drugs is clearly associated with the rave or dance scene (QCC 2001).

Anecdotal evidence also indicates that methylphenidate is preferred by some users because it is more potent than

dexamphetamine. The differing effects of ADHD drugs could explain this preference — the effects of methylphenidate and dexamphetamine can be noticed within 30 minutes and gradually fade away after three hours, but dexamphetamine has a longer half-life than methylphenidate (PPEi 2001).

Other anecdotal evidence indicates that, because of the ready availability of other more preferred drugs such as amphetamine and, to a lesser extent, cocaine and heroin, ADHD prescription drugs are not being widely abused in Australia. The abundant local manufacture, ready availability and competitive price of amphetamines clearly point to the amphetamine market in Queensland being driven more by supply than demand (McAllister 2001).

Preference indications are that the need for methylphenidate and dexamphetamine is currently low because addicts or users can readily obtain amphetamines in South-East Queensland. The proportion of Queenslanders aged over 14 years who have ever used amphetamines increased from 3.6 per cent in 1995 to 8.1 per cent in 1998 (AIHW 2000).

In market terms, if the amphetamine supply were significantly reduced, then more and more stimulant addicts may resort to using other drugs, including ADHD prescription drugs. However, even if this occurred, we do not expect that a street abuse epidemic, similar to the one in Sweden in the 1960s, would be repeated in Australia because these drugs are only prescribed for restricted treatments such as ADHD and not for more general treatments such as weight loss. While there may be an oversupply of methylphenidate and dexamphetamine and the potential to abuse these drugs is evident, a problem as extreme as the current amphetamine market would probably not develop.

Acceptability. Younger people consider prescription drugs and drugs in tablet or pill form to be more acceptable than injected drugs, mainly because they assume that if they are available from a doctor on prescription then they must be safe (see Queensland drug research referred to in QCC 2000).[6]

Routes of administration. ADHD tablets consumed as prescribed (15–25 mg daily for methylphenidate and 2.5–40 mg daily for dexamphetamine) do not result in either tolerance or addiction (PPEi 2001). Anecdotal evidence from ADHD prescription drug users on the Internet indicates that ADHD drugs are usually abused by 'bingeing' and administered primarily through oral, snorting or intravenous means. The user may vary the administration from oral to snorting to intravenous injection in order to intensify the effects of the drug. Parran and Jasinski (1991) estimated the mean daily methylphenidate dose during a binge session to be 200 mg.

Oral consumption is not the preferred method of administration by addicts as it weakens the acute experience of the drug by lengthening the duration of its onset. Intranasal administration provides a rapid distribution which effectively magnifies the drug's effects (Babcock & Byrne 2000). Intravenous administration produces a high similar to that of cocaine (Volkow et al. 1995). The NIDA in the United States (2000) reported occasions of poly-drug use among addicts who mix methylphenidate and dexamphetamine with heroin or cocaine for a more potent effect.

Street names. Methylphenidate and dexamphetamine have various street names, such as MPH and DEX, poor man's cocaine, kiddie cocaine, the chill pill, get-smart, the smart pill, Vitamin R and the R-ball. The injection of methylphenidate is known as 'west coast' (NIDA 2000).

Prices. As stated previously, anecdotal reports suggest that in 2001 methylphenidate was available in Queensland schools for between AU$2 and AU$4 a tablet. Anecdotal reports from law enforcement agencies indicate that ADHD prescription drugs in Toowoomba and the Gold Coast sell for AU$5 a tablet (CMC information 2002).

The very fact that these drugs have a street price is of concern. In the Gold Coast (a key tourist centre) this could reflect the low barriers for entry to most drug markets, and in the case of Toowoomba (a rural city) this may be a reflection of temporary shortages in the supply of amphetamines to some user groups. By comparison, the October 2000 price for a point (0.1 gm) of amphetamine in Queensland was between AU$20 and AU$50 (McAllister 2001).

Current perspective

There is little evidence to support the claim that illicit diversion and abuse of ADHD prescription drugs is a major problem in Queensland or that these drugs are catalysts for subsequent amphetamine use. However, the impact of a 'drought' on the amphetamine market could influence how methylphenidate and dexamphetamine are used, especially considering the increase in the legal production and use of these stimulants.

In light of Sweden's experience, the problem has the potential to change if the amphetamine market is affected significantly, although we do not predict that a problem as extreme as the current amphetamine market would develop. Relevant factors include the current classification of the drug, the fact that it is primarily prescribed for school-aged children and the low preference for using ADHD prescription drugs. We predict that other illicit drugs would fill the amphetamine void before drugs such as methylphenidate and dexamphetamine.

Nonetheless, interested organisations must take a proactive approach if they wish to prevent ADHD drugs filling a void in the amphetamine market, especially in light of concerns that the widespread availability of prescription drugs is causing children to view drugs and drug-taking as normal.

An additional problem that enforcement bodies face is that the ready availability of these drugs creates an oversupply which permits them to be obtained with minimal risk of criminal charges. We know of one case in which an amphetamine addict in a treatment centre was able to obtain a supply of Ritalin in the mail from a doctor's surgery after a telephone request.

Assessment

The illicit diversion and abuse of ADHD prescription drugs is a minor problem in Queensland. We do not consider that these drugs necessarily lead to amphetamine use. Rather, available information indicates that there are very few cases of illicit diversion and abuse, owing to the overwhelming supply of illicit amphetamines in Queensland.

Although there is still the potential for methylphenidate and dexamphetamine to become the entry-level drugs for a much larger stimulant abuse problem, the CMC considers that the illicit diversion and abuse of ADHD prescription drugs currently poses a low crime risk to the Queensland public.

6 The Queensland results of the 1998 National Drug Strategy Household Survey report that the mean age of novice amphetamine users dropped from 22.1 years in 1995 to 19.8 years in 1998 (AIHW 2000).

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Abbreviations

AAP	American Academy of Pediatrics
ABCI	Australian Bureau of Criminal Intelligence
ADD	Attention Deficit Disorder
ADHD	Attention Deficit Hyperactivity Disorder
AIHW	Australian Institute of Health and Welfare
CMC	Crime and Misconduct Commission
DEA	Drug Enforcement Administration (United States)
IDRS	Illicit Drug Reporting System
INCB	International Narcotics Control Board (United Nations)
NDARC	National Drug and Alcohol Research Centre
NIDA	National Institute on Drug Abuse (United States)
PPEi	Australian Network for Promotion, Prevention and Early Intervention for Mental Health
QCC	Queensland Crime Commission (now the CMC)

Acknowledgments

This bulletin has been prepared by officers of the CMC. We acknowledge the considerable assistance of the following people in providing us with material and professional advice:

- Kendall Willis, Griffith University
- Cathy Arandt, Head of Programs, Acute Ward
- Dr Dianne Lange, Psychiatrist, Mental Health Unit, Prince Charles Hospital
- Dr John Bee, Psychiatrist, Mental Health Unit, Prince Charles Hospital
- William Loveday, Senior Adviser Drugs of Dependence Unit, Queensland Health, Alcohol, Tobacco and Other Drug Services
- Dr Ian Curtis, Consultant Psychiatrist for the BIALA Youth Program
- Paul Letters, Social Worker, Queensland Health, Child and Youth Mental Health Services
- Dr Ross Young, Psychologist, The University of Queensland
- Gabrielle Rose, Research Officer, The University of Queensland.

SUMMARY: THE ILLICIT MARKET FOR ADHD PRESCRIPTION DRUGS IN QUEENSLAND

Use of ADHD (Attention Deficit Hyperactivity Disorder) prescription drugs is subject to much debate. In recent years the prescribing of these drugs has increased significantly and it is reasonable to assume that this growing availability is leading to illicit diversion and abuse. There are concerns also that their widespread availability is causing children to view drugs and drug-taking as normal.

- ADHD is a diagnosis applied to children and adults who consistently display certain characteristic behaviours over a prolonged period (e.g. distractibility, impulsivity and hyperactivity).
- Methylphenidate and dexamphetamine are the exclusive treatment options in about 90 per cent of all cases of ADHD.
- Methylphenidate is listed as a dangerous drug in schedules 2 and 5 of the Drugs Misuse Regulation 1987.
- Both methylphenidate and dexamphetamine are listed as controlled drugs under schedule 8 of the *Health (Drugs and Poisons) Act 1996*, and are also classed as specified condition drugs under section 78 of the Health (Drugs and Poisons) Regulation 1996.
- ADHD prescription drugs produce similar immediate, long-term and withdrawal effects to amphetamines and cocaine.

The extent of the problem

International perspective

- ADHD prescription drug abuse by adolescents in the United States rose from 1 per cent in 1995 to 3 per cent in 1999.
- In Sweden in the 1960s, low amphetamine availability created an illegal market for methylphenidate (prescribed for weight loss), which led to an epidemic of street abuse and to the drug's withdrawal from the market in 1968.
- Ritalin has been placed among the top 10 most common controlled drugs involved in drug thefts and one that is diverted and abused by health professionals as well as drug addicts.

Domestic perspective

- There was a brief instance of abuse in Tasmania in the 1990s. Other reports suggest an illicit market exists within schools, with ADHD prescription drugs being sold for between AU$2 and AU$4 a tablet.
- The high availability of amphetamines and increase in amphetamine users in Queensland are responsible for the current low number of cases of illicit diversion and abuse of ADHD prescription drugs.

Market perspective

Supply

- Unlike amphetamines, ADHD prescription drugs are produced legally and are readily available on prescription.
- Illicit diversion occurs by drug thefts, prescription forgery, 'doctor shopping' and illegal sales to others.

Demand

- There is no empirical information on who abuses ADHD prescription drugs in Queensland, but US studies point to middle to middle upper-class school students or to older people with long histories of poly-substance abuse.
- ADHD prescription drugs are being less abused in Australia because of the ready availability of other more preferred drugs such as amphetamine, cocaine and heroin.
- If the amphetamine market declined, more stimulant users could potentially resort to using other drugs including ADHD prescription drugs.
- ADHD drugs are usually abused by 'bingeing'. The mean daily methylphenidate dose during a binge session is 200 mg as compared to the prescribed dosage of between 15 and 25 mg.
- Addicts prefer snorting because it magnifies the effects of the drug.
- Young users generally prefer tablets to injections because they assume tablets are safer.
- Illicitly diverted ADHD prescription drugs are known by a variety of names including Vitamin R, kiddie cocaine or the chill pill.
- Australian prices vary from AU$2 to AU$4 a pill except in the Gold Coast and Toowoomba where they reportedly sell for AU$5 a pill.

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Assessment

- **Only a minor problem with abuse and illicit diversion of ADHD prescription drugs exists in Queensland and Australia.**
- **Illicitly diverted ADHD prescription drugs do not necessarily lead to amphetamine use.**
- **Illicitly diverted ADHD prescription drugs have the potential to replace part of the amphetamine market if that market were to be substantially reduced. However, it is unlikely that a problem as extreme as the current amphetamine market would develop.**

CMC risk ratings for the Queensland illicit drug market

The illicit market for ADHD prescription drugs is assessed as posing a low risk to the Queensland community because of the:

- **current high availability of amphetamines**
- **low preference for ADHD prescription drugs**
- **limited harm caused to the community.**

VERY HIGH RISK	**Amphetamines**
HIGH RISK	**Heroin**
MEDIUM RISK	**Ecstasy** **Cocaine**
LOW RISK	**Cannabis** ***ADHD prescription drugs***