

The link between
**amphetamine-type
stimulant use**
and the transmission
of HIV and other
blood-borne viruses
in the Southeast
Asia region

The link between amphetamine-type stimulant use and the transmission of HIV and other blood-borne viruses in the Southeast Asia region

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A report prepared for the
Australian National Council on Drugs, June 2012

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Published by the Australian National Council on Drugs
PO Box 205, Civic Square ACT 2608
Telephone: 02 6166 9600
Fax: 02 6162 2611
Email: ancd@ancd.org.au
Website: www.ancd.org.au

National Library of Australia Cataloguing-in-Publication data

The link between amphetamine-type stimulant use and the transmission of HIV and other blood-borne viruses in the Southeast Asia region / Andrea Fischer ... [et al.]

ISBN: 9788770182799

ANCD research paper; 25.

Includes bibliographic references.

HIV (Viruses) – Southeast Asia – Transmission.

HIV infections – Epidemiology – Southeast Asia.

Intravenous drug abusers – Diseases – Southeast Asia.

Intravenous drug abuse – Southeast Asia.

Fischer, Andrea.

Macfarlane Burnet Institute for Medical Research and Public Health (Melbourne, Vic.)

National Drug Research Institute (Australia).

Australian National Council on Drugs.

614.5993095

Editor: Julie Stokes

Design: Starkis Design

Acknowledgement:

This work has been supported by funding from the Australian Government Department of Health and Ageing.

The opinions expressed in this publication are those of the authors and are not necessarily those of the ANCD or the Australian Government.

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Acronyms

AIDS	acquired immunodeficiency syndrome
ANCD	Australian National Council on Drugs
APDIC	Asia–Pacific Drug Issues Committee
ART	anti-retroviral treatment
ATS	amphetamine-type stimulant
BBV	blood-borne virus
DAINAP	Drug Abuse Information Network for Asia and the Pacific
EAC	Expert Advisory Committee on Asia–Pacific Regional Drug Issues
EMCDDA	European Monitoring Centre for Drugs and Drug Addiction
FSW	female sex worker
HCV	hepatitis C virus
HIV	human immunodeficiency virus
IDADIN	Integrated Drug Abuse Drug Information Network
IDU	injecting drug use
IEC	Information, Education, Communication
MA	methamphetamine/amphetamine
MDMA	3,4–Methylenedioxymethamphetamine or ‘Ecstasy’
MSM	men who have sex with men
NACCA	National Committee for the Control of AIDS
NGO	non-governmental organisation
OST	opioid substitution treatment
PDR	People’s Democratic Republic
PWID	people who inject drugs
SIGN	Scottish Intercollegiate Guideline Network
SMART	Synthetics Monitoring Analyses, Reporting and Trends

STI	sexually transmissible infections
SW	sex worker
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNICEF	United Nations Children's Fund
UNODC	United Nations Office on Drugs and Crime
VAAC	Viet Nam Administration of HIV/AIDS Control
WDR	World Drug Report
WHO	World Health Organization

Executive summary

There are growing concerns regarding the link between amphetamine-type stimulant (ATS) use and the transmission of HIV and other blood-borne viruses (BBV) in the Southeast Asian region. In January 2011, the Australian National Council on Drugs, through its Asia–Pacific Drug Issues Committee and with funding provided by the Expert Advisory Committee on Asia–Pacific Regional Drug Issues, commissioned a review to investigate these concerns. This review focuses on the 11 countries in Southeast Asia (Brunei Darussalam, Cambodia, China (including Hong Kong and Macau), Indonesia, Lao People’s Democratic Republic (PDR), Malaysia, Myanmar, Philippines, Singapore, Thailand and Viet Nam) and covers four key areas:

- the link between ATS use and the risk of HIV and BBV transmission via injecting or sexual routes
- an analysis of HIV risk among ATS users compared to the HIV risk of opioid users
- the interventions currently in place, both internationally and at the Southeast Asian regional level, to address ATS use in terms of HIV prevention and the effectiveness of these interventions, and
- recommendations for future research.

This review comprised three major information sources: a systematic literature review; interviews with key informants based in or working with the countries of concern; and input from a Delphi Panel.

Epidemiology of use and associated risk behaviours

There was significant agreement across the three information sources. All identified concerns with the use of ATS, both as a primary drug of choice and in relation to polydrug use, and HIV and BBV risk behaviours, both injecting and sex-related. These were considered sufficient to suggest the need for swift action in the region.

The limited number of studies that have investigated risk behaviour in people who use ATS in the region shows areas of poor health and indicators of high HIV risk. These have been reported in key populations such as sex workers and men who have sex with men. Additionally, the injection of ATS as a substitute for heroin was reported in several countries (Lao PDR, China, Myanmar and Thailand). There are small numbers of people who inject drugs (PWID) who identify ATS as their drug(s) of choice.

Key informants in most countries stated concerns related to the increasing use of ATS, and a lack of services targeting, or successfully engaging, ATS users. Key informants also noted that there are varying patterns of use of ATS across the region, indicating that country-specific responses are required.

One specific issue regarding increased risk of HIV across the region is the high rates of interaction between people who use ATS and the criminal justice system or law enforcement, and the high rates of incarceration of people who use drugs in general and ATS in particular. Demographic and contextual factors may also interact with ATS use to either increase or decrease BBV risk relative to other drug injecting behaviour. There is some evidence that ATS users have an increased risk of BBV from associated sexual risk taking.

Main issues of concern raised by the key informants and reinforced through the Delphi Panel analysis included: the effects of ATS on young people (inhibiting schooling and employment opportunities); the lack of effective treatment and harm reduction options available for people who use ATS; social and health harms related to high levels of interaction of drug users with the criminal justice system; non-HIV health harms, such as traffic accidents and mental health issues; and the impact of ATS use on the community.

The available evidence and analysis were triaged with input from key informants and with contributions from the Delphi process to reach the following conclusions:

1. ATS use is stable in some countries, and increasing in others. However, there are few data on population prevalence in the region.
2. The injection of ATS is associated with increased BBV risk, and some factors may contribute to a differing risk of BBV compared to other drug use. However, the specific factors that have relevance in Southeast Asian countries remain undocumented.
3. The limited number of studies that investigate risk behaviour in people who use ATS highlights high risk and low service access.
4. ATS users across the region are exposed to multiple HIV risks, particularly high in association with polydrug use and injecting. Use appears higher among groups vulnerable to HIV such as sex workers, men who have sex with men (MSM), and young people. The extent to which other risk factors have impact is unclear, e.g. poverty and mobility.

Interventions

The evidence base for effective interventions to prevent and reduce ATS-related harm is, in general, scant and there is even less that is specific to the Southeast Asia region. Nevertheless, the available evidence, and expert and key informant opinion, suggest there is a need to enhance HIV prevention and other responses to ATS use throughout the region. Specific recommendations include:

1. Given the varying patterns of use of ATS and associated harms across the Southeast Asia region, there is an urgent need to tailor interventions to local context. However, country-specific data are required to inform interventions.
2. Invest in HIV prevention strategies that enhance access for ATS users.
3. Adapt existing harm reduction services, such as drop-in centres and needle and syringe programs, where indicated, to better meet the needs of ATS users. As noted above, there is a need to identify their accessibility and effectiveness specifically in relation to primary ATS users.
4. Incorporate ATS harm reduction messaging into existing sexual health activities and other programs with key affected populations.
5. Develop standard treatment guidelines for ATS dependence that are reflective of the international literature and existing guidelines, and are adapted to local need.

Research

A key objective of this review was to identify research needs. There is a dearth of evidence that can guide the tailoring of responses to the specific needs of diverse countries in the Southeast Asia region, although it was noted that the literature on cocaine use from other regions could provide insights given shared stimulant properties. The following recommendations are made here:

1. Invest in rapid assessment and response strategies to ATS, which can be employed with limited resources, to provide an early warning system in the region.
2. Enhance capacity to enable more precise prevalence estimates of ATS use, including information on use of specific substances (e.g. amphetamine or methamphetamine), route of administration, and associated risks and harms.
3. Assess the prevalence of HIV in people who use ATS, in comparison with people who use opioids and people who use both drugs.
4. Examine cross-country consistency of associations between ATS and sexual risks.
5. Examine other ATS harms that have implications for preventing and responding to BBV risk, e.g. cognitive impairment; mental health problems.
6. Enhance capacity to identify the contexts of use, particularly demographic and environmental factors that contribute to ATS risks, with a focus on identifying social and other determinants.
7. Build on existing evidence that some groups of users and contexts of use are riskier than others. Clearer identification of these factors and specific at-risk groups is indicated at a country level.
8. Identify any barriers for ATS users to access existing harm reduction and treatment services, and trial and evaluate responses to these challenges.
9. Identify emerging, efficacious ATS interventions, especially pharmacotherapies, that may be useful in the Southeast Asia region, and assess effective strategies to disseminate and implement evidence-based approaches.
10. Examine the impact of policy and policy implementation (including legislation) on prevalence of use and associated risk behaviours.

It is suggested that these recommendations inform the commencement of a regional research plan to be negotiated with key stakeholders, noting both country-specific themes and topics for regional collaboration. This could be facilitated by a forum to allow for sharing of information across the region and in particular across adjoining borders. These initiatives could be coordinated with existing monitoring systems such as the Global SMART Program.

1. Introduction

In 2009, the Australian National Council on Drugs (ANCD) raised concerns with the federal government's interdepartmental Expert Advisory Committee on Asia–Pacific Regional Drug Issues (the EAC) regarding a possible link between amphetamine-type stimulants (ATS)¹ use and blood-borne virus (BBV) transmission. The ANCD noted a possible increase in the injection of ATS in the region, while acknowledging that there is also an association between ATS use and sexual risk taking with implications for the sexual transmission of HIV. In response to these concerns, the ANCD, via its Asia–Pacific Drug Issues Committee (APDIC), commissioned a review of published and grey literature, and interviews with key stakeholders. The goals were:

1. to analyse the link between BBV, in particular HIV, and the use of ATS
2. to analyse ATS risk comparative to opiate risk as a vector for HIV
3. to assess the viability for ATS of interventions that address HIV prevention, and
4. to recommend future research needs for the Southeast Asia region.

The countries in the Southeast Asia region included in this review are:

- Brunei Darussalam
- Cambodia
- China (including Hong Kong and Macau)
- Indonesia
- Lao People's Democratic Republic (PDR)
- Malaysia
- Myanmar
- Philippines
- Singapore
- Thailand, and
- Viet Nam.

The primary audience for this review is the EAC, which will use the information to identify key issues and priorities for further action to best address potential BBV transmission in Southeast Asia. Other audiences include federal government ministers and departments, APDIC, the members of the ANCD, and other policy and advisory bodies and decision makers across the region.

¹ Amphetamine-type stimulants include amphetamine, methamphetamine, crystal methamphetamine, 3,4-Methylenedioxymethamphetamine (Ecstasy) and Fenetylline (Captagon).

Over the past five years, several significant documents have been compiled by both international and national bodies in regard to this issue and these inform this review. These documents are: a research report by the Burnet Institute and Turning Point Alcohol and Drug Centre, *Situational Analysis of Illicit Drug Issues and Responses in the Asia-Pacific Region* (Devaney, Reid & Baldwin, 2006); the United Nations Office on Drugs and Crime (UNODC) report on *Patterns and Trends of Amphetamine-Type Stimulants and Other Drugs: Asia and the Pacific* (United Nations Office on Drugs and Crime, 2010b); *The Global Epidemiology of Methamphetamine Injection: a review of the evidence on use and associations with HIV and other harms* (Degenhardt et al., 2007); *National Amphetamine-Type Stimulant Strategy: background paper* (National Drug Research Institute & Australian Institute of Criminology, 2007); and the Burnet Institute's *Harm Reduction in Asia: progress towards universal access to harm reduction services among people who inject drugs* (Hagarty, 2010).

Although 3,4-Methylenedioxymethamphetamine² (MDMA) is classified as an ATS drug, this substance was not included in the review, as it is rarely, if ever, injected.

1.1 Overview

The 2010 *World Drug Report* estimated that between 15 and 53 million people worldwide used ATS at least once in the preceding year, and more than 100 countries across the world reported on consumption of the drug (United Nations Office on Drugs and Crime, 2010c). UNODC has identified emerging trends, including the large-scale trafficking of ATS from Myanmar to neighbouring countries in the Greater Mekong sub-region, the continuing high level of manufacture of ATS across the region, the increase in the diversion of precursor chemicals in the region, general market expansion, increasing injection of ATS, increasing involvement of organised crime syndicates in the manufacture and supply of ATS, and the lack of suitable treatment for ATS users (United Nations Office on Drugs and Crime, 2010c). Others have noted that while the specific risks of HIV and ATS use are not always well documented or understood, injecting behaviour and sexual risk taking contribute to a strong case to systematically embrace and prioritise strategies to target possible harms arising from these risks among ATS users (Colfax et al., 2010; Degenhardt et al., 2007; 2010).

Globally, the number of people who report use of ATS now exceeds that of heroin and cocaine combined (United Nations Office on Drugs and Crime, 2009). While surveillance data show that in some countries ATS use has stabilised or even decreased, in others use is increasing, and reported manufacturing and trafficking and related seizures remain high (Global SMART Program, 2010). The regions of Southeast Asia and Oceania, and the countries of Mexico, South Africa and at least nine countries across eastern Europe have been identified as places of particular concern (United Nations Office on Drugs and Crime, 2010c).

² Common name: Ecstasy.

Although population prevalence figures for ATS are generally low (less than 1%), there is substantial variation by country. For example, higher use is reported in New Zealand, Australia and the United Kingdom (4%, 3.4% and 2.8% respectively) and the highest use was recorded in the Philippines at 10 per cent (Degenhardt et al., 2007). However, a lack of national survey data from many resource-poor countries means that there is considerable uncertainty surrounding the actual size of ATS-using populations.

In 2008 the Reference Group to the United Nations on Injecting Drug Use and HIV estimated that there were between 11 million and 21 million people who inject drugs (PWID) across the globe and, of these, an estimated 3 million were living with HIV (Mathers et al., 2008). Although the majority of ATS are consumed orally, injection is an issue of increasing concern in some countries. However, a lack of data on the prevalence of injecting among ATS users from many countries limits our understanding of the size of this population.

Although there is insufficient evidence to unequivocally demonstrate a causal link between ATS injection and HIV prevalence (UNAIDS, 2010a), the injection of any drug with contaminated equipment incurs the risk of BBV transmission. In their global review of ATS injecting and HIV, Degenhardt and colleagues (2007) summarised the use and injection of ATS across all major regions of the world. Of the 190 countries for which some ATS data were available, only 25 were able to report on the extent of injecting, indicating a risk of HIV transmission. Among countries where surveillance of injecting is conducted, the proportion of ATS users who inject the drug ranged from 7 per cent in Canada to 9 per cent in Thailand, 12 per cent in Norway, 18 per cent in Australia, and 28 per cent in New Zealand (Degenhardt et al., 2007).

The potential association between the use of ATS and HIV needs to take into consideration possible sexual transmission, particularly in situations where there is ATS use among populations at high risk for HIV (Degenhardt et al., 2010). Drug use in general, but ATS use in particular, has been associated with sexual risk taking. The strong association has been noted in several reviews leading to recommendations to consider the connection as a potential risk for HIV transmission and a domain for intervention (e.g. Colfax et al., 2010). Some groups such as men who have sex with men (MSM) have been the focus of an increasing body of research, a significant proportion of which has been conducted in North America, the United Kingdom and Australia (e.g. Degenhardt et al., 2010; Semple, Patterson & Grant, 2002; Elford et al., 2004; Fernandez et al., 2007). This body of research has provided supporting evidence that the use of ATS in conjunction with sexual encounters increases the incidence of risk behaviours.

To summarise this discussion:

- While ATS use has stabilised, use in some countries is increasing.
- The specific link between ATS use and HIV risk has not been unequivocally identified. However, a proportion of ATS users do inject, with an attendant HIV transmission risk. In addition, ATS use has been associated with sexual risk taking and this is an additional risk factor for HIV transmission.
- High-risk ATS use and associated behaviours are not always well documented, especially in countries with limited resources, including many in the Southeast Asia region.

2. Research methods

The research methodology for this review consisted of three key activities:

1. Review and analysis of the literature on links between ATS use and BBV transmission that is available at the global, national and local level, including grey literature especially from the Asian region
2. Interviews with key stakeholders in the Southeast Asia region only, to supplement the literature review and analysis
3. Review of the outcomes of this analysis using a Delphi Panel approach.

Ethics approval for this project was provided by the Human Research Ethics Committee of the Alfred Medical Research and Education Precinct, Melbourne, Victoria (60/11).

2.1 Literature review

As noted above, there were five major documents that informed the literature review. Additionally, a search of the published and grey literature for the period covering 2004 to 2010 was conducted.

The search strategy used by Degenhardt and colleagues (2007, described in Degenhardt et al., 2010) is used in the review. The detailed strategy is described in Appendix 1. In order to add to the existing literature reviews, the same search words and Boolean strategies were used to search for published work from 2008 to 2010. In order to provide an overview of interventions implemented to reduce HIV and AIDS among ATS users, the literature search was extended to cover the period 1995–2010.

2.2 Key informants

To complement the literature review, a series of interviews was conducted with key informants from the countries under review. Informants were identified through existing networks, regional contacts, and advice from the Delphi Panel (see below). They represent service providers, researchers and policy makers. Service providers were sourced from non-government agencies providing outreach services or drop-in centres for people who use drugs. Interviews were conducted between 3 May 2011 and 16 June 2011. The majority of interviews were conducted by telephone, with the exception of Myanmar, where interviews were conducted face-to-face by local staff from the Burnet Institute. A total of 14 interviews were conducted with informants from Thailand (3), Viet Nam (1), China (1), Lao PDR (1), Hong Kong (1), Indonesia (2), Malaysia (1), Macau (2) and Myanmar (2).

In accordance with ethical standards and approval, key informants are not individually identified in this report. A simple descriptor is used to identify information provided by informants, such as 'Lao PDR 1'.

2.3 Delphi Panel analysis

A Delphi Panel method uses the intuitive and available information of participants, who are usually experts in the field under study. It delivers qualitative as well as quantitative results. In this case, the Delphi Panel reviewed and commented on early drafts of the report and made recommendations for changes of emphasis and focus.

The Delphi Panel comprised:

- Professor Steve Allsop – Director, National Drug Research Institute
- Dr Fabio Mesquita, MD, PhD – Senior HIV and AIDS Adviser and Team Leader, World Health Organization, Viet Nam Country Office
- Professor Adeeba Kamarulzaman – Director, Centre for HIV Research, University of Malaya
- Dr Nick Thomson – Field Director, Johns Hopkins University
- Mr Jimmy Dorabjee – Chairperson, Asian Network of People Who Use Drugs
- Professor Robert Power – Senior Principal Fellow, Burnet Institute
- Dr Peter Higgs – Principal Fellow, Burnet Institute
- Dr Anne Bergstrom – Adviser, HIV and AIDS Prevention and Care, United Nations Office on Drugs and Crime, Regional Centre for East Asia and the Pacific.

The Delphi Panel also provided support in the identification of key informants and grey literature, and significant input into the drafting of the final report and recommendations. Rather than identifying these as separate inputs, the input of the Delphi Panel appears across the full report, and individuals are not quoted directly.

3. Review of the amphetamine-type stimulants literature

3.1 Definition and history of amphetamine-type stimulants

Amphetamine-type stimulants (ATS) are a group of synthetic drugs that are chemically related to the parent component, alpha-methyl phenethylamine³ (National Drug Research Institute & Australian Institute of Criminology, 2007). The term ‘amphetamine’ is derived from the chemical name alpha-methyl phenethylamine. Methamphetamine is structurally similar to amphetamine but, at comparable doses, has longer lasting and more potent effects (McKetin, McLaren & Kelly, 2006). Crystallised methamphetamine is made from powdered methamphetamine by dissolving the powdered product in water and alcohol. Following the application of heat and distillation, the product is removed from heat and allowed to cool and the once-powdered drug begins to form into crystals (Schifano et al., 2007).

A German chemist, Edeleano, first synthesised β -phenylisopropylamine, commonly known as amphetamine, in 1897, but it was not until the 1920s that scientists took an interest in the substance as a substitute for ephedrine, then a primary treatment for asthma. Mainstream use of amphetamine occurred in the 1930s, when it was used in Benzedrine inhalers for the treatment of nasal congestion. It was at this time that the anorexiant and stimulant properties of the drug were recognised and use spread. In 1940 methamphetamine (d-phenylisopropylmethylamine hydrochloride) was introduced and marketed as Methedrine. Both amphetamine and methamphetamine were marketed vigorously in the ensuing years for the treatment of various ailments, including alcoholism, depression, narcolepsy and obesity, and to various occupations to increase alertness. Since then, major restrictions on the prescription of ATS have reduced medical use significantly.

3.2 Effects of amphetamine-type stimulants

The physiological and psychological effects of ATS are complex. A summary overview of the physiological and psychological effects of ATS is presented below.

3.2.1 Physiological effects

Amphetamine-type stimulants exert their effects on the central nervous system by increasing synaptic concentrations of mono-amine neurotransmitters, such as dopamine, serotonin and noradrenaline, in the brain (Rothman & Baumann, 2003). The enhanced release of norepinephrine following administration of ATS is postulated to be responsible for increased alertness and anorectic effects and, in combination with the increased release of dopamine, results in an increase in locomotor movements.

The acute effects of ATS resemble the epinephrine-induced ‘flight or fight’ response. The drugs affect neurochemical mechanisms by which the body regulates and controls heart rate, body temperature, blood pressure, appetite, attention and concentration, and responses to alarming conditions.

³ Synonyms include alpha-methylbenzeneethanamine and beta-phenyl-isopropylamine.

Of particular relevance in relation to HIV transmission is the effect ATS have on the libido. They have been associated with increases in libido, leading to increased frequency of sexual activity (some consume the drugs specifically with the intention to increase sexual activity and pleasure), which can potentially increase the risk of exposure to sexually transmissible infections (STIs), including HIV. There are numerous reports of increased sexual activity, in terms of both the frequency of unprotected intercourse and the number of partners, among heterosexual men and women (Lorvick et al., 2005; Molitor, Truax, Ruiz & Sun, 1998; Rawson, Washton, Domier & Reiber, 2002; Semple, Patterson & Grant, 2004b) and among men who have sex with men (MSM) (Molitor et al., 1999; Semple, Zians, Strathdee & Patterson, 2009; Thiede et al., 2009; Zhang, Bi, Lv, Zhang & Hiller, 2007). Although the majority of these studies were in the United States of America, they have relevance for other countries, including those in the Southeast Asia region.

3.2.2 Psychological effects

The short-term psychological effects of ATS are varied and can include effects sought-after by users including euphoria, alertness and increased concentration, an increase in self-esteem and feelings of self-confidence (Scott et al., 2007). However, prolonged use of ATS is associated with higher than normal rates of depression, anxiety and attempted suicide, and may result in permanent neuropsychological impairment (Barr et al., 2006). Prolonged use, particularly if the drug is injected, has also been associated with violent or aggressive behaviour (although the nature of the association is not without contention). ATS-induced psychosis has also been described. A Japanese study found between one-third and two-thirds of ATS users have experienced psychotic symptoms, some more than two weeks after the drug was last consumed (Barr et al., 2006). Another study of street youth in the United States found that regular users of ATS experience psychosis and that symptoms increase with greater duration of use (Cohen, Dickow & Horner, 2003).

3.2.3 Routes of administration of amphetamine-type stimulants

Amphetamine-type stimulants can be administered via a number of routes: swallowing, smoking (heating and inhaling vapours), snorting, injecting or, more rarely, 'shafting' (anally) or 'shelving' (vaginally). Different routes of administration carry different risks of exposure to HIV and other BBV, with the highest risk from injecting. The injection of any drug is inherently risky, especially when accompanied by sharing behaviours.

Although the majority of ATS use around the world is thought to be oral, the predominant route of administration is likely to be affected by motivations for use, the existence of established groups of PWID, and the type of ATS that are available (Degenhardt et al., 2010). Colfax and colleagues (2010) observed that 'Most use of amphetamine-group substances worldwide is not by injection, but injection of amphetamine-group substances still has an important, but difficult to accurately quantify, role in harms and complications related to amphetamine-group substances' (p.463). Degenhardt and colleagues (2010) also noted that the route of administration of a drug is not static, with some users progressing from non-injecting routes of administration to injecting, or indeed from injecting to non-injecting.

3.3 Injection of amphetamine-type stimulants

The association between injecting drug use (IDU) and HIV is well established in both epidemiological (Riley & O'Hare, 2000) and social research literature that recognises important contextual and environmental factors (Des Jarlais, Perlis, Stimson & Poznyak, 2006). While the published literature surrounding ATS injection is less well developed, there are strong indications that people who inject ATS are at higher risk of exposure to HIV from their injecting and their sexual behaviours compared to ATS users who do not inject. For example, compared to non-injectors, ATS injectors have been found to have more sexual partners and a greater number of sexual encounters with both regular and casual partners (Cheng et al., 2010; Corsi, Kwiatkowski & Booth, 2009; Wu, Pilowsky, Wechsberg & Schlenger, 2004) and lower levels of condom use (Molitor et al., 1999). In a USA-based study comparing injectors of ATS to non-injectors, the injectors were more likely to have reported depression, more likely to experience suicide ideation and significantly more likely to have a history of psychological problems (Domier, Simon, Rawson, Huber & Ling, 2000). ATS users are also prone to bingeing behaviour where high levels of ATS are used over a period of three to five days. Bingeing ATS use has been linked with impulsivity and unprotected penetrative sex (Semple et al., 2009; Semple, Zians, Grant & Patterson, 2005).

Furthermore, compared with heroin injectors, ATS injectors were more likely to both lend and borrow used needles (Molitor et al., 1999; Wu et al., 2004). Street-based ATS injectors in some settings are also more likely to be HIV and hepatitis C virus (HCV) seropositive (Miller, Kerr, Fischer, Zhang & Wood, 2009). While many of these studies were not able to differentiate between sexual and injecting risk associated with ATS use, there is sufficient cause for concern that ATS injectors have elevated risk behaviours for exposure to HIV and other BBV.

This issue is worrying because some studies have indicated that people who use ATS perceive themselves as *less* at risk of HIV than opioid users, and have a more tenuous connection to treatment and harm reduction services (Baker, Lee & Jenner, 2004; World Health Organization, 2011). For example, the World Health Organization (WHO) recently noted that: 'ATS users rarely use harm reduction services, largely because they do not identify themselves with opioid users, often belong to different networks of users, and thus do not perceive harm reduction services as relevant. The result is that the needs of ATS users are neglected and few services are geared to their special needs.' (World Health Organization, 2011, p.2.)

3.4 Sexual risk behaviour and amphetamine-type stimulant use

As noted earlier, some of the frequently described pharmacological effects of ATS are enhanced libido, and elevated mood and sex drive (Allerton & Blake, 2008). Indeed, the enhancement of sexual pleasure is one of the more common reasons given for ATS use among some groups. There is an emerging literature linking ATS-affected sexual behaviour and increased risk of HIV.

For example, studies from the late 1980s to more recent studies indicate an association between ATS use and increased HIV prevalence (Buchacz et al., 2005; Plankey, Ostrow & Stall, 2007; Burcham, Tindall, Cooper, Berry & Penny, 1989; Darrow, Echenberg & Jaffe, 1987). An association between heavy ATS use and HIV risk behaviours has been found among men who have sex with men, adult heterosexuals and young people (Colfax et al., 2010). HIV risk is associated with unprotected penetrative sex and sexual activity with multiple partners, risks that have also been associated with sought-after effects of ATS (Fernandez et al., 2007).

While some studies have found an independent association between ATS use and increased HIV risk behaviours, the findings of other investigations are often contradictory (Colfax et al., 2010; Degenhardt et al., 2007). Degenhardt and colleagues (2007) note that many studies are conducted among study groups already known to be at high risk of HIV and the findings may not be applicable to all groups who use ATS with less frequency, and the differing background prevalence of HIV and the populations being studied may contribute to inconsistent findings (Degenhardt et al., 2007). For example, the non-injecting use of ATS among men who have sex with men was associated with higher levels of HIV infection in San Francisco (Buchacz et al., 2005; Semple et al., 2009), whereas in Australia the mostly oral use of ATS was not (Kippax et al., 1998).

Degenhardt et al. (2007) further suggested that more research investigating risk behaviours among ATS users is needed before a causal effect between ATS use and HIV transmission can be stated with any certainty.

It should also be noted that the majority of the literature reporting on the effects of ATS use relies on studies of ATS users in treatment in developed regions of the world, such as North America, western Europe and Australia. This may not necessarily generalise to other countries, in particular those with less well-developed HIV and drug use surveillance, nor to non-treatment populations. Studies outside treatment populations and studies of the effects of regular and/or heavy use of ATS among populations in the Southeast Asia region are limited.

3.5 Key affected populations and amphetamine-type stimulant use

While ATS use occurs across a diverse range of populations and contexts, there are some groups and settings with higher prevalence rates and risk of HIV.

3.5.1 Sex workers

Sex workers are at high risk for HIV, though the level of risk varies. In some regions, such as western Europe, North America and Australia/New Zealand, prevalence of HIV among sex workers is relatively low, while in other areas of the world, sex work is considered to be one of the key drivers of the HIV epidemic. UNAIDS considers that unprotected, paid sex is a significant factor in AIDS epidemics in many parts of the world (UNAIDS, 2010a). HIV prevalence among sex workers varies between 0.1 per cent in Australia to 70.7 per cent in Malawi. Of the 54 countries with HIV prevalence data for sex workers, 15 had rates of 20 per cent or above (UNAIDS, 2010b).

HIV among sex workers varies across and within Southeast Asian countries. For example, across four provinces in Viet Nam HIV prevalence ranged from 0 per cent in Kien Giang province to 24.3 per cent in An Giang province (Mai-Nhung, D'Onofrio & Rogers, 2010). In Yunnan province of China, HIV prevalence among sex workers is approximately 10 per cent, while in other provinces it is less than 2 per cent (Wang et al., 2010).

Patterns of HIV infection also vary by type of sex work. For example, in Viet Nam low-status sex workers (usually working in 'hugging bars') cater to mostly blue collar workers or labourers; middle-class sex workers in restaurants and bars cater to professionals and government workers; and high-class sex workers operate from nightclubs and bars or discotheques (Mai-Nhung et al., 2010). One study found low-status sex workers were at greater risk of HIV due to a greater number of clients and longer working hours, and were also more likely to report having had an STI than their middle- and high-class counterparts (Mai-Nhung et al., 2010). Use of condoms across all classes was low, and sex workers frequently stated that they would allow sex without condoms if more money were offered; condom use with regular partners or spouses was rare (Mai-Nhung et al., 2010).

The use of ATS in crystal form among female sex workers has been found to be associated with an increased risk of exposure to HIV within some populations in Canada and Mexico (Patterson et al., 2008; Shannon et al., 2011). The role of ATS use in the transmission of HIV from female sex workers to clients and partners in Southeast Asia, however, remains largely undocumented. Although the type of drug injected was not recorded, in southern Viet Nam 6 per cent of female sex workers reported injecting behaviour. In northern Viet Nam, 4 per cent of female sex workers also reported IDU; in other provinces, it was less than 1 per cent. In these studies, the likelihood of being HIV-positive was 7.8 per cent higher among female sex workers who injected compared with non-injectors (Chen, Yin & Liang, 2005; Mai-Nhung et al., 2010).

More surveillance data relating to the use of ATS among female sex workers in Southeast Asian countries are needed to assess the specific risk of HIV associated with ATS use. As noted earlier, the link between ATS use and sexual behaviour suggests that sex workers may be at additional risk if they go on to use (and inject) ATS.

3.5.2 Men who have sex with men

Populations of men who have sex with men (MSM) exist in most countries around the world and were one of the first populations impacted by HIV. Three decades into the epidemic, there are signs that, among MSM in developed countries, HIV is rising by approximately 3 per cent per year (Beyrer, 2010). This trend has been attributed to the use of recreational drugs, including ATS, associated with unprotected anal intercourse, a greater number of partners, more anonymous partners, prolonged sexual encounters and reduced inhibitions (Fernandez et al., 2007; Malta et al., 2010). Not all investigations among MSM show these characteristics. For example, among a group of American and Pacific MSM, the use of ATS in crystal form (10% of the study group) was not associated with unprotected anal intercourse (Choi et al., 2005).

Although there is a growing literature about MSM in developing countries, little of it includes the effect of ATS use on sexual behaviours and HIV risk taking or prevalence. No data were located for the Southeast Asia region.

4. Setting the context in Southeast Asia

4.1 Manufacturing and trafficking in Southeast Asia

The manufacture of ATS occurs across the Southeast Asia region and the growth in operations appears to have been significant. For example, in 1999, approximately 300 clandestine laboratories were reported in Southeast Asia. However, by 2009 this number had risen to almost 700 (United Nations Office on Drugs and Crime, 2010b). Overall, a lack of systematic data collection in many Southeast Asian countries means that an accurate assessment of the dimension of the ATS manufacture in the region is impossible to determine. Myanmar remains noted as the major manufacturer of ATS pills in the Southeast Asia region and the testing of ATS pills seized in Thailand suggests that up to 12 large-scale manufacturing operations are located in the Golden Triangle area, where Myanmar, Lao PDR and Thailand meet (United Nations Office on Drugs and Crime, 2010b).

An overview of seizures of ATS drugs in the Southeast Asia region can be seen in Table 1.

Table 1: Seizures of amphetamine-type stimulant drugs in selected countries in Southeast Asia
(Data as at 2009: Global SMART Program, 2010)

Country	Crystal ATS kg	Purity %	ATS pills (number)	Purity %	ATS powder kg
Brunei Darussalam	0.32	70–79	Not reported		Not reported
Cambodia	4.6	75–83	137 249	15–28	Nil
China	2518	Not reported	40 450 608	Not available	Nil
Hong Kong	43.7	Not reported	Nil	–	Nil
Indonesia	237.8	Not reported	Nil	–	Nil
Lao PDR	Nil	–	2.3 M	Not reported	Nil
Malaysia	1160	75–80	107 952	Not reported	nil
Myanmar	124	Not reported	23.9 M	25	339
Philippines	149.3	71	Nil	–	831.5 litres liquid
Singapore	3.72	76	1237	6	Nil
Thailand	209	85–90	26.6 M	10–25	Not reported
Viet Nam	3.9	Not reported	500 000 + 5.87 kg	Not reported	Nil

4.2 Vulnerabilities in Southeast Asia

An analysis of the situation in Asia and the Pacific conducted in 2006 identified a number of vulnerabilities linked to illicit drug use in the Southeast Asia region which render the assessment of risk associated with ATS use more complex (Devaney, Reid & Baldwin, 2006). These are listed below:

- rapid economic growth, with a burgeoning middle-class youth population and with internal migration, and resultant cash-rich migrant labour populations living away from their homes
- inequitable distribution of the benefits of such growth, with increased gaps between rich and poor, and differential ability to participate in the formal economy
- political upheaval, with resultant external migration, creating both human flows for drug trafficking and disenfranchised populations without access to the formal economy
- inadvertent results of law enforcement and interdiction operations, resulting in changes to drug trafficking routes, especially increases in overland cross-border and coastal routes which then involve new populations in drug trafficking and use
- the impact of development programs, leading to all the above factors, and
- corruption and its role in the maintenance of power among ruling political elites, leading to poverty and political disenfranchisement.

Such changes have contributed to a context that has influenced both drug use patterns and risk of HIV transmission. For example, a briefing from the Transnational Institute notes that ATS use ‘fits better with the new competitive and industrious cultures of rising Asian economies and the changes in work habits and work pace’ (Blickman, 2011, p.3). This view is supported by others (Lyttleton, 2004), as is the view that ATS use is influenced by a generational change and fashion regarding drug use. Opium or heroin use is associated with older generations, while ATS use is associated with youth, fun and recreation (Blickman, 2011). The Transnational Institute paper also argued that there may be another effect of a focus on largely supply reduction measures in the region: ‘displacement’, with the campaign against one drug (heroin) leading to the rise of the use of substitutes (methamphetamines) (Blickman, 2011). This displacement theory was also mentioned by key informants from China, Myanmar and Thailand (China [key informant] 1; Myanmar 1; Myanmar 2; Thailand 1; Thailand 2; Thailand 3).

Although many Southeast Asian countries are now supportive of harm reduction as a response to reducing drug-related harm, it remains in the early stages, with legislative and cultural ambiguities and conflicts. For example, the legality of the distribution of needles and syringes is unclear in Cambodia, Malaysia, Myanmar and Thailand. In other countries, criminal penalties appear to discourage users from seeking support and health services. Some have harsh drug control laws, including compulsory detention in closed settings (often with little distinction between occasional drug use and drug dependence). For example, in Cambodia, China, Lao PDR, Indonesia, Myanmar, Thailand and Viet Nam, people who use drugs are arrested and removed to compulsory centres. Such settings are frequently managed by military staff

with little or no training in drug dependence interventions. In these countries, there is little or no judicial process, no process for appeal, and no criteria for release (International Harm Reduction Development Program, 2009). The World Health Organization estimates that between 60 and 100 per cent of people relapse to drug use on exit from such centres (World Health Organization, 2009).

Some countries, because of resource or political factors, remain reluctant to upgrade harm reduction services. Although there is little in the way of formal comparative analyses, ATS users appear to be likely to come to the attention of law enforcement and compulsory treatment services. Sripramong (2010) reported in a survey of 117 frequent ATS injectors in Bangkok, Thailand, that 85.4 per cent had been in prison, and 23.9 per cent had experienced compulsory drug treatment. Among ATS users in Lao PDR, 15 per cent had been detained in a closed setting (Phimphachanh et al., 2009). High rates of ATS users in both prisons and compulsory drug withdrawal centres are reported in Lao PDR, Cambodia and Thailand (Thomson, 2010).

This situation matters, because people at risk are not able to readily access evidence-based interventions in these settings, and the detention of drug users in closed settings is implicated in the transmission of HIV. An assessment of compulsory treatment centres for drug users in Cambodia, China, Malaysia and Viet Nam (World Health Organization, 2009) concluded that most centres lacked not only drug treatment services, but also HIV prevention and care services. HIV prevention education materials are either not available or have limited availability in most centres. Condoms were not available in Cambodia, China or Viet Nam, despite there being reports of unprotected sex between male staff and female inmates, and between inmates (Cohen & Amon, 2008). Injecting drug use also continues in detention, where needles are frequently shared and reused (Cohen & Amon, 2008). An assessment of custodial and prison settings across the region reported similar findings (United Nations Office on Drugs and Crime, 2006). Although accurate data on the prevalence of HIV among drug users in these centres are scarce, existing data are of concern: in China, 17 per cent of drug users in compulsory drug treatment centres are reported to be HIV-positive (World Health Organization, 2009) and in Indonesia an estimated 15–40 per cent of drug users in state prisons are HIV-positive. In Malaysia, testing for HIV is compulsory on entry into government-run treatment centres, but the test results are not given to detainees (World Health Organization, 2009).

Homosexuality, another potential high-risk behaviour linked to ATS use, remains illegal in Brunei Darussalam, Singapore, Malaysia and Myanmar, where penalties for engaging in same-sex activity are harsh. Although homosexuality is legal in other countries in Southeast Asia, only China and the Philippines have any systems in place to address associated discrimination. Prostitution is illegal in many Southeast Asian countries, but tends to be tolerated. Such laws mean sex workers and men who have sex with men are subjected to significant stigma and discrimination, which potentially impede their participation in HIV prevention campaigns and their access to much-needed health services, and possibly contribute to higher levels of risk taking.

5. Specific information on amphetamine-type stimulant use and harm in the Southeast Asia region

5.1 Patterns of amphetamine-type stimulant use in Southeast Asia

In 2009, member states committed to ‘the elimination or significant reduction in the global illicit drug supply and demand by 2019’ (United Nations Office on Drugs and Crime, 2010c). At the same time UNODC stressed that data collection was critical in the effort to achieve the stated goal. The *World Drug Report* provides data on illicit drug supply, relying on member states to provide the required data through the completion of the Annual Reports Questionnaire. In 2010, UNODC’s Global SMART Program also released a report on *Patterns and Trends of Amphetamine-type Stimulants and other Drugs in Asia and the Pacific*. The SMART Program aims to ‘enhance the capacity of targeted Member States and relevant authorities to generate, manage, analyse, report and use synthetic drug information, in order to design effective, scientifically sound and evidence-based policies and programs’. The data contained in the report are based on information obtained from drug control agencies and relevant agencies in Southeast Asian countries; collected via the Drug Abuse Information Network for Asia and the Pacific (DAINAP); and supplemented from UNODC Annual Report Questionnaires.

These two reports form the basis of information reported in this section.

The summary section of the SMART program report made the following observations about ATS in Southeast Asia:

- ATS now rank in the top three drugs of use in all countries in East and Southeast Asia and upward trends in the use of methamphetamine are reported in most countries in the area. ATS have now displaced the more traditional drugs used in the region such as heroin and cannabis.
- Despite the rising numbers of ATS users in several countries, few treatment services are available and often drug treatment services for users of ATS (and other synthetic drugs) are under-resourced and unable to keep pace with the increasing numbers of users of these drugs. Furthermore, the treatment available in compulsory detention centres is almost exclusively abstinence-based and none specifically addresses ATS use. The manufacture or attempted manufacture of ATS was reported in all but three locations (Lao PDR, Singapore and Macau) in 2009. However, it is likely that the true extent of manufacture is under-reported, as the amounts of seized ATS are inconsistent with the relatively low number of manufacturing facilities detected.
- Although progress has been made, lack of reporting of detailed and consolidated data on ATS production, trafficking and use remains a challenge in many countries in the region. (United Nations Office on Drugs and Crime, 2010b)

Methamphetamine in pill form is the primary drug used in Lao PDR, Cambodia and Thailand and the secondary form of the drug in China. Experts also report an increasing trend in methamphetamine use in pill form in China, Lao PDR, Malaysia, Myanmar and Viet Nam (United Nations Office on Drugs and Crime, 2010b).

There is scant information regarding injecting of ATS by users in the Southeast Asia region. National surveillance from China indicates 11 per cent of all ATS users use the drug via injecting; in Cambodia, 12 per cent of street dwellers report injecting ATS (United Nations Office on Drugs and Crime, 2010b).

In Thailand, 9 per cent of injectors inject ATS, while in the capital Bangkok almost half of lifetime injectors report injecting ATS (Wattana et al., 2007). In more recent studies from Thailand (Yongvanitjitt et al., 2010; Sripramong, 2010), the injection of ATS was found to be common among surveyed people who use drugs. Yongvanitjitt and colleagues (2010) report 63 per cent of ATS users in Bangkok and 32 per cent in Chiang Mai injected ATS in the last month (n=1055). Recruiting through a community harm reduction centre, Sripramong and colleagues (2010) found 65 per cent of PWID surveyed (n=317) reported injecting ATS in the previous six months. Both studies found high levels of risky behaviour, such as the sharing of needles or unsafe sex, and relatively high levels of HIV: 22 per cent in Bangkok (Sripramong, 2010); 24 per cent in Bangkok; and 11 per cent in Chiang Mai (Yongvanitjitt et al., 2010).

Although the use of ATS is increasing generally, in China, Myanmar, Viet Nam, Singapore and Malaysia, heroin and opium remain the drugs of primary concern. Data on injection of ATS from other Southeast Asian countries were not available, as much of the Southeast Asian surveillance data on IDU does not specify the drug(s) injected. Table 2 presents the available data on the use and injection of ATS in Southeast Asian countries.

Information from key informants supplements the literature in this area, and presents a picture of regional variation in regards to the use of ATS. In Lao PDR, ATS users are mainly characterised as 'young, recreational urban users' (Lao PDR 1). In Macau, use is focused among young people and specific professions, such as croupiers in casinos and sex workers (Macau 1). In mainland China, along the border areas to the south, an increase in supply reduction measures has seen heroin and opium users substituting ATS (China 1). In Hong Kong, ATS use is limited, with the use of ketamine being far more of a concern (Hong Kong 1). ATS use in Thailand is changing from being largely 'functional' or occupational use, to two main groups of users: young recreational users who use ATS as the drug of choice, and heroin or opium users who are using ATS as a substitute for poor quality or unavailable heroin and opium (Thailand 1). In Malaysia, use is mainly recreational (Malaysia 1). In Indonesia, ATS users are 'middle-class' recreational users (Indonesia 1; Indonesia 2). Also in Indonesia, there are small pockets where ATS use is a result of substitution for heroin (Komisi Penanggulangan AIDS & Indonesia HIV Prevention and Care Project, 2007). In Cambodia, ATS use is widespread across several groups, with estimates of 50 per cent of people who use drugs

in Cambodia using ATS (Cambodia 1). In Viet Nam, ATS use is predominantly concentrated among young recreational users (Viet Nam 1). In Myanmar, traditional heroin users substitute ATS for heroin when heroin availability is low, yet informants report a growing number of recreational ATS users (Myanmar 1; Myanmar 2). This trend is also noted in recent official reports (United Nations Office on Drugs and Crime, 2010a).

With regard to the injecting of ATS, all key informants reported a lack of data on this practice, and few noted large pockets of injecting of ATS in their countries (with the exception of Thailand).

MDMA use was noted in interview data from Thailand, Hong Kong, Viet Nam and Indonesia (Thailand 1; Hong Kong 1; Viet Nam 1; Indonesia 2). This is consistent with key regional reports (Global SMART Program, 2010).

Our literature review also included searching for studies related to initiation to the injection of ATS. However, no studies or reports were identified documenting this process for any country under review. Some studies have noted routes of initiation to drug use (Phimphanh et al., 2009), but did not include people who injected drugs.

In summary, reports of ATS use in Southeast Asia indicate that use is 'of concern' to many key informants. However, data regarding the routes of administration of ATS are scant. Where this information has been collected, injecting is reported across study groups at differing rates.

Other HIV risk behaviours, especially needle sharing and unsafe sex, are also reported in these populations, but are most often not enumerated. There are growing reports of the use of ATS by heroin injectors. It is not documented by which routes this group is administering ATS (orally or via injection). Even with limited data, the indicators of some injecting of ATS and a cross-over between heroin users and ATS use warrant concern regarding the transmission of HIV and other BBVs.

Table 2: Amphetamine-type stimulant use in Southeast Asian countries

Country	Number of drug users	Year of data collection	Rank – Top 3 drugs	Year	% ATS use	Predominant route of administration	Year	Source country	% ATS injected	Trend pills	Trend crystal	Comments
Brunei Darussalam	•		Crystal MA Cannabis	2010	•	Smoking crystal MA	2010	Philippines shipped to Malaysia and trafficked to BD	•	•	↓	
Cambodia	1000–8000 #	2009	Crystal MA pills Cannabis	2010	70	•	2009		•	↑	↑	Trend towards increasing use among young people (<25 years)
China	1.3 million registered users		Heroin Pills Crystal	2010	27	•	No reports of injecting in 2009	Crystal ATS manufactured in country; ATS pills trafficked from Myanmar by land through Yunnan province (UNODC, 2010c)	•	↑	↑	
Hong Kong	11 596 registered users*	2010	•		8–9*	•	2010		•	•	•	
Indonesia	3.3–3.6 million (DAINAP)		Cannabis Crystal XTC	2009	•	Smoking crystal Injecting crystal		Manufactured in Indonesia Trafficked from Iran by air	• ? increasing	•	↑	Trend towards increasing use among young people (<25 years)
Lao PDR	35 000–40 000 dependent ATS users	2009	MA pills Cannabis Opium	2009				Pills from Myanmar Diversion of ATS into Lao PDR on route from Myanmar to Thailand	PWID reported but no data	•	↔	
Malaysia	estimated 170 000 PWID		Heroin Cannabis Crystal	2009	18% increase since 2008 (Nat'l Anti Drug Agency)		2009	Meth/amphetamine Pills from Myanmar Some crystal from Myanmar	↑	↑		Trend towards increasing use among young people (<25 years)

Country	Number of drug users	Year of data collection	Rank – Top 3 drugs	Year	% ATS use	Predominant route of administration	Year	Source country	% ATS injected	Trend pills	Trend crystal	Comments
Myanmar	•		Heroin Opium MA pills		•	Smoking pills Injecting not reported		ATS pills produced in country; precursors imported from India, Thailand and China	↑	↑		
Philippines	1.7 million (Dangerous Drug Board 2010)	2009	Crystal Cannabis Inhalants	2009	62% of all drug users; polydrug use common	Snorting	2010	Manufactured in country; some trafficked from China	↑	•		
Singapore	•		Heroin Inhalants MA	2009	19% of all drug arrests	Primarily smoking	2010 UNGASS	Trafficked from Malaysia and Thailand	•	↑		
Thailand	• Estimated IPWID: 40 300 (Khon Kaen University, 2010) 9.9% among Karen in north Thailand (Kobori et al., 2009)		Methamphetamine Cannabis Inhalants		•	Primarily smoking Injecting has been reported		Pills and crystal primarily through Myanmar	↑	↑		
Viet Nam	146 731 registered users	2009	Heroin MA pills Crystal	2009	4% of all drug users	Injecting MA not reported	2010	from Myanmar	↑	↑		

Source: United Nations Office on Drugs and Crime, 2010b

• No information available

Range reported by UNAIDS (Reference Group to the United Nations on HIV and Injecting Drug Use, 2010)

* Global SMART Program, 2009

5.2 Amphetamine-type stimulant use and sexual risk

Only a small number of studies have investigated sexual risk under the influence of ATS in the Southeast Asia region.

A qualitative study of youth in Thailand who had smoked ATS for an average of 4.5 years found a minority considered the drug increased the duration and frequency of sexual events (Sherman et al., 2008). The use of condoms among this group was low (less than 20%) and they were primarily used to prevent pregnancy; HIV status was not reported (Sherman et al., 2008). Similar findings relating to condom use and sexual risk were also reported by Celentano et al. (2008b). Celentano and colleagues also found an association between withdrawing from ATS and depression, and increased unprotected sexual activity with multiple partners was reported (Celentano et al., 2008a).

A study of ATS use among young people in Lao PDR (n=440) found the average age of first use of ATS (in the form of Yaba pills) was 16 years, and almost all participants were found to be smoking pills (>99%). The majority were sexually active and condom use was low. Fewer than 5 per cent had been tested for HIV, and knowledge of HIV was variable (Phimphachanh et al., 2009). This study also showed changing sexual norms in ATS users, such as more young men and women having premarital sex (Phimphachanh et al., 2009).

In a prospective study of young women who engaged in sex work in Cambodia, Couture and colleagues (2012) found that, compared to those who did not use ATS, ATS users had more sexual partners, higher levels of alcohol use, and were five times more likely to have an STI. The authors concluded that ATS use is an important emerging risk exposure for HIV (Couture et al., 2012).

Consistent with other international studies, as described earlier, these studies suggest there is an elevated risk of sexual transmission of HIV in people who use ATS in the region, associated with low condom usage, higher numbers of partners and longer duration of sex than among non-ATS users.

6. HIV prevalence in Southeast Asia

HIV in most countries in Southeast Asia can be described as a concentrated epidemic, with the prevalence of HIV considerably higher among key affected populations such as people who inject drugs, female sex workers and men who have sex with men than in the general population (UNAIDS, 2010b).

The most recent HIV population prevalence data as well as that of key populations are presented in Table 3. An understanding of the use of ATS among these populations in the region is critical to assessing HIV risk.

6.1 Men who have sex with men and HIV in Southeast Asia

As previously discussed, men who have sex with men (MSM) are at increased risk of exposure to HIV across the globe. Among MSM, HIV prevalence is highest in Myanmar (29%) and lowest in the Philippines at 1 per cent, with prevalence in other countries ranging between 2.6 per cent in Singapore and 16.7 per cent in Viet Nam (UNAIDS, 2010b). In a 2007 study, MSM across Asia were 18 per cent more likely to have HIV than non-MSM (Beyrer et al., 2010).

Substantial increases in HIV prevalence among MSM have occurred over the past decade. For instance, in Hong Kong, the number of infections among MSM increased by 250 per cent between 2004 (n=68) and 2007 (n=174) and although the number declined slightly in 2008 (n=156), more than 35 per cent of HIV cases in Hong Kong are among MSM (van Griensven & de Lind van Wijngaarden, 2010). In Singapore in 2008, 40 per cent of all HIV cases were among MSM and the number of new diagnoses increased 500 per cent between 2002 (38 cases) and 2008 (185 cases) (van Griensven & de Lind van Wijngaarden, 2010).

While prevalence data are made available through epidemiological and sentinel surveys, incidence data are scarce. Information from Thailand indicates that incident density was 5.7 per 100 per year (van Griensven et al., 2009) and in China an estimated incidence of 2.5 (2005) and 3.62 (2006) per 100 per year was recorded (Li, Zhang & Li, 2008).

In a systematic review of HIV among MSM in middle- and low-income countries, the authors characterised parts of Southeast Asia as being one 'where MSM risk occurs within established epidemics driven by injecting drug use' (Beyrer et al., 2010). Few studies of MSM investigate injecting drug use, although one study in China, which surveyed 1200 MSM across three time periods (2002, 2004 and 2006), found 6.1 per cent of MSM reported IDU in 2002. This proportion had significantly dropped by 2006 when injecting was reported by only 0.2 per cent in that year. The type of drug injected was not reported (Zhang et al., 2007).

People who inject drugs (PWID) are at continued high risk if they engage in unsafe injecting practices, such as sharing needles and syringes, sharing other injecting paraphernalia and using pre-loaded syringes. Among PWID in Southeast Asian countries, HIV prevalence is highest in Indonesia at 52.4 per cent, with prevalence in other countries ranging between 0.2 per cent in the Philippines, to 36 per cent in Myanmar and 38.7 per cent in Thailand. HIV prevalence from sentinel surveillance is shown in Table 3. However, it should be noted that most sentinel surveys do not identify which drug is injected.

Table 3: Population prevalence and prevalence of HIV in capital cities among people who inject drugs, sex workers and men who have sex with men

Southeast Asian country	National prevalence *#	Range	Estimated number of people living with HIV	HIV among PWID, SW and MSM		
				Injecting drug users (%)	Sex workers (%)	Men who have sex with men (%)
Brunei Darussalam	56 cases 1986–2009; 11 cases 2009	•	•	No known cases	•	•
Cambodia	0.5%	0.4–0.8	63 000 (42 000 – 90 000)	24.4 (2007) 24% PWID in rehab 35% of referrals from NGOs (Cambodia NCHADS, 2008)	•	4.5 (2005)
China	0.1%	0.1–0.1	700 000 (390 000 – 1.1 million)	9.3 (2009)	0.6 (2009)	50.0 (2009)
Hong Kong +			4832			
Indonesia	0.2%	0.1–0.3	310 000 (200 000 – 460 000)	52.4 (2007)	7.8 (2007)	5.2 (2007)
Lao PDR	0.2%	0.2–0.4	8500 (6000 – 13 000)	Thought to be high among MSM, some PWID, among sex workers and female migrants	•	•
Malaysia	0.5%	0.4–0.6	100 000 (83 000 – 120 000)	22.1	•	3.9 (2009)
Myanmar	0.6%	0.5–0.7	240 000 (200 000 – 290 000)	36.3 (2008)	18.1 (2008)	28.8 (2008)
Philippines	<0.1%	<0.1 – <0.1	8700 (6100 – 13 000)	0.2 (2009)	0.2 (2009)	1.0 (2009)
Singapore	0.1%	0.1–0.1	3400 (2100 – 4400)	•	•	2.6 (2009)
Thailand	1.3%	1.0–1.6	530 000 (420 000 – 660 000)	38.7 (2009)	2.8 (2009)	13.5 (2009)
Viet Nam	0.4%	0.3–0.5	280 000 (220 000 – 350 000)	18.4 (2009) 29 (2008)	3.2 (2009)	16.7 (2010)
Macau	No data					

* Source: *UNAIDS Report on the Global AIDS Epidemic 2010* (UNAIDS, 2010b)

+ Source: *HIV/AIDS Situation in Hong Kong: factsheet*, (Hong Kong Centre for Health Promotion, 2010)

Prevalence among population aged 15–49 years

A small number of studies of amphetamine use in some Southeast Asian countries show rates of HIV among ATS users. A study in four provinces of Viet Nam found HIV prevalence among ATS users ranged from 4 to 36 per cent (Anh Tuan et al., 2007). A consistent minority reported the injection of ATS (16% at baseline to 15% at 36 months); few reported the exclusive injection of the drug (1.1% at baseline and 2.8% at 36 months). In a Thai study in Bangkok in which PWID were surveyed seven times over a 36-month period, injection of any drug declined from 94 per cent at baseline to 48.5 per cent at 36 months (Martin et al., 2010). Needle sharing among ATS injectors was higher than among heroin injectors (26% vs 16%), but the proportion of PWID having sex with multiple casual partners or sexual activity without a condom was similar for both groups (Martin et al., 2010).

In an unpublished survey of 317 PWID in Bangkok, Thailand, 63 per cent had used ATS in the last six months, and 65 per cent of these injected the drug. The characteristics and behaviours of frequent ATS injectors included high rates of needle sharing (31%) and unprotected sex (42%), high exposure to the criminal justice system, low access to some health services (e.g. HCV testing) and a relatively high rate of HIV at 22 per cent (Sripramong, 2010).

In China, urine testing of methadone maintenance treatment clients (n=1514) indicated that 12.4 per cent tested positive for methamphetamines. Of those who tested positive for ATS, 26.1 per cent were HIV-positive (Chang, Yuan & Jiang, 2011). No comparison was made between this population and the general population, thus providing no evidence about relative risk.

6.2 Sex workers and HIV in Southeast Asia

Among female sex workers, the prevalence of HIV is somewhat lower than among MSM, but is still relatively high in many Southeast Asian countries. For instance, in Myanmar it is 18 per cent, while in Indonesia it is 7.8 per cent (see Table 3). Female sex workers are at increased risk due to inconsistent condom use and, among some groups, concurrent drug use. A 2006 study in Cambodia found high levels of both injecting and non-injecting drug use by female sex workers and their clients (World Health Organization, 2009). Maher et al. (2011) reported ATS use in young women engaging in sex work, coupled with unprotected and prolonged sexual activity.

HIV among sex workers varies considerably depending on the type of sex work in which they are engaged. Among sex workers in Viet Nam, street-based workers were more likely than karaoke-based workers to be HIV positive, respectively 24.3 and 16.5 per cent (Anh Tuan et al., 2007). HIV infection was associated with irregular condom use, a history of IDU and population mobility (Anh Tuan et al., 2007). In Brunei Darussalam, Lao PDR, Singapore and Macau, no recent estimates of HIV among female sex workers were available.

7. Responding to amphetamine-type stimulants globally

7.1 Supply reduction

The control of the illicit use of ATS globally focuses on reducing supply of, and demand for, drugs. Supply reduction responses focus on the control of manufacture, by restricting access to precursor chemicals, and by penalising the possession, supply and manufacture of ATS. For example, in the United States, a major suppression policy first regulated the possession of the precursor ephedrine and equipment used in the manufacture of ATS in 1983, followed by the control of bulk ephedrine and pseudoephedrine in 1989 (Cunningham & Liu, 2003). The most recent control was introduced in 2005. There are now restrictions on the amount of pseudoephedrine and ephedrine containing products that an individual is permitted to purchase in a certain time period, and rules apply to the storage of such preparations in order to prevent theft. Other supply reduction activities, such as the re-regulation of ATS to a class that attracts higher penalties for possession, have been introduced in countries such as the United Kingdom.

The success of the supply controls described above in reducing consumption in the community is yet to be demonstrated in the long term. There were short-term effects following the control of precursor drugs in the United States, including reductions in hospital admissions for ATS-related events and decreases in ATS-related arrests. However, there is little evidence that the responses had an effect over longer periods of time (Cunningham & Liu, 2003; 2005; Degenhardt et al., 2007; 2010).

7.2 Demand reduction

Demand reduction responses include prevention approaches that target prevention of use or delay in the onset of use. They also include drug treatment to address dependent use.

Demand reduction responses include mass media education, school-based intervention including drug education, workplace interventions and peer education. Mass media campaigns have been particularly popular on the basis that they are capable of reaching a wide audience for a relatively small cost per individual reached (Terry-McElrath, Emery, Szczypka & Johnston, 2011) and have been used in attempts to modify a variety of behaviours including alcohol, smoking, drink-driving and illicit drug use (Wakefield, Loken & Hornik, 2010). For example, there is strong evidence that campaigns targeting smoking have been successful in reducing the uptake of smoking of tobacco by adolescents and reducing smoking rates among some sections of the community (Wakefield, Loken & Hornik, 2010; Bala, Strzeszynski & Cahill, 2008; Davis et al., 2008). However, the evidence for the effectiveness of such campaigns in reducing illicit drug use is less robust (Wakefield, Loken & Hornik, 2010) and some have shown no measurable effect (Hornik, Jacobsohn, Orwin, Piesse & Kalton, 2008; Erceg-Hurn, 2008). There is little in the way of specific evidence about the impact on ATS use.

School-based drug education programs vary greatly in their construct and mode of delivery and also in content, which tends to mirror the drug policy of the country in question. Evaluations of the effectiveness of school-based drug education in delaying or preventing alcohol or drug use also vary, but most experts agree that skills-based interventions are

more effective than knowledge-based programs (Faggiano, Vigna-Taglianti, Versino et al., 2008; Stead, Stradling, MacNeil et al., 2010; McBride 2004). There is growing evidence that the effectiveness of school-based education is enhanced by the inclusion of family and community-based interventions (Spoth, Clair, Shin & Redmond, 2006).

There is little in the way of evidence about prevention initiatives that specifically target ATS use and related harm. A recent evaluation of a program targeting the use of methamphetamine among adolescents in the United States was found to be effective in reducing methamphetamine use by almost 4 per cent and was also found to be cost-effective, in terms of both short-term outcomes and future employer costs (Gyll, Spoth & Crowley, 2011).

In general, it is accepted that many of the counselling treatments, or ‘talking therapies’, that are used with other drugs, have relevance for ATS (Lee & Rawson, 2008). However, most ATS users either do not access treatment or have a tenuous connection (e.g. Baker et al., 2004). There are many potential factors that contribute to this, including a lower perception of risk, a perception that services are geared to supporting other drug users (e.g. heroin), specific psychological effects (e.g. agitation, paranoia) that might interfere with building a therapeutic relationship, and limited pharmacotherapies to assist in withdrawal management and maintenance. This contrasts with the management of opioid dependence where there is a range of pharmacotherapy options, including substitution therapies.

There are some developments in this domain. For example, Shearer (2008) and Shearer et al. (2001, 2009) report a promising reduction in ATS use with the use of modafinil and other medications, such as bupropion and serotonin medications (Shoptaw et al., 2008). However, the science and clinical practice lag well behind treatment options for alcohol and opioid dependence. It is critical that, in order for treatment to have impact, barriers to treatment engagement and retention for ATS users are addressed.

7.3 Harm reduction

Globally, harm reduction for people who use drugs is focused on opioid injectors, as is the situation in all Southeast Asian countries under review. Most recently, WHO issued a technical brief which summarises the international literature and provides a set of key harm reduction services for ATS users. This technical brief includes five recommendations:

1. Outreach and peer education (providing culturally sensitive, clear messages)

These should be integrated and consistent, accurate and relevant to ATS users, highlighting the risks of injecting and acquiring BBV from sharing contaminated equipment, including the following messages:

- Use less ATS and less often (drink water, eat fruit, improve diet, get adequate rest, employ strategies to help control drug intake, monitor own behaviours, do not use alone).
- Avoid using ATS with other psychoactive substances (e.g. alcohol to help ‘come down’ from ATS).
- Do not inject or else switch from injecting use to oral – if injecting, do not share.
- Use a condom every time you have sex.

2. Targeted interventions for specific groups of users (e.g. injectors and non-injectors, youth, women and minorities)
3. Provision of equipment to help behaviour change (condoms, needles and syringes)
4. Low-threshold advice and brief counselling to ATS users and families
5. Establishing links and referral networks to health and welfare facilities

(World Health Organization, Western Pacific Region, 2011: Technical Brief 2).

7.4 Responses to amphetamine-type stimulants and HIV globally

There is no globally coordinated response to ATS and HIV, and a limited evidence base to guide action, although recommended responses are discussed in detail in a number of publications (Colfax et al., 2010; Degenhardt et al., 2007; 2010).

Colfax and colleagues (2010, p.463) suggest that ‘to address use of amphetamine group substances a combination of approaches (e.g. individual, group, community and policy) might be needed, including those that address the risk of HIV infection’.

Degenhardt and colleagues (2010, p.347) further suggested that ‘complex issues surround methamphetamine, requiring novel and sophisticated responses, which have not yet been met with sufficient investment of time or resources to address them’. This comment, that there is a need for multifaceted approaches, as no single strategy is likely to be able to address all the potential issues of concern (such as mental health and physical health problems, risk taking behaviours, etc), was echoed by key informants.

There is clearly an absence of a strong evidence base to guide action. However, the more recent reviews, and commentary from key informants, have specifically emphasised the need to include education, condom provision and voluntary HIV counselling and testing, for consumers and those in relationships with them, as key elements of strategies to address both ATS and HIV risk. They also point to the importance of HIV prevention and treatment among ATS injectors, and the need to provide treatment for HIV-infected ATS users and programs to address stigma and discrimination. Consistent with these points, a recent review by the European Monitoring Centre for Drugs and Drug Addiction led to a conclusion that:

To prevent and reduce harms related to amphetamines injecting, a combination of interventions may be required, aiming at reducing personal risk behaviours, changing social network norms (about risk boundaries or equipment sharing) through peer education, addressing the injecting process (e.g. by promoting the use of one-piece instead of two-piece syringes) and structural factors (e.g. by increasing the availability of sterile syringes or providing hygienic injecting environments as an alternative to public injecting). (European Monitoring Centre for Drugs and Drug Addiction, 2010, p.19)

7.5 Responses to injecting drug use and HIV globally

In 2009, WHO, in collaboration with UNODC, UNAIDS and international experts, developed a technical guide for countries to set targets for universal access to HIV prevention, treatment and care for injecting drug users (World Health Organization, 2010a). In 2010, the Reference Group to the United Nations on HIV and Injecting Drug Use released a Consensus Statement, which stated in its summary of recommendations:

An effective and evidence-based response to HIV among people who use drugs is required to control the rapid spread of HIV among drug-using populations and to prevent transmission through unprotected sexual contact with non-drug using partners. This should involve a combination of approaches, should be supported by appropriate policy and legislation, and be protective of human rights. (Reference Group to the United Nations on HIV and Injecting Drug Use, 2010)

The statement further recommended that the comprehensive package of nine interventions outlined in the Technical Guide should be considered as the core set of harm reduction interventions to address injecting drug use and HIV. These are:

1. needle and syringe programs (NSPs)
2. opioid substitution therapy (OST) and other drug dependence treatment
3. HIV testing and counselling
4. anti-retroviral therapy (ART)
5. prevention and treatment of sexually transmitted infections (STIs)
6. condom programs for PWID and their sexual partners
7. targeted information, education and communication for PWID and their sexual partners
8. vaccination, diagnosis and treatment of viral hepatitis
9. prevention, diagnosis and treatment of tuberculosis.

The Statement also recommended that 'NSPs, OST, ART and sexual risk reduction strategies targeting PWID should be implemented as a matter of priority' (p.11), and 'where levels of coverage of these interventions are low, programs should be increased in scale, multiple delivery models should be utilised (including outreach, low threshold drop-in centres, peer education), and barriers to access should be identified and removed to allow for these programs to reach as many injecting drug users as possible' (p.11).

The effectiveness of key elements of this package (NSP and OST) and other generic responses to injecting drug use and HIV are summarised in Table 4.

Table 4: Generic interventions targeting drug injection and HIV/BBV globally

Prevention measure	Relevance to ATS use	References	Effectiveness
Needle and syringe provision	Targets PWID regardless of drug of choice	Cross, Saunders & Bartelli, 1998; National Centre in HIV Epidemiology and Clinical Research, 2009; Palmateer et al., 2009; Vickerman, Hickman, Rhodes & Watts, 2006; Wodak & Cooney, 2006	Strong evidence of effectiveness in range of settings and contexts Economic evidence that NSP is cost-effective Correlation demonstrated between increased availability of needles and syringes and decreasing HIV prevalence Impact is related to the scale of programs – proportion of PWID accessing sufficient quantity to prevent reuse of needles and syringes
Oral substitution treatment	Majority of evidence relates to opiate replacement therapy	Amato et al., 2005; Gowing, Farrell, Bornemann, Sullivan, & Ali, 2008; WHO, UNODC, & UNAIDS, 2004	
	Evidence limited for psychostimulant substitution	Baker et al., 2004; Longo et al., 2010; Rose & Grant, 2008; Shearer et al., 2009	Limited evidence for substitution therapy for ATS use
Psychosocial interventions	Currently the most effective treatment for ATS dependence	Baker et al., 2005; Baker et al., 2004; Lee et al., 2007; Lee & Rawson, 2008	Combination of motivational interviewing and cognitive behavioural therapy (CBT) recommended Brief CBT can improve abstinence
Coerced drug treatment	Common method of treatment in Southeast Asia	World Health Organization, 2009	No evidence for effectiveness

Table 5: Interventions in Southeast Asia for people who inject drugs

Country	Needle and syringe programs	Number of PWID accessing NSP in a year	Proportion of PWID accessing NSP in a year % (range)	Number of N&S distributed per year	Number of N&S per PWID per year	OST available	Number of drug users accessing OST	Mandatory detention for drug treatment	Behavioural interventions for ATS	Number of PWID on ART	Ratio of PWID on ART per 100 PWID with HIV
Brunei Darussalam	No	0	0	0	–	No	0	Yes	Unknown	–	–
Cambodia	Yes	Unknown	Unknown	110 982–117 631	57 (14–118)	Methadone	Not reported	Yes	Unknown	0	–
China	Yes	>38 000	2 (1–2)	1.14–1.53 million	32 (<1–84)	Buprenorphine and methadone	103 595–104 068	Yes	Unknown	9300	3 (2–6)
Hong Kong	No	0	0	0	0	Methadone			Unknown		
Indonesia	Yes	49 000	23 (20–26)	511 670–797 455	3 (2–4)	Buprenorphine and methadone	2536		Unknown	5406	6 (4–9)
Lao PDR	Yes	0	0	0	–	No	0	Yes	Unknown	–	0
Malaysia	Yes	5571	2 (2–3)	1.9–2.6 million	9 (7–13)	Buprenorphine and methadone	4135–6538	Yes, transition in process	Unknown	–	–
Myanmar	Yes	29 411	39 (33–49)	6.8 million (2010)	47 (39–58)	Methadone	1994	Yes	Unknown	–	–
Philippines	Yes	800	5 (4–8)	50 000	3 (2–5)	No	0		Unknown	–	–
Singapore	No	0	0	0	–	No	0		Unknown	–	–
Thailand	Yes	413	<1 (<1 – <1)	47 513	<1	Buprenorphine and methadone	4150–4696	Yes	Unknown	1435	2 (1–4)
Viet Nam	Yes	140 254	95	20.6–34.9 million	189 (107–323)	Methadone	4199 (as of August 2011, source: VAAC)	Yes	Unknown	1760	4 (1–86)
Macau#	2	0	0	0		No	0	Yes	Unknown	–	–

Adapted from Mathers et al. (2010)

Key informants in Macau note the operation of two outreach programs/needle and syringe exchange programs.

7.6 Responses to injecting drug use in Southeast Asia

Responses to injecting drug use in Southeast Asia are varied, and although programs are being established in many areas, coverage remains low (Hagarty, 2010). Table 5 outlines the PWID-focused interventions that currently exist. There is evidence that the implementation of NSPs and OST has reduced high-risk behaviours among PWID in a number of countries, as detailed below:

- At a pilot NSP in Malaysia the passing of injecting equipment to another was reduced from 56 to 43 per cent and being injected by a ‘street or port doctor’ was reduced from 42 to 33 per cent. In the first six months of operation, the pilot methadone maintenance treatment program implemented in Malaysia resulted in a 35 per cent reduction in opiate use.
- In China 14.7 per cent of NSP clients reported sharing compared with 43.7 per cent of those not using the NSP. An evaluation of the first eight OST clinics established in China found clients significantly reduced injecting from 69.1 to 8.8 per cent. No reports were given regarding which drugs were being injected.
- A social media strategy targeting PWID in China resulted in a reduction in needle sharing from 68 per cent pre-intervention to 35.3 per cent post-intervention.
- Peer-based interventions in the Lan Son Province in Viet Nam resulted in a 25 per cent reduction in sharing 12 months post-intervention. (World Health Organization, 2010a)

Over the past five years, harm reduction services for PWID across the Southeast Asia region have improved. Gaps in services across countries and across regions within countries still exist due to factors including resource limitations and legal and other conflicts with services such as needle and syringe programs and treatment options. In addition, key informants and others noted that ATS users have a less consistent connection with treatment and harm reduction services that *do* exist. Country-specific information on the response to HIV and drug use is contained in Appendix 2.

7.7 Responses to amphetamine-type stimulants in Southeast Asia

The majority of responses to ATS in Southeast Asia have so far focused on supply control through law enforcement, with major government campaigns initiated to reduce the manufacture and trafficking of ATS and their precursors. In addition, the common response to ATS users is compulsory 'treatment' and/or registration for those found to be using such drugs.

Penalties for the manufacture and trafficking of ATS are severe, and include the death penalty in Indonesia, Lao PDR, China, Viet Nam, Brunei Darussalam, the Philippines and Thailand (Gallahue & Lines, 2011). Thailand and China have conducted major campaigns in an attempt to halt the manufacture and trafficking and use of illicit drugs. In 2003, Thailand enacted a 'war on drugs', designed primarily to stop the use of methamphetamine, which had been increasing since the mid-1990s. This action resulted in the enforced detention of more than a quarter of a million drug users and the arrest of more than 55 000 people for the production, sale, possession and use of methamphetamine. The action also resulted in the killing of more than 2000 alleged drug dealers and drug users, some reportedly at the hands of police. The so-called 'war' resulted in initial decreases in injecting drug use. However, four months after the intervention, one-third replaced injecting with smoking methamphetamine or opium, and 39 per cent substituted drug use with alcohol or sniffing glue (Vongchak et al., 2005).

As noted above, the difficult topographic terrain of most of Southeast Asia has made surveillance and identification of manufacturing sites and trafficking routes extremely difficult. There is also evidence that increased efforts to find and dismantle laboratories have resulted in such operations being moved to neighbouring countries (i.e. from Thailand to Lao during the 2003 'war on drugs', and from Myanmar to Thailand during crackdowns in Myanmar in the same year).

In relation to demand reduction, Thailand introduced the Matrix Model of drug treatment, a 16-week outpatient treatment abstinence program based on cognitive behaviour therapy, 12-step recovery and counselling, including aspects of family engagement (Matrix Institute, 2011). There is little evidence that this intervention has been effective (Perngparn et al., 2011).

As noted earlier in this report, responses to drug use in most Southeast Asian countries include registration of individuals found to be using drugs, and compulsory detention, often for prolonged periods of time (up to five years) (World Health Organization, 2009). Commonly, such programs are not drug-specific, and there is little evidence that they are effective in reducing drug use, with high relapse rates following release from such programs being extremely high (World Health Organization, 2009). Furthermore, such detention can be associated with increases in HIV risk behaviours and infection rates.

The lack of harm reduction interventions specifically targeting ATS users and associated risk behaviours was confirmed by all key informants. Mainstream harm reduction interventions have relevance but, as documented, ATS users might not always have a strong connection to such services. In some countries, such as Myanmar and Thailand, service providers noted that ATS users were accessing NSPs or drop-in centres for PWID, although these services did not have specific services for ATS users (Myanmar 2; Thailand 3).

Key informants stated that there are some pilot activities being undertaken with ATS users in Bangkok, Thailand. The first aims to provide harm reduction information to users via small support groups. The second is using a youth assembly model and film to provide harm reduction messages to young people at risk (Thailand 3). Evidence of impact is yet to be provided.

Sherman et al. (2009) found that small group interventions (using either a model of peer education/network intervention or a life-skills intervention) with young ATS users in Chiang Mai, Thailand, led to a statistically significant decline in self-reported methamphetamine use (from 99 to 53 per cent at 12-month follow-up) and significant increases in consistent condom use (from 32 to 44 per cent at 12-month follow-up).

The following principles of prevention and treatment for the use of ATS, developed by WHO/UNODC in 2008, have been recently adapted by WHO for use in Asia and the Pacific, although they are not yet implemented by any country in the region (personal communication, Fabio Mesquita):

- Availability and accessibility of ATS dependence treatment in the Asia-Pacific region
- Screening, assessment, diagnosis and treatment planning
- Evidence-informed treatment for ATS dependence
- Treatment for ATS dependence, human rights and patient dignity
- Targeting special subgroups and conditions (i.e. youth, women, people with medical and psychiatric co-morbidities, ethnic minorities, entertainment workers, refugees and displaced persons)
- All treatment services for ATS dependence should seek an alliance with the criminal justice systems, with a view to supporting clients with legal problems and referral pathways to treatment considered instead of incarceration
- Community involvement, participation and patient orientation
- Clinical management of treatment services for ATS dependence
- Treatment systems: policy development, strategic planning and coordination of services.

(World Health Organization, Western Pacific Region, 2011, Technical Brief 3).

8. Comparison of amphetamine-type stimulant and opioid use as vectors for HIV and other blood-borne viruses

The review includes an assessment of the comparative risk of ATS and opioid drug use as a vector for HIV and other BBV. This assessment was limited to a literature review, due to the scarcity of critical data sets relating to the Southeast Asia region.

8.1 Literature review

8.1.1 Injection risk behaviours

There are multiple risks associated with drug injection which may place users at risk of contracting BBV infections related to non-sterile injection (Rusch, Lampinen, Schilder & Hogg, 2004; Patterson & Grant, 2004b; Anonymous, 2002; Kall & Nilsson, 1995; Semple et al., 2002; Van de Ven, Rawstorne, Treloar & Richters, 2004). Risky injecting behaviours include sharing injecting equipment with other injectors, reuse of one's own injection equipment, hurried injection (e.g. if injecting in a public place and fearing discovery), and frenetic injecting when on drug use 'binges'. All of these risk behaviours have been documented among ATS injectors, and place PWID at risk of contracting HIV, hepatitis C virus (HCV), and other infections.

There are good reasons to expect a strong association between drug injecting and dependence. ATS injectors are more likely to be dependent upon the drug than non-injectors (American Psychiatric Association, 1994; Darke & Hall, 1995; Semple, Patterson & Grant, 2004a). As it often entails heavier use, ATS injection (compared to other routes) is also a marker for greater exposure to possible risk taking and HIV (Semple, Patterson & Grant, 2004a).

There have been some studies evaluating the comparative injection risks of ATS injectors compared to injectors of other drugs. These have produced equivocal findings. Some have found that heroin injectors are more frequent injectors than ATS injectors (Kaye & Darke, 2000; Zule, Desmond, Morgan & Joe, 1999), but others show the opposite (Lorvick, Martinez, Gee & Kral, 2006). Some have found that ATS injectors were: more likely to share injecting equipment (Braine, Des Jarlais, Goldblatt, Zadoretzky & Turner, 2005; Lorvick et al., 2006); no different in sharing injecting equipment (Kral et al., 2001; Bolding, Davis, Hart, Sherr & Elford, 2005; Van de Ven et al., 1997; Prestage et al., 2005); or less likely than heroin injectors to share (Zule et al., 1999). Some have adjusted for confounding factors in analyses (Braine et al., 2005), others have not (Kral et al., 2001; Bolding et al., 2005; Van de Ven et al., 1997). The disparate findings might relate to differences in the frequency of injection, reflecting levels of dependence (Darke & Hall, 1995; Gossop, Griffiths, Powis & Strang, 1992; Kaye & Darke, 2000).

One study in the United States found that, compared to heroin injectors (who were also more frequent drug injectors), ATS injectors were less likely to be injecting in public places and less likely to use a needle multiple times (Zule et al., 1999). They were also more likely to obtain clean needles from friends/dealers, rather than on the street (Zule et al., 1999). There was no adjustment for other factors such as demographics or drug injection frequency.

Some important demographic correlates of ATS versus injection of other drugs have been noted in the literature. Numerous papers have reported that ATS injectors tend to be younger than opioid injectors, which might have an impact on capacity or inclination to access harm reduction options (Hall, Darke, Ross & Wodak, 1993; Van de Ven et al., 1998; Kral et al., 2001; Drumright, Patterson & Strathdee, 2006; Welp et al., 2002; Bolding et al., 2005; Van de Ven, 1997; Prestage et al., 2005; Volkow et al., 2007).

Some have also found that they had lower levels of education and social functioning (Welp et al., 2002; Bolding et al., 2005), but were less likely to have a criminal record (Darke, Kaye, & Ross, 1999) or be unemployed (Welp et al., 2002; Bolding et al., 2005; Van de Ven et al., 1997; Prestage et al., 2005; Volkow et al., 2007; Halkitis, Shrem & Martin, 2005).

A study of regular ATS users in Australia found female injectors had higher rates of injection risk behaviours (sharing) than males (Darke, Ross, Cohen, Hando & Hall, 1995). Some studies have found female ATS injectors to be more likely than those injecting other drugs to be taking injecting risks, such as sharing equipment (Klee, 1993; Lorvick et al., 2006). Men who have sex with men and who are ATS injectors have also been found to have higher rates of injection risk behaviours relative to heterosexual injectors (Reback, Larkins & Shoptaw, 2004; Drumright et al., 2006; Elifson, Klein & Sterk, 2006; Welp et al., 2002).

ATS injectors have consistently been found to be less likely than heroin injectors to engage in drug treatment (Braine et al., 2005; Hall et al., 1993; Kaye & Darke, 2000; Zule et al., 1999) or to be in touch with HIV outreach services (Zule et al., 1999). ATS injectors are more likely than heroin injectors to stock up on needles, rather than picking up one at a time (Zule et al., 1999).

The tendency for ATS injectors to inject in 'binge' patterns of use (similar to cocaine injectors) also makes it harder to provide coverage for these PWID, due to timing (after-hours), frequency of injecting (multiple episodes of injecting over short periods of time) and geographic location of 'binge' injecting. These findings suggest that the window of opportunity for traditional service models to engage with these PWID may be limited. These studies also suggest that there are likely to be differences in risk-taking behaviours, but not always in a consistent direction. These differences may be influenced by other factors, such as demographic characteristics.

Although these data have not been collected in Southeast Asia, there is no reason to suggest similar diverse patterns of behaviour and risk do not exist in this region. On balance, we conclude that, based on the currently available data, ATS injectors are exposed to similar biological risks of BBV as opiate (or other drug) injectors, although certain characteristics of the ATS injectors, such as age, lack of engagement with drug treatment and binge injecting patterns, are liable to influence vulnerability to HIV and other BBV infection.

8.1.2 Sexual risk behaviours

Sexual risk behaviours confer risk of both HIV transmission and sexually transmitted infections (STIs), such as chlamydia, gonorrhoea and syphilis. There is evidence to suggest that STIs also increase the risks of HIV infection (Law, Prestage, Grulich, Van de Ven & Kippax, 2002; Wasserheit, 1992). The ways in which drug use is linked to sexual risk taking are multiple and are considered below.

Sexual risk behaviours include: (a) risks that occur within a particular sexual episode, such as anal sex, unprotected vaginal intercourse or unprotected anal intercourse; and (b) those that make exposure to HIV or STIs more likely, such as having multiple sex partners, having a sex partner who injects drugs, having sex with a sex worker, or engaging in sex work. The literature on this topic is inconsistent in the way that these differences are addressed (or even made explicit), but these different kinds of risk will require different responses in terms of harm reduction.

ATS use has also been linked to sexual risk within many groups, including men who have sex with men, sex workers, men who purchase sex, heterosexually active people, and certain occupational groups.

Numerous papers across several countries have mentioned higher rates of sexual risk behaviour among ATS users or injectors compared to other drug users/injectors (Van de Ven et al., 1998; Kral et al., 2001; Drumright et al., 2006; Mansergh et al., 2006; Shoptaw & Reback, 2007; Elford & Hart, 2005; Mercer et al., 2004). Multiple papers, many from the United States, have documented higher rates of sexual risk behaviours, such as unprotected anal intercourse, inconsistent condom use and multiple partners, among MSM who report using ATS (Anonymous, 2002; Colfax et al., 2005; Farabee, Prendergast & Cartier, 2002; Frosch, Shoptaw, Huber, Rawson & Ling, 1996; Halkitis, Parsons & Stirratt, 2001; Halkitis, Shrem & Martin, 2005; Kall & Nilsonne, 1995; Molitor et al., 1999; Reback, Larkins & Shoptaw, 2004; Rusch, Lampinen, Schilder & Hogg, 2004; Semple, Patterson & Grant, 2002; 2004a). Similar associations have been found in Australia (Rawstorne & Worth, 2004; Slavin, 2004; Smith, Worth & Kippax, 2004; Van de Ven, Rawstorne, Treloar & Richters, 2004), particularly with unprotected anal intercourse (Colfax et al., 2001; Halkitis et al., 2001; Rusch et al., 2004). Some studies have found that ATS users have higher rates of STIs (Semple, Patterson & Grant, 2002; Chouvy & Meissonnier, 2004; Kral et al., 2001).

There is good evidence to suggest that ATS use and risky sexual behaviours co-occur within a constellation of other important factors, some of which are related to the drug, and some of which are not. There is evidence that: (a) the characteristics of ATS users may be related to higher risk behaviours in general; (b) ATS increases sexual interest and arousal; (c) many people may use ATS *because* they wish to feel sexually disinhibited, and some of the behaviours they consequently engage in are risky; (d) some aspects of methamphetamine's direct effects may facilitate sexual risk and HIV transmission; and (e) HIV risk perception may play an important role in some populations of users.

The literature on sexual risk and ATS use is largely concentrated in North America and often focused upon MSM. In addition, investigations rely almost exclusively on self-reporting of sexual behaviours. It remains unclear how much each of the above explanations contributes to the association between ATS use and sexual risk/HIV transmission. An association between drug use, risk behaviour and HIV transmission does not immediately imply causality. Existing research has used varying definitions, and has tended to control for differing drug types, while adjustment for confounding variables has been poor, and much of the research has been cross-sectional (Drumright, Patterson & Strathdee, 2006). It is necessary to conduct research that examines potential confounding variables, and which undertakes episode-level analyses of risk.

There are limited data from the region relating to sexual risk and ATS use. Sherman et al. (2008) found that ATS users reported varying effects of use on their sexual experience, ranging from increased libido, to decreased libido or no sexual activity at all. Celentano et al. (2008b) found substance use (predominantly methamphetamine) was associated with behavioural sexual risks, such as young sexual debut and multiple partners.

8.1.3 Association with HIV

There have been conflicting findings with respect to the association of ATS injection and HIV, which have been made more difficult to unravel because of the co-existence of sexual and injecting risk behaviours among ATS users. The association with HIV infection through sexual transmission has received considerable discussion and debate (Boddiger, 2005; Buchacz et al., 2005; Colfax et al., 2001; Halkitis et al., 2001; Rawstorne & Worth, 2004; Slavin, 2004; Smith et al., 2004; Urbina & Jones, 2004). However, much (but not all) of the literature in this area has focused upon MSM. Multiple studies have found an association between HIV infection and ATS use (Boddiger, 2005; Colfax et al., 2005; Reback et al., 2004; Farabee et al., 2002; Frosch et al., 1996), some have remained after controlling for background factors (Kozlov et al., 2006; Molitor et al., 1998), but others have not (Farabee et al., 2002; Frosch et al., 1996; Halkitis, Shrem & Martin, 2005). The conflicting findings may be related to the background prevalence of HIV and the population under study – two examples are given below.

In one study of PWID in Russia, HIV seroconversion during a one-year follow-up was associated with sex work and frequent ATS use (Kozlov et al., 2006). It was not associated with the self-reported frequency of sharing injecting equipment, the type of sharing, or type of drug used while sharing. The authors speculated that the association may have reflected the characteristics of injecting among such users, particularly frenetic injecting and binge use patterns, but emphasised the importance of concomitant sexual risks and polydrug use among the group (Kozlov et al., 2006). In contrast, in Australia among a largely non-injecting MSM cohort, ATS use was not independently associated with HIV seroconversion after controlling for other factors such as age, being in a relationship with an HIV-positive partner, and engagement in a range of esoteric⁴ sex practices (Kippax et al., 1998).

4 'Esoteric sex' or 'adventurous sex' includes fisting, water sports, sadomasochism, bondage and discipline, and fetish sex.

One study found that methamphetamine use, regardless of the route of administration, was independently associated with HIV infection among female sex workers in Tijuana and Ciudad Juarez, Mexico (Patterson et al., 2008).

The nature and strength of association are likely to vary according to a number of factors including the population, the background prevalence of HIV, the stage of the HIV epidemic, and the prevalence and frequency of HIV risk behaviours.

8.2 Comparison of data from Southeast Asia

In order to be able to compare the HIV risks of amphetamines with opioids as they are used in the region, a range of data is required. This particularly includes prevalence of ATS and opioid use, HIV prevalence among users of amphetamines compared to users of opioids, routes of administration, polydrug use and other risk behaviours. Unfortunately, we were not able to obtain such data and there is a clear need for further studies about HIV among users of different types of drugs in this area.

In summary, ATS use has been shown to be associated with both risky injecting practices and increased risky sexual behaviour across multiple population groups. However, the nature and strength of these associations remain undetermined. These associations are influenced by multiple variables (for example, age of user, access to treatment, polydrug use, frequency of use, sexual context, and underlying HIV or STI prevalence). Many of these variables are not controlled for in much of the current literature, making a comparative risk assessment of ATS use to opioid use difficult at this time.

9. Summary of information from key informants

As noted throughout the report, the input from key informants is incorporated into the relevant sections. However, a summary of key informant commentary is provided in Table 6. As the commentary is incorporated into the body of the report, no specific analysis is provided here.

Attempts were made to recruit two key informants from each country. However, we were unable to recruit key informants from Brunei Darussalam, Singapore or the Philippines. In some countries (China, Lao PDR and Viet Nam), several identified key informants declined to be interviewed due to a lack of reliable data in relation to ATS use in their country. In other countries, like Thailand, extra key informants requested to participate in the review and were interviewed.

In addition to the information presented in Table 6, key informants played a critical role in the identification of literature from the region and the development of the recommendations of this review.

Table 6: Summary of key informant interviews

Key informant	Key comments
China 1	<ul style="list-style-type: none"> • No official data on ATS use in China. • A study does show ATS use in opioid substitution treatment clients. • Workers, farmers, truck drivers, students and sex workers might be using ATS. • Changing drug use patterns due to availability of heroin. • No reports of HIV prevalence for ATS users. • ATS not included in current HIV strategy. • Treatment centres are non-drug-specific. • No ATS-specific programs in place. • Research is commencing into ATS use but remains limited; many areas need to be explored, for example cross-border populations.
Myanmar 1	<ul style="list-style-type: none"> • Polydrug use is common, with opioid users using ATS due to cost, availability and combined effect of the drugs. • Young people are also using ATS as it is cheap, fun, and helps them to work. • More people use ATS than heroin in Myanmar but injection of ATS is not common. • There are no specific policies or interventions for ATS users, although some ATS users do visit existing drop-in centres where they receive generic services. • Research is needed to understand the daily lives of ATS users, and what services they currently access or need from drop-in centres. We need to know more about patterns of ATS and the daily problems faced by users.

Key informant	Key comments
Myanmar 2	<ul style="list-style-type: none"> • No official statistics, but use noticed in Yangon and Mandalay in young people, on the border areas with China and with migrant workers near Thailand. • ATS is used for fun in nightclubs and by opioid users, due to lack of availability of heroin. • Some workers use drugs either voluntarily or when forced by their employers. • ATS users can access IDU services if they inject but no other services exist for ATS users. • There are no separate strategies for ATS users. • ATS users sometimes access existing services, but usually only when they are also heroin users. • No research on ATS use in Myanmar, other than the UNODC SMART reports. • Special services needed for ATS users as they are generally different to heroin users and are in the general population. They have different risks such as unsafe sex, unsafe behaviours like loss of cognition and might be changing to injecting. We need more information for service development.
Lao PDR 1	<ul style="list-style-type: none"> • High rates of use in young people, rates estimated by UNODC. • High rates of ATS users in rehabilitation centre in Vientiane, close to 95% of clients. • The only current research on ATS was conducted by Burnet Institute with local partners. • HIV and drug policies do not distinguish between ATS users or heroin users. • HIV prevalence is high in opium/heroin users in the north of Lao PDR. • No interventions for ATS users in place, no funding support but a definite need to move forward on this. • Interventions need to include: ATS detoxification services and STI testing and treatment for ATS users. • Research ideas include HIV prevalence in ATS users, and options for treatment.

Key informant	Key comments
Thailand 1	<ul style="list-style-type: none"> • Figures for prevalence of ATS use in Thailand vary, going up and down over time. • Situation is changing, with changing economic situation; previously ATS use was mainly functional, now it is mainly recreational, in young people. • Routes of administration are changing as well, from ingestion to smoking, now the majority of users smoke crushed tablets. • Complicating this, old heroin users, with increased prices and decreased availability of heroin, use other drugs including ATS, and rates of injecting of ATS are increasing. • Small pockets of ATS users injecting ‘yaba’ and ice noted in Chiang Mai and Bangkok, mainly ice but more information needed here. • No mention of ATS use in any HIV policies, but mentioned in meetings, in particular a concern about possible increased sexual risk. • ATS strategies are included in other programs, such as with youth. • These programs focus on demand reduction and are not evaluated. • Treatment systems exist, either compulsory or voluntary, but their effectiveness is unmeasured. • Drug user networks are important but focus on heroin users; they are not sure how to access ATS users. • Several studies with ATS users are available for Thailand, looking at models of peer education and service delivery. • Small project underway on injecting of ATS, with results due in 2012. • Recommendations for research include: research into effectiveness of treatment models and qualification of ‘harms’ or ‘risks’ associated with ATS use; with less emphasis on primary prevention recommended, as this is too hard to measure.

Key informant	Key comments
Thailand 2	<ul style="list-style-type: none"> • No population prevalence rates. • ATS is generally smoked, used for fun and recreation, but there is some functional use to help users work longer hours. • Often used with alcohol to enhance feelings. • Possible use in sex workers, but most research is being done with young people. • Studies show young people using ATS have more sexual partners and pre-marital sex than non-users. • Studies in Thailand show that unsafe sex is the concern for HIV transmission, not injecting. This might be different in those people who use heroin and ATS, but generally ATS users are scared of injecting and needles. • ATS policy currently focuses on treatment and depression. • No mention of ATS use in HIV policy. • Harm reduction is not thought about with ATS users – no injection, no risk, but there is a sexual risk, of both STIs and HIV. • Research ideas: in the cross-border regions and in closed settings, especially in juvenile justice centres.
Thailand 3	<ul style="list-style-type: none"> • Young people are using, and have been for many years. • ATS is cheaper than heroin but still relatively expensive. • Smoking is mainly preferred as route of administration. • Small studies show high-risk behaviour in ATS injectors who attend drop-in centres. • Harm reduction in Thailand does not recognise HIV risk in ATS users. • A couple of interventions have been tried which target youth – support groups and a youth symposium. • There is diversity in the users of ATS, such as women, migrants, workers etc, which is not well understood and requires further research. • Need to include people who use drugs in the development of research plans.

Key informant	Key comments
Hong Kong 1	<ul style="list-style-type: none"> • ATS use is not so much of a concern; while rates of heroin use are decreasing, use of ketamine is an emerging problem. • MDMA is used recreationally, as well as ice. • Ice is generally smoked. • Interventions for ATS users focus on prevention and treatment/rehabilitation. • Research on ATS use is not a priority, more concerned with the use of ketamine by men who have sex with men.
Indonesia 1	<ul style="list-style-type: none"> • Not aware of official statistics on ATS use; some small studies have been undertaken. • Newspapers report that ATS use is increasing. • Personal observations are that users are middle class to upper class, recreational or party drug users. • ATS is more costly than other drugs. • No mention of ATS use in current HIV programming. • Drug strategies are mainly targeting heroin users. • No interventions for ATS users. • ATS use is not linked to HIV in the minds of policy makers. • Community perceptions are that ATS use is a problem. • Research needs to focus on: better understanding of ATS use – inhalation versus injection; and a better understanding of harms associated with use.

Key informant	Key comments
Indonesia 2	<ul style="list-style-type: none"> • Data from 2009 provide national estimates – about 3.3 million people used drugs, 68% used ATS, less than 5% of people who used drugs injected. • People using ATS were mostly male, older than 25 years, mainly middle class and using for recreational purposes. • Studies in Indonesia show ATS users have multiple partners; no reports available on condom usage. • Very low rates of injecting suspected in ATS users. • HIV policy does not mention ATS use. • Interventions for ATS users include treatment/rehabilitation; some primary prevention in schools. • More work needed on standard treatment guidelines for ATS users, understanding social impact of ATS use, sexual risk and if injecting of ATS is taking place.
Cambodia 1	<ul style="list-style-type: none"> • No prevalence data for ATS users. • ATS users include young people and young adults, and are mainly Cambodians. • Some use for more strength, to do work and stay awake. • HIV programs are based on opioid users – methadone maintenance treatment and needle and syringe programs. • ATS use not mentioned in HIV policy, as there is a belief ATS is not injected so no HIV risk; risky sexual behaviour as a result of taking ATS not recognised by policy makers. • Interventions are limited to treatment/rehabilitation facilities, and a little primary prevention. Most treatment is in centres but there is a trial of community-based treatment underway. • Very limited research with ATS users in Cambodia, old study from 2004 looked at HIV risk behaviour. • Research required on social/economic harms of ATS use, HIV and other health harms.

Key informant	Key comments
Malaysia 1	<ul style="list-style-type: none"> • Prevalence estimates are from 2009. • Young adults are using ATS: 19–40 year olds, mainly for recreation, limited reports of functional drug use. • Majority of ATS is smoked not injected; significant polydrug use. • Harms related to sexual risk are not known, but studies are planned. • HIV strategy may have some mention of ATS use and national harm reduction policies acknowledge ATS use. • ATS use is considered a major problem and is on the political radar. • Interventions with ATS users are limited; there are rehabilitation centres, but these are mainly focused on heroin users. • Research ideas include: treatment options for ATS users; genetic markers for dependency; and prevalence of injecting.
Macau 1	<ul style="list-style-type: none"> • Macau has a central registry of drug users and it indicates that ATS use is on the decline in the general population, but increasing in women. • Most people who use ATS are young children, except in certain professions like croupiers and sex workers. • Rates of use of ketamine are also high. There is evidence of people switching between ketamine and ice use, but not heroin and other drugs. • There are limited national strategies for drug use and HIV. • Limited interventions for ATS users: one organisation delivers outreach but has limited coverage; focus on overdose recovery, not much on harm reduction. • There are some prevention programs in schools. • Very limited treatment options are available for drug users. • Drug laws require review.

Key informant	Key comments
Macau 2	<ul style="list-style-type: none"> • Official reports exist on ATS use, the Central Registry; these show ATS use in small but increasing. • There are 6 cases of heroin users switching to ATS as a substitution for heroin. • Data also show 13 cases of young people sniffing ATS. • Of 174 registered drug users below 21 years old, 32% used ATS, 53% used ketamine. • Interventions for drug users consist of two outreach services, one focused on heroin users and the other on young or new drug users. These services disseminate information on HIV transmission and prevention. • No research is undertaken with ATS users, other than by the Central Registry. • Research ideas include: risky behaviour; reasons for using ATS; and the basic situation of ATS users.
Viet Nam 1	<ul style="list-style-type: none"> • No prevalence data on ATS use. • No reports of ATS injecting. • Used by young people, also using ketamine, in nightclubs, dancing, pleasure seeking. • No real functional use noted – not used by truck drivers or factory workers. • Use noted in men who have sex with men – study underway by Family Health International (FHI), results not yet available. • HIV policy focuses on opioid users. • Most injectors are using opioids, but informant suspects that the rates of injecting of other drugs are increasing but there are no data. • No services in place for ATS users, services for people who use drugs are focused on opioid users. • Compulsory drug treatment centres are mainly for heroin users. • Research needs: prevalence of ATS use; relationship between HIV and ATS use; ATS use in groups other than men who have sex with men; and other harms.

10. Summary and recommendations

The available evidence and analysis were triaged with input from key informants and with contributions from the Delphi Panel process to reach conclusions specific to the Southeast Asia region.

ATS use is stable in some countries, and increasing in others, yet there are substantial gaps in our understanding of use in many countries. The injection of ATS as a substitute for heroin has been reported across several countries (Lao PDR, China, Myanmar and Thailand) and there are groups of PWID who also report ATS as their primary drug of choice. However, the lack of quality data prohibits accurate estimations of the numbers of such consumers. ATS are injected, and therefore represent an emerging issue for the transmission of HIV and other BBV.

The connection with sexual activity and the associated risks provides a vector for further transmission. Sexual transmission of HIV is a concern for all drug consumers, but is of greater concern for ATS users due to the effects of the drug. There is a need to develop, promote and advocate for appropriate prevention strategies to avert the spread of infection and other harmful consequences.

Although many harm reduction strategies employed by services are not drug-specific, there are indications that ATS users may experience a more tenuous link with such services. Furthermore, there are more limited treatment options, particularly pharmacotherapies. ATS users, like users of other drugs, have limited access to services, due to the low coverage of harm reduction activities in Southeast Asia.

Despite the lack of consistent quality epidemiological data, the use of ATS was consistently raised by key informants and Delphi Panel members as a major public health issue in the region, particularly in Lao PDR, Myanmar, China, Thailand, the Philippines and Cambodia. Stated concerns include:

- the effects of ATS on young people (inhibiting schooling and employment opportunities)
- lack of effective treatment options available for people who use ATS across the region
- social and health harms related to high levels of interaction of drug users with the criminal justice system and risks associated with compulsory treatment in countries where this is employed
- health harms not associated with HIV, such as traffic accidents and mental health issues, and
- the effects high rates of use have on communities, including lowered productivity and disharmony.

The limited number of studies investigating risk behaviour in people who use ATS suggested high risk and low health service utilisation. ATS users are exposed to multiple HIV risks across the region, with risks being particularly high in association with some behaviours such as polydrug use, injecting drug use, and among groups such as FSW, MSM and young people.

The impact of other risk factors (e.g. poverty and mobility) remains unclear. Complicating matters are the varying patterns of drug use and associated harms across the region. These have relevance for the tailoring of interventions to local need. Country-specific data are required to inform responses.

A key objective of this review was to identify research needs. We note the following recommendations in regards to research:

1. Invest in rapid assessment and response strategies to ATS, which can be employed with limited resources, to provide an early warning system in the region.
2. Enhance capacity to enable more precise prevalence estimates of ATS use, including information on specific substances being used (e.g. amphetamine or methamphetamine), route of administration and associated risks and harms.
3. Assess the prevalence of HIV in people who use ATS, in comparison with people who use opioids and people who use both drugs.
4. Examine cross-country consistency of associations between ATS and sexual risks.
5. Examine other ATS harms that have implications for preventing and responding to BBV risk (e.g. cognitive impairment, mental health problems).
6. Enhance capacity to identify the contexts of use, particularly the demographic and environmental factors that contribute to ATS risks, with a focus on identifying social and other determinants.
7. Build on existing evidence that some groups of users and contexts of use are riskier than others. Clearer identification of these factors and specific at-risk groups is indicated at a country level.
8. Identify any barriers for ATS users to access existing harm reduction and treatment services, and trial and evaluate responses to these challenges.
9. Identify emerging, efficacious ATS interventions, especially pharmacotherapies, that may be useful in the Southeast Asia region, and assess effective strategies to disseminate and implement evidence-based approaches.
10. Examine the impact of policy and policy implementation (including legislation) on prevalence of ATS use and associated risk behaviours.

It is suggested that these recommendations inform the commencement of a regional research plan to be negotiated with key stakeholders, noting both country-specific themes and topics for regional collaboration. This research could be facilitated by a forum to allow for sharing of information across the region and in particular across adjoining borders. These initiatives could be coordinated with existing monitoring systems such as Global SMART Program.

More broadly, key informant and Delphi Panel participants also recommended the following:

11. Given the varying patterns of use of ATS and associated harms across the Southeast Asia region, there is an urgent need to tailor interventions to local context; however, country-specific data are required to inform interventions.
12. Invest in HIV prevention strategies that enhance access for ATS users.
13. Adapt existing harm reduction services, such as drop-in centres and needle and syringe programs, where indicated, to better meet the needs of ATS users. As noted above, there is a need to identify their accessibility and effectiveness specifically related to primary ATS users.
14. Incorporate ATS harm reduction messaging into existing sexual health activities and other programs with key affected populations.
15. Develop standard treatment guidelines for ATS dependence that are reflective of the international literature and existing guidelines, and are adapted to local need.
16. Undertake a review of literature pertaining to cocaine use and HIV transmission, as the risks associated with cocaine as a stimulant drug may have synergies with ATS.

In summary, the data and published literature regarding the prevalence of the use of ATS, routes of administration, characteristics or risk profiles of people who use ATS in Southeast Asia and associated harms remain scant. However, a lack of information is not an invitation to do nothing. Existing literature does indicate that prevalence of ATS use in some Southeast Asian countries is relatively high, stable in some, and increasing in others. Some users are injecting ATS, with the attendant BBV risks. Demographic and contextual factors may interact with ATS use to either increase or decrease BBV risk relative to other drug injecting behaviour. There is some evidence that ATS users have an increased risk of BBV from associated sexual risk taking. There is evidence that there are limited demand and harm reduction strategies available in most countries in the region, and there are reasons to be concerned that ATS users are not connected to services where they do exist. The extent to which this evidence is capable of generalisation to all Southeast Asian countries is unclear. The available evidence and expert opinion lead to a conclusion that there is a need to enhance HIV prevention and other responses to ATS use throughout Southeast Asia.

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Appendix 1: Search strategy

This study comprised a desk-based literature review of peer-reviewed and grey literature.

Searches of the electronic databases of Medline (via the OVID platform) and PubMed were conducted. Details of these searches are given below.

Medline search strategy

The following keywords and ‘MeSH’ terms (in bold> were used in the searches of the literature for each region:

Injecting drug use

PWID OR PWIDs OR “injecting drug” OR “intravenous drug” OR “intravenous substance” OR “injecting substance” OR **substance abuse, intravenous/**

Drugs and drug use

heroin OR cocaine OR amphetamine\$ OR methamphetamine\$ OR opioid\$ OR opium OR opiate OR drug abuse OR drug use\$ OR drug misuse OR drug dependen\$ OR substance abuse OR substance use\$ OR substance misuse OR substance dependen\$ OR addict\$ OR exp designer drugs/ OR exp street drugs/ OR exp Cocaine/ OR exp crack cocaine/ OR exp amphetamines/ OR exp amphetamine/ OR exp methamphetamine/ OR exp Opium/ or exp Heroin/ OR exp substance-related disorders/ OR exp amphetamine-related disorders/ OR exp cocaine-related disorders/ OR exp opioid-related disorders/ OR exp heroin dependence/ OR exp morphine dependence/ OR exp psychoses, substance-induced/

HIV/AIDS

OR HIV or AIDS OR HIV/AIDS OR “Human Immunodeficiency Virus” OR “Human Immune Deficiency Virus” OR “Acquired Immunodeficiency Syndrome” OR “Acquired Immune Deficiency Syndrome” OR exp HIV/ OR exp HIV-1/ OR exp HIV-2/ OR exp HIV infections/ OR exp acquired immunodeficiency syndrome/ OR HIV seropositivity/ OR exp HIV seroprevalence/ OR exp AIDS serodiagnosis/

Amphetamine-type stimulants

ATS OR “amphetamine type stimulant\$” OR amphetamine\$ OR methamphetamine OR deoxyephedrine OR desoxyephedrine OR Desoxyn OR madrine OR metamfetamine OR methamphetamine hydrochloride OR methylamphetamine OR n-methylamphetamine OR d-amphetamine OR dextroamphetamine sulphate OR dexamphetamine OR dexedrine OR dextro-amphetamine sulphate OR dextroamphetamine sulphate OR d-amphetamine sulphate OR stimulant\$ OR exp amphetamines/ OR exp amphetamine/ OR exp dextroamphetamine/ OR exp p-chloroamphetamine/ OR exp 2,5-dimethoxy-4-methylamphetamine/ OR exp p-hydroxyamphetamine/ OR exp iofetamine/ OR exp methamphetamine/ OR exp benzphetamine/ OR exp phentermine/ OR exp chlorphentermine/ OR exp mephentermine/ OR exp amphetamine-related disorders/

PubMed search strategy

The following keywords and 'MeSH' terms (in bold) were used in the searches of the literature for each region:

Injecting drug use

PWID OR PWIDs OR "injecting drug" OR "intravenous drug" OR "intravenous substance" OR "substance abuse, intravenous" OR "**substance abuse, intravenous**" [MH]

Drug use

"Drug abuse" OR "drug use" OR "drug user" OR "drug users" OR "drug misuse" OR "drug dependence" OR "drug dependency" OR "drug dependent" OR "substance abuse" OR "substance use" OR "substance user" OR "substance users" OR "substance misuse" OR "substance dependence" OR "substance dependency" OR "substance dependent" OR addict OR addicts OR addiction OR "substance-related disorders" OR "amphetamine-related disorders" OR "cocaine-related disorders" OR "opioid-related disorders" OR "heroin dependence" OR "morphine dependence" OR "**substance-related disorders**" [MH] OR "**amphetamine-related disorders**" [MH] OR "**cocaine-related disorders**" [MH] OR "**opioid-related disorders**" [MH] OR "**heroin dependence**" [MH] OR "**morphine dependence**" [MH]

HIV/AIDS

HIV OR AIDS OR AIDS [sb] OR "HIV/AIDS" OR "Human Immunodeficiency Virus" OR "Acquired Immunodeficiency Syndrome" OR "HIV-1" OR "HIV-2" OR "HIV seropositivity" OR "HIV seroprevalence" OR "AIDS serodiagnosis" OR "HIV-1" [MH] OR "HIV-2" [MH] OR "HIV seropositivity" [MH] OR "HIV seroprevalence" [MH] OR "AIDS serodiagnosis" [MH]

Amphetamine-type stimulants

ATS OR "amphetamine type stimulants" OR amphetamine OR amphetamine OR methamphetamine OR deoxyephedrine OR desoxyephedrine OR Desoxyn OR metamfetamine OR "methamphetamine hydrochloride" OR methylamphetamine OR "n-methylamphetamine" OR "d-amphetamine" OR "dextroamphetamine sulphate" OR dexamphetamine OR dexedrine OR "dextroamphetamine sulphate" OR "d-amphetamine sulphate" OR stimulant OR stimulants OR "P-chloroamphetamine" OR "2,5-dimethoxy-4-methylamphetamine" OR "P-hydroxyamphetamine" OR iofetamine OR methamphetamine OR benzphetamine OR phentermine OR chlorphentermine OR mephentermine OR "amphetamine-related disorders" OR "**P-chloroamphetamine**" [MH] OR "**2,5-dimethoxy-4-methylamphetamine**" [MH] OR "**P-hydroxyamphetamine**" [MH] OR iofetamine [MH] OR methamphetamine [MH] OR benzphetamine [MH] OR phentermine [MH] OR chlorphentermine [MH] OR mephentermine [MH] OR "amphetamine-related disorders" [MH]

Appendix 2:

Country summaries

The information presented in the following country summaries is drawn from a number of sources, each of which is described below.

- Member states who adopted the 2001 Declaration of Commitment on HIV/AIDS committed themselves to submit Country Progress reports to the UNAIDS Secretariat every two years. These reports (*UNGASS Country Reports*) contain information on HIV/AIDS prevention including harm reduction for PWID, sex workers and MSM. Brunei Darussalam and Myanmar did not submit reports to the Global AIDS Report. For these countries the information presented was sourced from the UNODC Global SMART Program report (United Nations Office on Drugs and Crime, 2010b).
- The Global SMART Program report *Patterns and Trends of Amphetamine-Type Stimulants and Other Drugs: Asia and the Pacific*. The information contained in this report is based on that submitted by the drug control agencies and institutions in Southeast Asian countries of interest (United Nations Office on Drugs and Crime, 2010b).
- The Reference Group to the United Nations on HIV and Injecting Drug Use produced a Consensus Statement in 2010 which identified key issues and recommendations for action on the global response to PWID and HIV among people who inject drugs (Reference Group to the United Nations on HIV and Injecting Drug Use, 2010). The Consensus Statement is based on the findings from research activities conducted by the steering group. The issues of interest to this report include:
 - evidenced-based interventions for the prevention, treatment and care of HIV among PWID
 - policy, legislation and law enforcement impacting upon HIV risk and response to HIV among people who inject drugs
 - strengthening the data, and
 - regional situational analysis and recommendations for action.

Where possible, information contained in these has been cross-referenced with the *Situational Analysis of Illicit Drug Issues and Responses in the Asia-Pacific Region* report compiled by researchers from the Burnet Institute and Turning Point Alcohol and Drug Centre (Devaney, Reid & Baldwin, 2006).

Brunei Darussalam

Brunei is a sovereign state with an estimated population of 400 000 (Devaney, Reid & Baldwin, 2006). It is located on the north coast of the island of Borneo and is surrounded by the state of Sarawak, Malaysia. The capital, Bandar Seri Begawan, has an estimated population of 140 000.

Amphetamine-type stimulant use

The drug of most use in Brunei Darussalam is, and has been since 2003, crystal ATS which is commonly smoked. There has been a downward trend in crystal ATS use since 2005, although in 2008 use was estimated to be stable. There are no reports of the use of ATS pills nor were there any reports of manufacturing or the dismantling of clandestine factories. The source of crystal ATS in Brunei Darussalam is thought to be the Philippines from where it is shipped to Malaysia then trafficked into Brunei (United Nations Office on Drugs and Crime, 2010b).

The most recent assessment of ATS use in Brunei Darussalam was conducted in 2000 and estimated a population prevalence of 0.06 per cent.

No estimates of ATS use among MSM or sex workers were available.

Injecting drug use

There were no reports of injecting ATS use and no estimates of the number of people who inject drugs in Brunei Darussalam (United Nations Office on Drugs and Crime, 2010b).

Drug-related arrests

There were 556 drug-related arrests in 2009, 75 per cent of which were for ATS and half of which involved non-national persons. The vast majority of all those arrested were male (85%) (United Nations Office on Drugs and Crime, 2010b).

Drug seizures

Less than half a kilogram of crystal methamphetamine was seized during 2009 (0.32 kg). No ATS pills or powdered amphetamine seizures were reported (United Nations Office on Drugs and Crime, 2010b).

Drug treatment

Treatment for drug dependency in Brunei Darussalam can be sought from general health clinics and counselling is available from psychiatric institutions and non-government organisations (Devaney, Reid & Baldwin, 2006). In 2008 the Narcotics Control Bureau took over the management of the one officially sanctioned drug treatment facility. Prior to the take-over the facility took a punitive approach to treatment. No information about how the facility is currently run was available. There were 102 drug treatment admissions during 2009, all but one for crystal methamphetamine use (one for inhalants) (United Nations Office on Drugs and Crime, 2010b).

HIV in the community and among injecting drug users

Eleven new cases of HIV were diagnosed in Brunei Darussalam in 2009. This was reported to bring the cumulative total of HIV cases to 56 (between 1986 to 2009) (UNAIDS, 2010b). This conflicts with information previously reported by the World Health Organization, which noted a cumulative total of 609 HIV cases, only one of which was reported to be the result of PWID. Reports also point to discrepancies in HIV and PWID data, noting previous HIV estimates from 2003 which indicated 3.8 per cent of HIV notifications were linked to PWID (Devaney, Reid & Baldwin, 2006).

HIV testing

Reports on HIV testing included 100 per cent of pregnant women and 100 per cent of blood donors. No figures for testing among high-risk groups (sex workers, MSM, PWID) were reported (UNAIDS, 2010b).

HIV treatment

The World AIDS Report (UNAIDS, 2010a) indicated 15 individuals received ART to June 2010.

Harm reduction

There are no harm reduction services (NSP, OST) available in Brunei (Mathers et al., 2010).

Cambodia

Cambodia, officially known as the Kingdom of Cambodia, is a monarchy with a parliamentary system. It borders Thailand to the west and north-west, Lao PDR to the north-east and Viet Nam to the south-west. It has a population of almost 15 million with more than 2 million residing in the capital, Phnom Penh. Cambodia is a signatory to the Integrated Drug Abuse Drug Information Network (IDADIN).⁵

Amphetamine-type stimulant use

The drugs of most concern in Cambodia in 2009 were crystal methamphetamine and ATS pills. Between 2003 and 2006 the trend was towards increasing use of crystal methamphetamine (2007 to 2009 trend was not reported) (United Nations Office on Drugs and Crime, 2010b). The United Nations Office on Drugs and Crime (2010b) reported approximately 6800 drug users but noted that in the absence of national surveys this is likely to be an under-estimate. In 2004, an expert consensus group estimated there to be 20 000 ATS users (Cambodia National AIDS Authority, 2008). It appears drug use largely affects young people with 60 per cent of drug users aged 18–25 years and 17 per cent aged 10–17 years. A survey of street children found almost half had used an illicit drug in their lifetime and use of ATS pills had increased among this population from 12 per cent in 2000 to 87 per cent in 2007 (United Nations Office on Drugs and Crime, 2010b).

The source of crystal methamphetamine in Cambodia was predominantly Thailand but since 2003 drugs have trafficked through Lao, in particular from the Mekong Delta (United Nations Office on Drugs and Crime, 2010b). The original source of ATS is Myanmar and reports have been received that quantities of ATS from this source are being re-tableted in Cambodia for the domestic street market. There is also evidence that a substantial proportion of the drugs trafficked into Cambodia are actually destined for markets other than domestic.

Injecting drug use

There are no official recent national size estimates of PWID in Cambodia. The most recent figures for PWID in Cambodia are from 2004 and suggest there are between 1000 and 7500 PWID in Cambodia⁶ (Mathers et al., 2008). However, non-government organisations in Cambodia reported referring almost 1500 persons to government-managed counselling and testing services and, of these, half (788) were reported to be people who inject drugs (United Nations Office on Drugs and Crime, 2010b).

⁵ The Integrated Drug Abuse Drug Information Network is a UNODC F-97 regional project, 'Improving ATS Data and Information Systems', which aims to establish an infrastructure for better understanding of the patterns of ATS use and for exchanging data pertinent to ATS abuse prevention and control.

⁶ Based on a population prevalence (15–64 years) of PWID in the range of 0.01–0.09 per cent.

Drug-related arrests

Between 2007 and 2008, the number of arrests for crystal methamphetamine increased from 41 to 139 (a 57% increase), while arrests for ATS pills also increased from 199 to 232 (United Nations Office on Drugs and Crime, 2010b). Furthermore, the majority of arrests related to illicit substances were for ATS pills (61%) and crystal methamphetamine (37%). There were 615 drug-related arrests in Cambodia in 2009, but figures were not separated by drug type (United Nations Office on Drugs and Crime, 2010b).

Drug seizures

ATS pill seizures increased 18 per cent between 2008 (116 772 pills) and 2009 (137 249 pills) and crystal methamphetamine seizures more than doubled from 1.9kg to 4.6kg (United Nations Office on Drugs and Crime, 2010b). However, these figures are significantly lower than those reported for the 2006 period (ATS pills 428 553 and crystal methamphetamine 16.2kg). There have also been recent increases in the manufacture of ATS in Cambodia, with five manufacturing sites being dismantled in 2009 and significant seizures of precursor materials reported (United Nations Office on Drugs and Crime, 2010b).

Drug treatment

In 2008 there were 14 compulsory drug treatment centres in Cambodia, the majority run by the military or civilian police. In the same year 2382 people were detained in these centres, the majority young males aged 19–25 years (United Nations Office on Drugs and Crime, 2010b). Detention for the use of crystal methamphetamine and ATS pills dominated. A relapse rate following discharge from these centres has been estimated to be up to 100 per cent (World Health Organization, 2009).

Drug prevention activities

Primary drug prevention occurs in schools and in the community but is reportedly limited.

HIV in the community and among high-risk groups

Between 2003 and 2006 HIV population prevalence among adults aged 15–49 years decreased from 1.2 per cent to an estimated 0.9 per cent (68 000 cases; 51% female) (UNAIDS, 2010a).

In 2006 an estimated 22.8 per cent of PWID in Cambodia were positive for HIV (Mathers et al., 2008). The first-ever survey of drug users in Cambodia (n=528) found 24.4 per cent of injectors were HIV-positive compared to 1 per cent of non-injectors (Cambodia National AIDS Authority, 2010). This report did not discriminate between drug types and, since heroin injecting also occurs in Cambodia, the risk associated with ATS is unknown. HIV prevalence among PWID referred to government-managed counselling in 2007 was 35 per cent, a significant increase from the 14 per cent found in the same population in 2006 (United Nations Office on Drugs and Crime, 2010b).

Prevalence of HIV among female sex workers varies between provinces and is reported to be between 20 and 30 per cent. Among men who have sex with men in Phnom Penh, HIV was 8.7 per cent while in two rural towns it was 2 per cent. Prevalence was highest among transgender groups (17%) (Cambodia National AIDS Authority, 2010).

HIV prevention among high-risk groups

In 2007, 93 per cent of brothel-based and 90 per cent of non-brothel-based sex workers reported they had received prevention education. In the same year 68 per cent of brothel-based and 51 per cent of non-brothel-based sex workers reportedly had been tested for HIV and knew their results (Cambodia National AIDS Authority, 2010). There are no previous measures of this variable with which to compare these figures. A behavioural survey conducted among MSM reported that 96 per cent of MSM had received HIV prevention information in the six months prior to interview (Cambodia National AIDS Authority, 2010). While a survey among PWID in treatment found that 99 per cent of PWID knew where to access clean needles and syringes, more than 30 per cent reported sharing needles the last time they injected. The remainder reported using 'clean' needles but this included sterile units and needles and syringes that had been cleaned prior to re-use (Cambodia National AIDS Authority, 2010).

In recent guidelines for the prevention and treatment of HIV and other sexually transmitted infections among MSM and transgender people, the influence of the use of ATS on sexual behaviour was noted (World Health Organization, 2011).

HIV and anti-retroviral treatment (ART)

There was an increase in facilities providing ART therapy from 16 in 2005 to 20 in 2007. A total of 37 315 people were receiving ART in 2009 (World Health Organization, 2010b), three times the figure recorded in 2005 (12 247) (UNAIDS, 2010a). No figures on ART availability for PWID were available, although ART is linked to OST clinics and available in some prisons (Mesquita et al., 2008).

Harm reduction

More than a quarter of a million needles and syringes were distributed through two sites in Phnom Penh in 2007 (Hagarty, 2010). In 2009, NGOs distributed 92 000 sterile needles and syringes. The first OST program in Cambodia commenced in 2010.

China

The People's Republic of China, a communist state, is the most populous country in the world with a population of 1.34 billion in 2008. The capital, Beijing, has a population of more than 17 million. China is a signatory to the IDADIN.

Amphetamine-type stimulant use

Heroin remains the primary drug of concern in China but amphetamine-type stimulants, both pills and crystal, have recently taken over from opium as the second most frequently used drug in China (United Nations Office on Drugs and Crime, 2010b). Furthermore there has been an annual increase in recorded use of crystal and pills between 2003 and 2007. In 2009 there were more than 1.3 million registered drug users, of which an estimated 27 per cent were ATS users (United Nations Office on Drugs and Crime, 2010b). More than 97 000 of these were newly registered in 2009 (China National Narcotics Control Commission, 2010). The Chinese Government recognises that this number is likely to be an under-estimate of the number of drug users in the country. Other estimates put the number of drug users as high as 6–8 million (Devaney, Reid & Baldwin, 2006). Crystal methamphetamine is commonly inhaled or smoked (United Nations Office on Drugs and Crime, 2010b).

Injecting drug use

The number of injecting drug users in China is estimated to be 2.3 million (mid-range estimate), although other estimates are somewhat higher at 2.35 million current PWID (Mathers et al., 2008). The injection of ATS is known to occur but remains difficult to assess. In 2006 the National Surveillance Centre on Drug Abuse suggested 11 per cent of ATS users were injecting (United Nations Office on Drugs and Crime, 2010b).

Manufacture and trafficking of amphetamine-type stimulants

Following law enforcement initiatives implemented in 2009 significant seizures of precursor chemicals and precursor manufacturing centres have occurred. More than 40 metric tonnes of ephedrine-containing compounds and more than 400kg of ephedrine were seized across 21 provinces (United Nations Office on Drugs and Crime, 2010b).

Crystal methamphetamine used in China is primarily manufactured domestically. However, an increasing number of ATS pills are being brought into China from Myanmar. The pills are thought to enter China by land into Yunnan province (United Nations Office on Drugs and Crime, 2010b).

Drug seizures

More than 40 million ATS pills were seized during 2009, more than six times the number seized in the previous year. Seizures of crystal methamphetamine remained stable between 2005 and 2008 but fell by 50 per cent between 2008 and 2009 (5523kg in 2008 and 2518kg in 2009) (United Nations Office on Drugs and Crime, 2010b).

Drug-related arrests

China does not disaggregate drug arrests by the type of drug for which an arrest occurred. Overall, more than 90 000 drug-related arrests were made during 2009, an increase of 20 per cent on the previous year (United Nations Office on Drugs and Crime, 2010b).

Drug treatment

During 2009, 47 000 drug users entered community drug treatment centres and 173 000 were detained in compulsory drug detoxification centres. However, a classification of drug user by drug type was not reported (United Nations Office on Drugs and Crime, 2010b). China has more than 700 compulsory rehabilitation centres and 300 re-education through labour camps and, in 2006, 300 000 drug users were being held across 746 compulsory drug treatment centres (World Health Organization, 2010b).

HIV in the community and among injecting drug users

Population prevalence of HIV in China is in the region of 0.06 per cent and in 2009 there were an estimated 740 000 cumulative cases of HIV and 48 000 new diagnoses of HIV (Wang et al., 2010). According to sentinel surveillance data, an estimated 9.3 per cent of PWID were infected with HIV (China Ministry of Health, 2010). However, in some Chinese provinces the prevalence is reportedly more than 50 per cent (Yunnan, Xinjiang, Sichuan, Guangxi, Guizhou and Guangdong). This report further suggests that HIV among PWID, sex workers, STI clients and pregnant women is stabilising while that among MSM is rising. In large and medium cities the prevalence among MSM is in the region of 5 per cent while, in main cities in the south-west of China, prevalence among MSM is 10 per cent or more. This study estimates 15 per cent of HIV cases are the result of homosexual sexual contact (Wang et al., 2010). Overall the majority (59%) of HIV infections are reported to be sexually transmitted, 44 per cent heterosexual and 15 per cent homosexual (Wang et al., 2010).

HIV testing

The 2009 National HIV Sentinel Surveillance indicated that 36 per cent of sex workers, 45 per cent of MSM, and 37 per cent of PWID surveyed had participated in HIV testing and reportedly knew the results (China Ministry of Health, 2010).

HIV and anti-retroviral treatment

Anti-retroviral treatment is available free in China. No figures on ART availability for PWID were available, although ART is linked to OST clinics and available in some prisons (Mesquita et al., 2008).

Harm reduction

According to the *Harm Reduction in Asia* report in 2009, needles and syringes are available from 775 sites across 17 provinces. This report puts the average number of needles distributed per PWID per year at 110 in contrast to 2008 data from the Consensus Statement, which put the number at 32 (<1–84) with only 2 per cent of PWID accessing NSP services (Hagarty, 2010).

Methadone maintenance treatment programs were first piloted in China in 2004. By 2009, the program had been expanded to more than 680 clinics serving 242 000 heroin users. This program has recently been revised to also include HIV, syphilis and hepatitis C testing and information, psychosocial support and referrals for treatment of HIV and other STIs and tuberculosis (Yin et al., 2010).

HIV prevention education

Sentinel Surveillance surveys in China report that 75 per cent of sex workers, 75 per cent of MSM, and 38 per cent of PWID indicated they had received HIV prevention education during 2009. In addition, major awareness campaigns targeting the general population have been implemented across China (UNAIDS, 2010a).

Hong Kong

Hong Kong is one of two Special Administrative Regions attached to China. With a population of 7.06 million, it is a non-sovereign partial democracy with an unelected executive.

Amphetamine-type stimulant use

In the first three months of 2009, there were close to 12 000 registered drug users in Hong Kong, 1050 of whom were crystal methamphetamine users (United Nations Office on Drugs and Crime, 2010b). This represents 10–15 per cent of all registered drug users. Of users of crystal methamphetamine, 8–9 per cent of all users and 10–15 per cent of registered users reported being under the age of 21 years (Global SMART Program, 2010). The United Nations Office on Drugs and Crime suggests that a lack of nationally representative figures on crystal methamphetamine use in Hong Kong and China remains a major challenge (United Nations Office on Drugs and Crime, 2010b).

Injecting drug use

There was no available information on the rates or numbers of drug users reporting the injection of methamphetamine in either the UNODC Global SMART Program report (2010) or the *Harm Reduction in Asia* report (Hagarty, 2010).

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Manufacture and trafficking

Two small crystal methamphetamine laboratories were dismantled in Hong Kong in 2009 (United Nations Office on Drugs and Crime, 2010b) and manufacturing of ATS in Hong Kong predominantly involves the tableting and re-packing of meth/amphetamine.

Drug seizures

While there were no seizures of ATS pills in Hong Kong during 2009 and 2008, 43.7kg of crystal methamphetamine were seized during 2009, amounts similar to those seized during 2007 and 2008 (United Nations Office on Drugs and Crime, 2010b).

Drug-related arrests

Arrests related to ATS in Hong Kong have doubled since 2004, from 390 to 788 in 2009. The highest number of arrests occurred in 2008 (874) (United Nations Office on Drugs and Crime, 2010b).

Drug treatment

No information about drug treatment offered to those using ATS was available from UNODC (United Nations Office on Drugs and Crime, 2010b). Compulsory treatment applies only to those in the prison system; there are voluntary drug treatment clinics located in six hospital sites. There are a further four residential treatment centres, a variety of halfway houses and more than 15 NGO facilities (Devaney, Reid & Baldwin, 2006).

HIV in the community and among high-risk groups

There were 396 new cases of HIV reported in Hong Kong during 2009 and the country has an overall prevalence of 0.1 per cent (Devaney, Reid & Baldwin, 2006). Overall, an estimated 9 per cent of HIV occurs among PWID, an increase of 300 per cent since 1998.

HIV testing

In 2005 more than 90 per cent of PWID received testing and knew the results (UNAIDS, 2010a).

HIV anti-retroviral treatment

No information was available concerning PWID access to HIV ART.

Prevention education

In 2004, 99 per cent of PWID reportedly had comprehensive knowledge of HIV and, in 2005, 93 per cent were thought to have been reached with prevention education (UNAIDS, 2010a). There were no data measuring HIV risk behaviours of PWID.

HIV prevention education in schools and the community is based on anti-drug messages.

Harm reduction

Harm reduction in Hong Kong is limited and there are no official NSPs. However, the possession of needles and syringes is not unlawful.

Macau

Macau is one of two special administrative regions of China, the other being Hong Kong. Macau has a population of 430 000.

Amphetamine-type stimulant use

The level of ATS use in Macau is unknown, although ice and ATS are reportedly used (Devaney, Reid & Baldwin, 2006).

Manufacture, trafficking and seizures

No reports of ATS manufacturing were found. Drugs are thought to be trafficked into Macau from mainland China and Hong Kong with limited amounts from other Southeast Asian countries (Devaney, Reid & Baldwin, 2006).

Injecting drug use

Injecting is the major route of administration for heroin, although there are few reports of the injection of ATS. Data from the Drug Complex Treatment Centre indicated some heroin users had switched to ATS in the past year (n=6) (Macau 2).

Drug-related arrests

No information reported.

Drug treatment

There is no compulsory drug treatment in Macau. The primary detoxification unit managed by the government is geared towards heroin users. No details of treatment offered for ATS could be located. Methadone is available through government services (Macau 1).

HIV in the community and among injecting drug users

Latest figures are from 2004, which showed that approximately 18 cases of HIV among PWID were identified. These cases represented 60 per cent of all cases of HIV in Macau (UNAIDS, 2010a).

HIV testing

No information available.

HIV anti-retroviral treatment

No information available.

Prevention education

While HIV prevention education exists in Macau, no details about the scope or type of activities were found.

Harm reduction

There are currently two NSPs operating in Macau, run by NGOs with government funding. In 2010, the NSPs distributed 69 000 needles and syringes and had 258 regular registered users (Macau 1).

Outreach and NSPs act as referral points to government-run methadone programs (Macau 1).

Indonesia

Indonesia comprises more than 17 000 islands and has a population in the vicinity of 240 million people. It is a republic with an elected legislature and president. Indonesia is a signatory to the IDADIN.

Amphetamine-type stimulant use

In Indonesia cannabis has been the drug of most concern since 2004. Crystal methamphetamine was ranked fourth overall in 2004 and 2006, and fifth in 2005. However, in 2008 and 2009 crystal methamphetamine was ranked second. The trend in usage figures echo these, with ATS use reported to have increased in both 2008 and 2009 (only).

While smoking is the predominant mode of administration for crystal meth/amphetamine, injecting is reported as the second most common method (United Nations Office on Drugs and Crime, 2010b).

A national survey of drug use in Indonesia indicated that 2 per cent of the population aged 10–59 years had used an illicit drug in the previous year, and 6.8 per cent of those aged 11–19 years reported lifetime drug use, with 4.4 per cent reporting drug use in the last year. This suggests that drug use among young people is increasing (United Nations Office on Drugs and Crime, 2010b). The most commonly used drugs in this study group of students were cannabis, ecstasy and ATS (United Nations Office on Drugs and Crime, 2010b).

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Injecting drug use

There were an estimated 126 429 people who inject drugs in Indonesia in 2008, a number considerably lower than previous estimates (Indonesian National AIDS Commission, 2010). The proportion of PWID who inject crystal methamphetamine as opposed to heroin is unknown. However, the HIV epidemic in Indonesia is considered to be driven by unsafe injecting practices.

Manufacture and trafficking

More than 35 manufacturing laboratories were dismantled in Indonesia during 2009. These included 25 large-scale operations and 12 smaller laboratories (United Nations Office on Drugs and Crime, 2010b). The National Narcotics Board suggests that ATS producers may be moving towards smaller operations which are harder to detect (Indonesian National Narcotics Board, 2010)

A large proportion of crystal methamphetamine seized in Indonesia in 2009 was apparently trafficked into the country from Iran and from China (United Nations Office on Drugs and Crime, 2010b). There are concerns however that a suspected increase in domestic production of crystal methamphetamine is changing this pattern.

Indonesia faces special problems in terms of opportunities for the trafficking of ATS in and out of the country due to the geographic characteristics of the country (United Nations Office on Drugs and Crime, 2010b). Indonesia consists of more than 17 000 islands, of which one-third have permanent residents. This equates to almost 150 recognised entry points including international airports (22) and 150 seaports. Most reportedly lack adequate security resources and are thus vulnerable to trafficking.

Criminal groups, often from West Africa, are thought to be involved in the trafficking and sale of ATS, especially in Jakarta (United Nations Office on Drugs and Crime, 2010b).

Drug seizures

Seizures of crystal methamphetamine decreased markedly between 2006 (1241kg) and 2009 (237.8kg) (United Nations Office on Drugs and Crime, 2010b). However, this decrease may be the result of the recorded increase in domestic production with a concomitant decrease in trafficking from other countries.

Drug treatment

Of the 14 852 individuals admitted to treatment in Indonesia in 2009, the vast majority were opiate users (United Nations Office on Drugs and Crime, 2010b). Twelve per cent of treatment admissions were for ATS: 984 for methamphetamine and 332 for amphetamine. While OST is available for opiate users, no details of the treatment given to ATS users were available.

Drug-related arrests

Of the 38 173 drug-related arrests, just under one-third were for crystal methamphetamine (United Nations Office on Drugs and Crime, 2010b). This represents a 29 per cent increase from 2008 figures. The vast majority of those arrested were male and Indonesian nationals.

HIV in the community and among high-risk groups

While the country prevalence of HIV is 0.2 per cent, it is higher among high-risk groups: 20.3 per cent among male sex workers; 7.1 per cent of female sex workers; 5.2 per cent among MSM; 52.2 per cent among male PWID; and 56.1 per cent among female PWID (UNAIDS, 2010a).

These prevalence figures confirm that the major risk factors for HIV transmission are injecting drugs, unprotected paid sex and unprotected sex among MSM. Cross-over risks between PWID and sex workers are acknowledged but, beyond the fact that 25 per cent of paid sex is unprotected, no specific data are available.

No cross-over data examining ATS use among these high-use groups were available.

HIV testing

Data on HIV testing in the general community were not available. However, during 2005, 50 per cent of male sex workers and 25 per cent of female sex workers reported having been tested for HIV and reportedly knew their results (UNAIDS, 2010a). More than one-third (35.7%) of male PWID and 41.5 per cent of female PWID had also been tested and knew their results.

HIV anti-retroviral treatment

Almost a quarter (22.2%) of men with HIV were receiving ART. This figure was higher for females, at 43.8 per cent (UNAIDS, 2010a). No breakdown of those on ART by high-risk group was available. Six per cent of PWID living with HIV are reportedly receiving ART.

Prevention education

Coverage of high-risk groups in terms of prevention programs during 2006 was between 39.6 per cent for sex workers (59.9% for male sex workers, and 34.3% for female sex workers), 40.1 per cent for MSM and 44.7 per cent for PWID (UNAIDS, 2010a).

Condom use among male and female sex workers was greater than two-thirds while, among men practising anal sex, it was lower at 39.3 per cent (UNAIDS, 2010a). Condom use in the last sexual encounter among PWID was also low at 33.9 per cent.

Harm reduction

An estimated 23 per cent of PWID are accessing NSP services and the total number of needle and syringe units distributed in 2007 was 1.17–1.52 million (Hagarty, 2010). However, this represents only three needle and syringe units per PWID per year.

Concerns

Decentralisation of health services, which occurred in Indonesia in 2001, has reduced the government's ability to influence decisions about health priorities. This has resulted in challenges, one being that disease surveillance has become more difficult (Indonesian National AIDS Commission, 2007).

Lao People's Democratic Republic

Lao, officially known as the Lao People's Democratic Republic (Lao PDR), is a communist, single-party state, with a population of 6.6 million. The capital, Vientiane, has a population of 730 000. Lao is a landlocked country bordered by Myanmar and China to the northwest, Viet Nam to the east, Cambodia to the south, and Thailand to the west. Lao PDR is a signatory to the IDADIN.

Amphetamine-type stimulant use

ATS pills are the most commonly used drug in Lao and there are an estimated 35 000–40 000 people dependent on ATS (United Nations Office on Drugs and Crime, 2010b). Although the type of ATS is not specified, it could be assumed that dependence is on ATS pills, as no reports of MDMA or crystal methamphetamine are recorded.

Manufacture, trafficking and seizures

There were no reports of the manufacturing of any type of ATS in Lao (United Nations Office on Drugs and Crime, 2010b). However, more than two million ATS pills were seized in 2009, compared to 1.2 million in 2008 (United Nations Office on Drugs and Crime, 2010b). The majority of ATS pills are thought to originate in nearby Myanmar, although there are reports that Lao is becoming a major transit country for ATS and precursor chemicals, with trafficking of drugs from Myanmar to Thailand (United Nations Office on Drugs and Crime, 2010b).

Injecting drug use

Data on injecting drug use in Lao are limited. One quantitative study of ATS users in the capital Vientiane and the province of Vientiane found minimal rates of injecting among 19–25 year-old current and former users of ATS (0.9% in the capital (n=223), and 1.8% in the province (n=220)) (Phimphachanh et al., 2009). However, there is concern that injecting among those living on the Lao–Viet Nam border is high and accompanied by high rates of HIV (27%) (Laos National Committee for the Control of AIDS, 2010). An estimated 2 per cent of Chinese migrant workers inject drugs. Among female migrant workers, 3.9 per cent used drugs and half reported injecting (United Nations Office on Drugs and Crime, 2010b). Among male migrant workers, 40 per cent are thought to use drugs, of which 3 per cent reported injecting drug use. Injecting is also thought to occur among MSM populations but there were no available data.

Drug-related arrests

Arrests for ATS pills amounted to 81 per cent of total arrests in 2009, a decrease from the 94 per cent reported in 2006 and 2007 (United Nations Office on Drugs and Crime, 2010b). Between 2008 and 2009, arrests for ATS pills in 2009 increased by 60 per cent.

Drug treatment

Compulsory drug treatment centres providing ATS treatments are located in seven provinces of Lao. However, figures were available for only one centre in the capital Vientiane, where 95 per cent of admissions were for ATS users (United Nations Office on Drugs and Crime, 2010b). There are no harm reduction services in treatment centres and no information regarding ATS treatment programs.

HIV in the community and among injecting drug users

The population HIV prevalence in Lao is 0.2 per cent. Among high-risk groups, however, prevalence is considerably higher. Among MSM in the capital Vientiane, HIV prevalence is 5.6 per cent, although other regions report no HIV among this population. Among female sex workers, HIV prevalence is around 1 per cent (UNAIDS, 2010a). There are no data on HIV among PWID.

HIV testing of high-risk groups

There are now 110 specialised testing sites for sex workers and MSM in Lao, and the proportion of MSM reportedly tested for HIV tripled to 22 per cent between 2006 and 2008. However, there are no data on testing among PWID groups since they are not included as a population group in sentinel surveillance activities (Hagarty, 2010).

HIV anti-retroviral treatment

Coverage of ART in Lao is estimated at 100 per cent (Mesquita et al., 2008). However, there are no data available on HIV-positive ATS users receiving HIV ART.

Harm reduction

There are no government-sanctioned needle and syringe programs and no reports of needle and syringe distribution from NGOs (Hagarty, 2010). Limited OST for opiate dependency is available in four provinces in Lao (Hagarty, 2010). Three hospitals provide OST for approximately 64 women and OST is reportedly available in two drug treatment centres (Hagarty, 2010).

Prevention education

HIV prevention is targeted towards marginalised groups, and comprehensive interventions, including peer-led behaviour change, have been delivered to MSM and sex workers (Laos National Committee for the Control of AIDS, 2010). However, there are no prevention programs targeting PWID.

Malaysia

Malaysia is a federal constitutional monarchy consisting of 13 states and three federal territories. It shares borders with Thailand, Indonesia and Brunei Darussalam. The country has a population of 28.1 million, 1.6 million of whom live in the capital, Kuala Lumpur. The population age structure is predominantly young, with more than one-third of Malaysia's population 14 years or under and a median age of 23.8 years.

Amphetamine-type stimulant use

Although heroin and cannabis remain the drugs of most concern in Malaysia, the use of crystal methamphetamine and ATS pills increased by 10 per cent between 2008 and 2009 (United Nations Office on Drugs and Crime, 2010b). The injection of crystal was reported for the first time in Malaysia in 2008 (United Nations Office on Drugs and Crime, 2010b).

Manufacture, trafficking and seizures

Eleven ATS manufacturing operations were dismantled in 2009, one less than the 12 closed down in 2008 (United Nations Office on Drugs and Crime, 2010b). The Global SMART Program reported that a significant quantity of crystal methamphetamine is being produced in Malaysia. This is supported by the seizure of large quantities of precursor chemical. More than 100 000 ATS pills and 1160kg of crystal were seized during 2009. The quantity of crystal methamphetamine seized in 2009 was almost double that in 2008, while the number of pills seized was half that seized in 2008 (United Nations Office on Drugs and Crime, 2010b). The increase in reports of transnational criminal involvement in the manufacture of ATS is of concern.

While the majority of the ATS pills and small quantities of crystal are trafficked into Malaysia from Myanmar, most of the crystal methamphetamine is produced domestically (United Nations Office on Drugs and Crime, 2010b).

Injecting drug use

Estimates of the number of PWID in Malaysia vary between a mean of 205 000 in 2002 to 195 000 in 2006 and 235 000 in 2009 (Hagarty, 2010). The 2009 figure is in contrast to the 170 000 PWID reported in the 2010 Global SMART Program report (United Nations Office on Drugs and Crime, 2010b). The injection of crystal was first reported in 2009 and no estimates of the number of people who inject crystal methamphetamine were available (United Nations Office on Drugs and Crime, 2010b).

Drug-related arrests

Drug-related arrests for amphetamines (type not specified) and ATS declined between 2008 and 2009 (United Nations Office on Drugs and Crime, 2010b). Of all drug-related arrests in 2009, only 8 per cent were for ATS drugs (1131 for crystal and 84 for amphetamine).

Drug treatment

Malaysia's drug laws are among the most stringent in the world and compulsory centres (n=28) were run by the government until 2009. In July 2010, the Government of Malaysia opened the first Cure and Care Clinic. The Cure and Care Clinics are a shift away from institution-based rehabilitation to voluntary open access services for drug users, their families and their employers. More Cure and Care Clinics are in the process of being opened across the country. A total of 15 645 people were admitted to drug treatment, the vast majority of them men (United Nations Office on Drugs and Crime, 2010b).

There are no ATS-specific drug treatment services in Malaysia and most ATS users enter community drug treatment centres.

HIV in the community and among injecting drug users

The prevalence of HIV among the general population is 0.5 per cent with 87 710 cumulative cases reported since 1986 (UNAIDS, 2010a). Until 2008, 70 per cent of HIV infections were thought to be the result of injecting drug use (Devaney, Reid & Baldwin, 2006). However, 2009 data suggest that 55 per cent of new infections were the result of injecting and 32 per cent resulted from sexual transmission. HIV among PWID is 22 per cent and the vast majority are men (UNODC, 2010a). Behavioural surveys of high-risk groups indicated 22 per cent of PWID were infected with HIV, 11 per cent of sex workers and 4 per cent of MSM.

The HIV epidemic in Malaysia is said to be driven by injecting drug use, female sex workers, MSM and transgender people.

HIV testing

Testing for PWID is by referral from NSP sites. In the 2006–2007 period it was reported that 100 per cent of PWID and MSM had been screened for HIV and knew their results. However, figures for 2008–2009 indicated that only one-third of PWID and 20 per cent of sex workers had been tested for HIV and knew the results (Malaysia Ministry of Health, 2010). Malaysia reports that increased availability of testing had resulted in more people being tested but fewer returning for the results.

HIV anti-retroviral treatment

ART is available in Malaysia, however no details of ART for PWID are reported (World Health Organization, 2010b).

Prevention education

Malaysia is currently piloting HIV life skills for secondary school students in 20 schools.

Harm reduction

Malaysia adopted a harm reduction approach in 2005 and the Third National Strategic Plan calls for both NSPs and condom programs for PWID. There are now 240 NSP sites across Malaysia, many run by NGOs (Hagarty, 2010). More than 2 million needles and syringes were distributed by 23 needle distribution sites at a rate of 9 (7–13) needles and syringes per PWID per year (Hagarty, 2010).

As of 2010, the Government of Malaysia reported 10 664 active OST patients (personal communication, Dr Bergenstorm, June 2011).

Myanmar

Myanmar is bordered by China in the northeast, Lao PDR in the east and Thailand in the southeast. Myanmar is a signatory to the IDADIN.

Myanmar was once considered the world's second-largest producer of opium, although sustained crop eradication activities have reduced the amount currently produced (Devaney, Reid & Baldwin, 2006). Myanmar is also considered one of the largest producers of ATS (United Nations Office on Drugs and Crime, 2010b).

Amphetamine-type stimulant use

Myanmar is a major manufacturer of ATS pills and, while much of this production is for trafficking to neighbouring countries, there has been a recent increase in domestic demand (Devaney, Reid & Baldwin, 2006). While heroin and opium rank one and two respectively in terms of drugs used, the increased use of ATS pills, especially in border areas near China, Lao PDR and Thailand, is of concern (United Nations Office on Drugs and Crime, 2010b). ATS pills in these areas are cheaper than those in major cities where their use appears to be restricted to wealthier users. ATS pills in Myanmar are typically smoked and there is no reported use of crystal methamphetamine (United Nations Office on Drugs and Crime, 2010b).

Manufacture, trafficking and seizures

As noted above, Myanmar is a major manufacturer of meth/amphetamine, much of which is destined for non-domestic markets. In 2009, 23.9 million ATS pills, 124kg of crystal methamphetamine and 339kg of ATS powder⁷ were seized (United Nations Office on Drugs and Crime, 2010b). The massive increase over 2008 seizures (ATS pills 1.1 million, 14kg crystal methamphetamine and 3.9kg ATS powder) is thought to be the result of pressure being exerted on ethnic ceasefire groups to come under government control. Due to political pressure, many manufacturers have moved ATS stocks into Thailand.

There was also a marked increase in the seizure of precursor chemicals in 2009 (United Nations Office on Drugs and Crime, 2010b). More than 1600kg of ephedrine, 122 400 bottles of ephedrine-based nasal drops and 9.4 million ephedrine-containing tablets were seized during 2009. Increased interventions targeting precursor drugs are likely to result in alternative precursors being sought and used. Precursor drugs are trafficked into Myanmar from India, China and Thailand (United Nations Office on Drugs and Crime, 2010b).

Injecting drug use

There is no reported injecting of ATS in Myanmar, but high levels of injecting in neighbouring countries are of concern (United Nations Office on Drugs and Crime, 2010b). Injecting is the major route of administration for heroin.

⁷ Meth/amphetamine powder is concentrated meth/amphetamine used in the manufacture of meth/amphetamine pills: 339kg will yield 3.7 million meth/amphetamine pills.

Drug-related arrests

Of more than 3400 drug-related arrests, 26 per cent were for ATS (995 for ATS pills and six for crystal meth/amphetamine) (United Nations Office on Drugs and Crime, 2010b). One-quarter of those arrested for ATS were women. Arrests for ATS have increased by 34 per cent since 2007.

Drug treatment

Drug users are required to register or face a five-year gaol term. Myanmar has compulsory drug treatment for those found in possession of drugs and the Ministry of Health operates 69 treatment centres (United Nations Office on Drugs and Crime, 2010b). Services in these centres focus on opiate use: of more than 1000 treatment admissions in 2009 only 2 per cent (n=23) were for ATS (United Nations Office on Drugs and Crime, 2010b). Most ATS users receive treatment through private facilities (psychiatric wards, private clinics and centres run by the United Nations and non-government organisations), though data on these were not available.

HIV in the community and among injecting drug users

Myanmar has a population HIV prevalence (15–49 years) of 0.6 per cent; among PWID the prevalence may be 38 per cent (United Nations Office on Drugs and Crime, 2010b). In treatment centres prevalence is even higher, some sentinel surveillance data showing up to 80 per cent of PWID infected (United Nations Office on Drugs and Crime, 2006). Among other high-risk groups, HIV prevalence is 18.1 per cent in female sex workers and 28.8 per cent in MSM (UNAIDS, 2010a). One-third of all HIV cases in Myanmar are thought to be due to PWID. Although levels of ATS injection in Myanmar are thought to be low, injection of heroin/opium is a major concern, so ATS injection could increase.

HIV testing

There has been an increase in testing for high-risk groups. In 2009, almost three-quarters of sex workers and 50 per cent of MSM received testing and counselling for HIV (Devaney, Reid & Baldwin, 2006). However, the figures for testing for HIV among PWID were considerably lower, with only 7 per cent coverage (Devaney, Reid & Baldwin, 2006). During 2008, 1731 PWID were tested for HIV, a fraction of the estimated 90 000–300 000 PWID in Myanmar.

HIV anti-retroviral treatment

According to the UNAIDS Progress Report 2010, 29 825 people are receiving ART in Myanmar, while 76 000 require ART (Myanmar Ministry of Health, 2010).

Harm reduction

Harm reduction in Myanmar is still in its infancy. By 2005 a number of international non-government organisations and UNAIDS-funded projects were beginning to address the lack of harm reduction services for PWID. An estimated 3.5 million sterile injecting units were distributed in 2008, two-thirds more than in 2007 (World Health Organization, 2010b). The majority were provided in four townships only. Harm reduction services that do exist are oriented towards males and female PWID are not encouraged to access these services. No details of injection of ATS were available. In 2008, 580 clients received OST (World Health Organization, 2010b).

Prevention education

Prevention education in schools promotes abstinence from drugs and emphasises the dangers of drug use. Prevention education targeting PWID reached 8274 PWID, 30 per cent less than the intended target (Devaney, Reid & Baldwin, 2006).

Concerns

There was no information on the mixing of drug-using groups, in particular between heroin/opium users and ATS users, leading to risks of injecting initiation. Little is known about female drug users, and services need to target women.

Philippines

The Philippines is a republic with a population of 92.3 million. The capital is Manila with a population of 1.66 million. The Philippines is a signatory to the IDADIN.

Amphetamine-type stimulant use

The primary drug of concern in the Philippines is crystal methamphetamine referred to as '*shabu*' and typically smoked (United Nations Office on Drugs and Crime, 2010b). The Global SMART Program report suggests that the drug is also snorted. In 2008, the estimated number of drug users was 1.7 million, although this figure is markedly less than the 6.7 million estimated in 2004. An estimated 62 per cent of drug use involves ATS (United Nations Office on Drugs and Crime, 2010b). Polydrug use is common in the Philippines.

Manufacture, trafficking and seizures

During 2009, 149kg of crystal methamphetamine and 832 litres of liquid meth/amphetamine were seized (United Nations Office on Drugs and Crime, 2010b). Law enforcement efforts in 2006 and 2007 appear to have had an effect on crystal methamphetamine production with laboratories moving from urban to rural areas to avoid detection. However, in 2008 and 2009 manufacturing was again detected in urban areas. There has also been a move from large manufacturing units to smaller ones which are easier to conceal. Since 1997, 32 ATS laboratories have been closed down and 2057kg of *shabu* seized (United Nations Office on Drugs and Crime, 2010b).

Precursor chemicals such as ephedrine and pseudoephedrine are trafficked into the Philippines from China and India, and East Asian drug syndicates are known to be involved (United Nations Office on Drugs and Crime, 2010b).

Injecting drug use

The estimated number of PWID in Philippines is between 7000 and 14 500 (Devaney, Reid & Baldwin, 2006). No details of the number of PWID injecting ATS were available (Devaney, Reid & Baldwin, 2006).

Drug-related arrests

In 2009, there were 9052 drug-related arrests, 73 per cent for crystal methamphetamine (United Nations Office on Drugs and Crime, 2010b).

Drug treatment

More than half of all treatment admissions (n=2863) in 2009 (59%) were for crystal methamphetamine (United Nations Office on Drugs and Crime, 2010b). This pattern of drug arrests for ATS has been constant over the past five years, although the number of those arrested in 2009 is significantly lower than the almost 5000 ATS-related arrests in 2005. Data from treatment centres indicate that most clients used multiple illicit drugs and the vast majority (90%) were male (United Nations Office on Drugs and Crime, 2010b). No details of specific ATS treatment programs were available.

HIV in the community and among injecting drug users

Population prevalence of HIV in the Philippines is less than 0.1 per cent (UNAIDS, 2010a). Data on HIV among PWID are scarce but estimated to be 0–7 per cent (United Nations Office on Drugs and Crime, 2010b). Between 1984 and 2009, 4424 individuals were reported to the Philippine HIV and AIDS Registry (Philippine National AIDS Council, 2010). One-third (31%) of all new infections in the country were detected in 2008 to 2009 (UNAIDS, 2010a).

Of cumulative HIV cases reported between 1984 and 2009, the vast majority (90%) were reportedly due to unsafe sex (MSM 29%; heterosexuals 55%; bisexuals 15%). Around one-fifth were attributed to PWID (Philippine National AIDS Council, 2010).

HIV testing

HIV testing facilities are available across the Philippines, although none targets PWID in particular. Only 1.5 per cent of PWID reported being tested for HIV and knowing the result of the test in 2009 (UNAIDS, 2010a). Testing was more common, but still low, for female sex workers (19%) and MSM (7%).

HIV anti-retroviral treatment

No information on the availability of ART for high-risk groups was available.

Prevention education

A 2009 behavioural survey indicated that 55 per cent of female sex workers, 29 per cent of MSM and 11.5 per cent of PWID had been reached with HIV prevention education (Philippine National AIDS Council, 2010). No prevention education targeting PWID was reported.

Harm reduction

Possession of needles and syringes is illegal in the Philippines. Needles and syringes are available from pharmacies and a small number of non-government organisations working in the outreach area. These organisations distributed an estimated 50 000 units in 2009, an average of three needles and syringes per PWID per year. Although non-government organisations are encouraged to be involved in harm reduction activities, workers within these organisations are vulnerable to arrest because of the laws governing the possession of drug-injecting equipment. Only medical officers are legally allowed to be in possession of injecting equipment.

The 2009 national behavioural survey indicated that 85 per cent of PWID surveyed (n=958) used sterile equipment during the last injecting event.

Concerns

Involvement of crime syndicates in the manufacturing of ATS in the Philippines is a concern. Additionally a lack of support for harm reduction in the Philippines hampers HIV prevention among high-risk groups.

Singapore

Singapore is a parliamentary republic with a population of 4.5 million. It has a diverse population of close to 5 million people of Chinese, Malays, Indians, Asians of various descents, and Caucasians. More than 40 per cent of Singapore's population are foreigners who work and study there. Foreign workers make up 50 per cent of the service sector.

Amphetamine-type stimulant use

Heroin is the most commonly used drug in Singapore, although the use of meth/amphetamine⁸ has increased annually over the past three years.

Manufacture, trafficking and seizures

ATS manufacturing in Singapore does not occur and most drugs are trafficked into the country from either Malaysia or Thailand.

Seizures of ATS have increased over the past four years from 96 incidents in 2004 to 268 in 2009 when a total 3.7kg of crystal was seized. In 2009, 1.24 million ATS pills were seized in 10 separate events. The increase in ATS seizures is thought to be the result of increased border surveillance rather than an increase in trafficking.

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Drug treatment

Just over 530 individuals were undergoing compulsory drug treatment in Singapore in 2009, 101 of whom were new admissions. ATS users accounted for more than one-third of new treatment admissions and 23 per cent of all those receiving treatment. Treatment admissions for ATS have risen steadily from zero in 2004 to 39 in 2005, 87 in 2008 and 143 in 2009. Treatment for synthetic drugs, including ATS, was first introduced in Singapore in 2005. However, specific details were not available.

Injecting drug use

The majority of ATS in Singapore is smoked; injecting is a secondary mode of administration. No details of the extent of injecting were reported.

Drug-related arrests

There were 357 arrests related to ATS in 2009, up from 306 in 2008 and 221 in 2007. Of these arrests, 80 per cent were males.

⁸ Drug statistics in Singapore do not differentiate between ATS and crystal methamphetamine.

HIV in the community and among injecting drug users

The majority of HIV cases in Singapore are the result of sexual transmission (66%) and only 2 per cent are the result of PWID. This is thought to be due to the stringent drug laws in Singapore (there are only 330 registered PWID in Singapore). The population prevalence (aged 15 years and older) is 0.09 per cent and 90 per cent of cases are male. In 2008, one-third of new cases were among MSM and 4 per cent among PWID.

HIV testing

Anonymous testing is available for high-risk groups. In the 2008–09 period, more than 18 000 anonymous HIV tests were performed, of which 1.2 per cent were positive.

HIV anti-retroviral treatment

Subsidised ART treatment is available in Singapore but no details were available.

Prevention education

HIV prevention education is targeted at the general population and emphasises the risks associated with casual sex and promotes the use of condoms for at-risk groups. Singapore also has educational campaigns designed to reduce HIV-related stigma and discrimination. School programs aim to increase awareness of HIV and AIDS and the use of condoms. Sex workers and MSM are also the target of campaigns to raise awareness and promote the use of condoms. These programs are mostly administered by non-government organisations.

Harm reduction

Harm reduction activities are not available in Singapore.

Thailand

Thailand, officially known as the Kingdom of Thailand, has a population of 65 million. It has a constitutional monarchy. The capital, Bangkok, has a population of 7 million. Thailand is bordered to the north by Myanmar and Lao, to the east by Cambodia and Lao, and to the south by Malaysia. Thailand is a signatory to the IDADIN.

Amphetamine-type stimulant use

According to UNODC (2010b), methamphetamine has been the drug of most concern in Thailand since the mid-1990s and there is evidence that the use of crystal methamphetamine is also increasing. The UNODC report (2010b) noted that in 2009 meth/amphetamine, in pill form, was cited as the number one ranked drug of concern in Thailand and that ATS pills were the most commonly used illicit drug in the country.

A 2003 National Household Survey estimated that 3.5 million Thai people had ever used ATS and half a million had used ATS in the 30 days prior to interview (Devaney, Reid & Baldwin, 2006). These numbers represent a decline in ATS use from 2001 but the timing of the 2001 survey is important with the 'war on drugs' commencing in 2003.

A school drug use survey conducted in 2008 revealed that 12 per cent of male high school students and almost 25 per cent of male vocational students had used ATS (Thailand National AIDS Prevention and Alleviation Committee, 2010).

Manufacture, trafficking and seizures

Seizures of ATS pills almost doubled between 2007 and 2009, from 14.4 million in 2007 to 26.6 million in 2009 (United Nations Office on Drugs and Crime, 2010b). Seizures of crystal methamphetamine also increased substantially from 52.9kg in 2008 to 209kg in 2009. UNODC suggests that these increases are associated with increased trafficking from Myanmar, the result of political unrest in the area.

While there is evidence of ATS manufacturing in Thailand, most of the laboratories reportedly dismantled in 2009 were small and there are no reports of the manufacture of crystal meth/amphetamine (United Nations Office on Drugs and Crime, 2010b).

The majority of ATS pills in Thailand are thought to originate from Myanmar (80%) with smaller amounts coming from Lao PDR (10%). Crystal methamphetamine originates from Myanmar and Cambodia. Some of this supply is for domestic use and some is destined for other markets both in Asia and overseas.

Injecting drug use

There are an estimated 30 000 PWID in Thailand and, while smoking is the primary mode of administration of both pills and crystal methamphetamine, injection of both these substances does occur (United Nations Office on Drugs and Crime, 2010b). Geographical variations in the injection of ATS are evident: in Bangkok, 63 per cent of PWID usually injected ATS, while in Chiang Mai the figure was lower at 32 per cent (Yongvanitjitt et al., 2010).

Drug-related arrests

ATS pill-related arrests decreased by 6000 between 2008 and 2009 (from 118 000 to 112 000), but remain high overall (United Nations Office on Drugs and Crime, 2010b) and account for 83 per cent of all drug-related arrests in Thailand in 2009. Arrests for crystal methamphetamine have risen annually since 2004 when there were 265 arrests. This had risen from more than 1000 in 2006 to almost 3000 in 2009. However, arrests for crystal methamphetamine account for only 2 per cent of all drug-related arrests.

Drug treatment

Of the 106 000 drug treatment admissions in Thailand in 2009, 82 per cent were for ATS pills and 0.8 per cent were for crystal methamphetamine (United Nations Office on Drugs and Crime, 2010b). There are more than 1000 voluntary treatment centres in Thailand available through general hospitals, specialised drug treatment centres, general practitioners, psychiatric institutions, religious organisations and NGOs. Thailand also has 90 compulsory centres and drug treatment programs are available in Thai prisons (World Health Organization, 2010b). During 2009 there were more than 67 000 individuals in compulsory treatment and 18 000 in voluntary treatment. Treatment for ATS is described as a combination of detoxification and behavioural, educational and 12-step counselling (Devaney, Reid & Baldwin, 2006).

HIV in the community and among high-risk groups

Population HIV prevalence in Thailand was 1.5 per cent in 2003 (UNAIDS, 2010a). Surveillance data indicate that HIV prevalence among PWID was 38.7 per cent for 2009 (UNAIDS, 2010a). Additionally, around one-third of those in drug treatment in Thailand are thought to be HIV-positive. According to a 2004 report, an estimated 5 per cent of all HIV infections in Thailand were the result of injecting drug use (United Nations Office on Drugs and Crime, 2004). However, the Thailand UNGASS Country Progress report from 2010 estimated that almost 9 per cent of HIV infections were the result of injecting drug use (Thailand National AIDS Prevention and Alleviation Committee, 2010).

The prevalence of HIV among female sex workers has declined significantly since the mid-1990s when it was estimated to be 28 per cent (Thailand National AIDS Prevention and Alleviation Committee, 2010). By 2009 prevalence was in the region of 5 per cent for both brothel-based sex workers and those working in the entertainment industry. Prevalence was higher among direct female sex workers in Bangkok at 5.3 per cent (Thailand National AIDS Prevention and Alleviation Committee, 2010). Prevalence among male sex workers is almost double at 11 per cent. Among MSM, HIV prevalence is higher, ranging from 5 per cent in smaller provinces to 31 per cent in major cities such as Bangkok, Chiang Mai and Phuket (Thailand National AIDS Prevention and Alleviation Committee, 2010).

HIV anti-retroviral treatment

While Thailand is committed to providing free ART for those infected with HIV, there is no information available for services that specifically target PWID (Hagarty, 2010).

Harm reduction

Although needle and syringe programs are not supported by the Thai Government, needles and syringes are nevertheless available in the city of Bangkok and 15 other provinces. These programs are operated by NGOs and through some pharmacies (Hagarty, 2010).

Prevention education

While direct drug prevention education has not been implemented in schools in Thailand, life skill-based education programs are being implemented. There is evidence of peer education with peer volunteers providing HIV prevention education to male and female sex workers and transgender persons in some provinces. A 100 per cent condom use program has been implemented among Thai sex workers in some areas and condom programs for MSM are reported to have been implemented (Devaney, Reid & Baldwin, 2006).

Viet Nam

The Socialist Republic of Viet Nam has a population of 86.1 million. The country is bordered by China in the north, Lao PDR to the northwest and Cambodia to the southwest. The capital is Hanoi with a population of 6.5 million. Viet Nam is a signatory to the IDADIN.

Amphetamine-type stimulant use

While heroin and opium remain the drugs of most concern in Viet Nam, the use of both crystal methamphetamine and ATS pills is increasing. ATS collectively are the third ranked drugs of concern. In 2009 ATS drug users comprised 4 per cent of all drug users (United Nations Office on Drugs and Crime, 2010b). The use of crystal methamphetamine was first recorded in Viet Nam in 2008 and most crystal methamphetamine users are young people living in cities such as Ho Chi Minh and Hanoi (United Nations Office on Drugs and Crime, 2010b). The use of ATS pills is also reported to be high among construction and mining workers and those in the transport industry.

Manufacture, trafficking and seizures

The United Nations Office on Drugs and Crime (2010b) reports that a large but unspecified quantity of ATS is manufactured in Myanmar and trafficked by land through Cambodia and into Viet Nam. Almost 4kg of crystal methamphetamine and 6kg of pills plus 500 000 pills were seized in 2009 (United Nations Office on Drugs and Crime, 2010b). This represents a significant increase in seizures for Viet Nam. The country is also concerned with the increase in activities involving international criminal drug organisations, in particular from Africa (United Nations Office on Drugs and Crime, 2010b).

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Injecting drug use

Viet Nam has an estimated 125 000 people who inject drugs (0.25% prevalence among 15–64 year olds), mostly injecting heroin and to a lesser extent opium (United Nations Office on Drugs and Crime, 2010b). No information on the injection of ATS was available.

Drug-related arrests

During 2009 there were more than 25 000 drug-related arrests. Unfortunately drug arrests were not separated by drug type or gender (United Nations Office on Drugs and Crime, 2010b).

Drug treatment

Viet Nam has 70 provincial drug treatment centres and more than 700 drug treatment units at the district level (Hagarty, 2010; United Nations Office on Drugs and Crime, 2010b). Of the estimated 65 000 drug users in treatment in 2009, 98 per cent were admitted for opiate use and 1 per cent for ATS use (Devaney, Reid & Baldwin, 2006). Information on specific drug treatment for ATS was not available.

In an updated Viet Nam Country Report (Viet Nam Ministry of Health, 2010), it was noted that a series of measures had been taken in 2009 to improve treatment and rehabilitation including developing 'diversified and socialised' models of treatment, improved skills and capacity for staff and applied remedial methods, and concentrated rehabilitation programs (p.6). More than 8000 people were admitted for compulsory treatment compared to 1900 who volunteered for treatment. The report noted however that the relapse rate following all treatment remained high and '*there have remained limitations and shortcomings*' (p.9).

HIV in the community and among injecting drug users

The population HIV prevalence in Viet Nam is 0.53 per cent equating to 132 000 cases (Viet Nam Ministry of Health, 2010). The unsafe injection of heroin and opium is thought to be responsible for 55–70 per cent of HIV cases in Viet Nam and the overall estimated prevalence of HIV infection among PWID is 29 per cent (United Nations Office on Drugs and Crime, 2010b). Viet Nam's HIV epidemic is concentrated among key populations considered to be at high risk of exposure to HIV: injecting drug users; sex workers and their partners; and MSM (Viet Nam Ministry of Health, 2010). Approximately 4 per cent of female sex workers and 9 per cent of MSM are HIV-infected. The interaction between unsafe injecting practices and unprotected sex, in particular among young men, is considered to drive the epidemic in Viet Nam.

HIV testing

Testing for HIV among high-risk groups remains low. Among FSW, MSM and male PWID, 15, 16 and 11 per cent respectively reported being tested for HIV and knowing the results (Viet Nam Ministry of Health, 2010).

HIV anti-retroviral treatment

Treatment for HIV is available in all 64 provinces in Viet Nam, although in 2007 only 28 per cent of those needing treatment were receiving it (Viet Nam Ministry of Health, 2010). Treatment is available for PWID infected with HIV but participation is low at four per hundred PWID (UNAIDS, 2010a).

Prevention education

Two-thirds of FSW, one-quarter of MSM and 43 per cent of male PWID are reported to have participated in HIV prevention programs (Viet Nam Ministry of Health, 2010). Condom use on the last sexual encounter among male and female sex workers was high at 97 per cent. The figure for MSM was lower at 61 per cent, while only one-third of PWID reported using a condom on the last sexual encounter.

Harm reduction

During 2009 up to 95 per cent of PWID accessed needle and syringe programs at a rate of 189 needles and syringes per PWID per year. Between 20.5 million and 34.9 million needle and syringe units were distributed in 2009 (Viet Nam Ministry of Health, 2010).