Consensus estimates of the number of problem drug users in Cambodia, 2004

Introduction

The objective of this study was to arrive at a consensus estimate of the number of problem drug users in Cambodia at the end of 2004. A reasonable estimate of the number of problem drug users in Cambodia is important for the planning of health care services, preventive and education campaigns, and law enforcement. Specific planning processes this will feed into include the current revision of the National Strategic Plan on HIV/AIDS; the national Drug Control Master Plan; and, the monitoring of the coverage of HIV prevention programmes.

Unfortunately there are few data on which to base such estimates. An initial series of extrapolations were produced using the very limited data available in Cambodia. These were then discussed with in a round table meeting of individuals with expert knowledge of the drug use situation in Cambodia and/or technical expertise in epidemiology or HIV/AIDS. To further refine the tentative estimates proposed in this first meeting, the Delphi Technique was used to help generate a consensus estimate of the number of problem drug users.

The Delphi Technique is an iterative process in which, at the first iteration, a group of experts from various backgrounds relating to the study objective give their best estimates in answer to specific questions. At the second and future iterations, estimates from the previous iterations, along with any further information suggested to be important, are presented to the participants who are asked to re-evaluate their responses to the questions. The theory underlying this approach is that the participants responses tend to cluster around the true answer, and that the iterative process leads to improved precision, while avoiding the confrontational aspects of a round table discussion. There are some empirical data to support the validity of this process. The use of Delphi methodology for the estimation of the prevalence of illicit drug use has previously been validated.

Methods

All available data on the use of heroin and amphetamine-type stimulants in Cambodia were reviewed. This included survey data, published estimated, law enforcement statistics and programme monitoring data.

Simple extrapolations were then performed on these data to produce national prevalence estimates. These data and subsequent extrapolations were then presented to a selected number of experts working in the fields of drugs and/or HIV in Cambodia. This included representatives from government and non-government agencies and the donor community and both the health and law enforcement sectors.

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The presentations included justifications of the assumptions made in these extrapolations.

Following the presentation of the extrapolations, the quality of the data used, the assumptions underlying the extrapolation and the central tendency of the estimations were discussed. On the basis of this discussion the conclusions were revised and all participants provided with a copy of the data (annexes 1 to 4) and a structured questionnaire seeking their confidential opinion of the “true” prevalence of heroin and ATS use.

Participants’ responses to the questionnaire were used to produce a final series of prevalence estimates, including 90% confidence intervals.

A second iteration of the estimates was not deemed necessary, due to the convergence of expert opinion at the first iteration.

**Results**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Number of users</th>
<th>90% confidence interval</th>
<th>Adult prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATS</td>
<td>20,000</td>
<td>10,000 – 75,000</td>
<td>0.29% (0.15-1.10)</td>
</tr>
<tr>
<td>Heroin</td>
<td>2,500</td>
<td>1,000 – 10,000</td>
<td>0.036% (0.01–0.15)</td>
</tr>
<tr>
<td>IDU</td>
<td>1,750</td>
<td>1,000-7,000</td>
<td>0.026% (0.01-0.10)</td>
</tr>
</tbody>
</table>

Table 1. Estimated prevalence of use of various drugs in Cambodia in 2004, using expert interpretation of a range of extrapolations from limited data.

**Discussion**

While every effort has been made to produce as accurate an indication of the prevalence of drug use as possible, these estimates are based on very sparse data of poor quality. Furthermore, a number of assumptions have been made in order to derive prevalence estimates from these data. There is no way of verifying the validity of these assumptions.

This process is necessarily imprecise. This is reflected in the large range around these data. However, the estimates produced do provide an objective indicator of the scale of drug use in Cambodia. It is probable that the true prevalence of drug use in Cambodia in 2004 was of the order of magnitude presented here.

It is clear that more robust estimates of the size of the drug using population are required. This can only be done through indirect prevalence estimation, using a range of methods and data sources. It is also clear, however, that the secondary data necessary for such estimation, and the capacity to undertake it, is lacking in Cambodia.

Regardless of its size it is apparent that there is a population of drug users in Cambodia that is currently underserved by the health sector. Implementing a broad range of health services for drug users and strengthening the data collection capabilities of the providers of these services would help to generate the data necessary for indirect estimation.
Annex 1. Summaries of extrapolations

Amphetamine type stimulants

<table>
<thead>
<tr>
<th>Data used</th>
<th>Number of users</th>
<th>Adult prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subregional average</td>
<td>23,875</td>
<td>0.45%</td>
</tr>
<tr>
<td>Arrest data</td>
<td>3,000</td>
<td>0.05%</td>
</tr>
<tr>
<td>BSS data</td>
<td>1,600</td>
<td>0.03%</td>
</tr>
<tr>
<td>Survey data</td>
<td>14,500</td>
<td>0.27%</td>
</tr>
<tr>
<td>NACD provincial data</td>
<td>7,000</td>
<td>0.13%</td>
</tr>
<tr>
<td><strong>Mean estimate</strong></td>
<td><strong>10,000</strong></td>
<td><strong>0.19%</strong></td>
</tr>
<tr>
<td><strong>Median estimate</strong></td>
<td><strong>14,500</strong></td>
<td><strong>0.27%</strong></td>
</tr>
</tbody>
</table>

Table 2. Estimated prevalence of ATS use using extrapolations (see Annex 2)

Injecting drug use

<table>
<thead>
<tr>
<th>Data used</th>
<th>Number of users</th>
<th>Adult prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>NACD provincial data</td>
<td>217</td>
<td>0.004%</td>
</tr>
<tr>
<td>Needle exchange data</td>
<td>2,140</td>
<td>0.040%</td>
</tr>
<tr>
<td>Published IDU estimate</td>
<td>650</td>
<td>0.013%</td>
</tr>
<tr>
<td><strong>Mean estimate</strong></td>
<td><strong>1,000</strong></td>
<td><strong>0.014%</strong></td>
</tr>
</tbody>
</table>

Table 3. Estimated prevalence of IDU using extrapolations (see Annex 3)

Heroin

<table>
<thead>
<tr>
<th>Data used</th>
<th>Number of users</th>
<th>Adult prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>NACD provincial data</td>
<td>380</td>
<td>0.007%</td>
</tr>
<tr>
<td>Needle exchange data</td>
<td>3,750</td>
<td>0.070%</td>
</tr>
<tr>
<td>NACD provincial data + published IDU estimate</td>
<td>1,150</td>
<td>0.020%</td>
</tr>
<tr>
<td><strong>Mean estimate</strong></td>
<td><strong>1,760</strong></td>
<td><strong>0.032%</strong></td>
</tr>
</tbody>
</table>

Table 4. Estimated prevalence of heroin use using extrapolations (see Annex 4)
Annex 2. Extrapolations for ATS

2.2 Subregional averages

Annual prevalence of ATS use:
0.89% of the adult population\(^4\)

Applying this to Cambodia’s adult (15-49) population\(^5\):
0.89% x 5,365,698 = 47,750

Adjusting for annual vs past 30 day prevalence:
50% of 47,750 = 23,875

2.3 Arrest data\(^6\)

Number of arrests for ATS in 2003: 187

Ratio of arrests to estimated prevalence in neighbouring countries: 1:0.002 - 1:0.12

Applying this ratio to the number of arrests: 1,200 to 4,800 users = 0.02% to 0.08% of the adult population

2.4 BSS data\(^7\)

4.7% of direct sex workers report ever use of ATS
Estimated to be 15,000 direct sex workers, therefore 705 ATS using sex workers

0.58% of police and military personnel report ever use of ATS
Estimated to be 110,000 police and military personnel, therefore 638 ATS using personnel

Therefore a total of 1,300 ATS users among the BSS sentinel populations. Adjusting for ever use vs past 30 day use: 20% of 1,300 = 260

Rate of use among sentinel populations is therefore 260/125,000 = 0.2%

Assuming that use among sentinel populations is 5 to 10 times higher than the general population, prevalence in the general adult population is 0.02 to 0.04%

0.02 to 0.04% x 5,365,698 = 1,073 to 2,150 users in the general adult population

\(^6\) National Authority for Combatting Drugs. Phnom Penh.
\(^7\) NCHADS. Behavioural and Serological Surveillance of HIV/AIDS, 2003 survey.
1.4 Survey data

MoEYS Youth risk behaviour survey\(^8\): 0.69% ATS users

The age range of this study was 11 to 18, to adjust for adult prevalence, exclude those under 15 (all under 15 assumed to be non-users): 1.38%

Adjusting for ever vs past 30 day use: 20% of 1.38% = 0.276%

0.276% x 5,365,698 = 14,809 users in the general population

UNODC HIV risk behaviour survey\(^9\): 0.34% of casino workers current ATS users; 1% of garment factory workers ever users of ATS

Adjusting garment factory worker prevalence for ever vs current use: 20% of 1% = 0.2%

Garment factory workers tend to be younger, less educated with lower incomes; casino workers tend to be slightly older, of both genders, well educated and with above average income. Taking the average of the two prevalences to arrive at a more representative socioeconomic profile: 0.27%

Therefore, 0.27% of 5,365,698 = 14,500 adult users of ATS

2.2 NACD provincial data

3,817 ATS users known to local authorities in 9 provinces, with a population of 2,848,985 pop = 0.13%

Therefore 0.13% of 5,365,698 = 6,975 adult users of ATS nationally

Annex 3. Extrapolations for IDU

2.1 NACD provincial data

115 IDU known to authorities in 9 provinces with an adult population of 2,848,985
= 115/2,848,985 = 0.004%

0.004% of the national adult population (5,365,698) = 217 IDU nationally

2.2 Needle exchange data\(^\text{10}\)

367 syringes distributed per week (12 month average)
2.6 – 1.9 syringes per week per user
Therefore 141-193 users using the service

In the opinion of the Mith Samlanh-Friends staff, approximately 15% of IDU use the service = 940 to 1,200 IDU in Phnom Penh

(by way of comparison, a 1985 study of 2,800 IDU in Amsterdam\(^\text{11}\) found that 51% used a needle exchange “rarely or never”).

Assuming Phnom Penh represents 50% of users: 1,880 to 2,400 IDU nationally = 0.035% to 0.045% of the adult population

2.3 Published estimates

Aceijas et al. 2004. AIDS 18 (17) : 300-1,000 IDU nationally = 0.006% to 0.019%


\(^\text{11}\) Hartgers et al. 2000. The impact of the needle and syringe-exchange programme in Amsterdam on injecting risk behaviour. [http://www.drugtext.org/library/books/hartgers/chapter02.htm](http://www.drugtext.org/library/books/hartgers/chapter02.htm)
Annex 4. Extrapolations for heroin

3.1 NACD provincial data

202 heroin users known to authorities in 9 provinces with a population of 2,848,985
= 202/2,848,985 = 0.007%

0.007% of the national adult population = 0.007% x 5,365,698 = 380 users nationally

3.2 Needle exchange data and NACD provincial data

From 2.1: 1,880 to 2,400 IDU nationally

Assuming all IDU are heroin users

From NACD data, 57% of heroin users inject, therefore 1/0.57 x 1,880 to 2,400 =
3,300 to 4,200 heroin users nationally = 0.062% to 0.078% of the adult population

3.3 Published estimates and NACD provincial data

From 2.3: 300 to 1,000 IDU

Assuming all IDU are heroin users

From NACD data, 57% of heroin users are injectors, therefore 1/0.57 x 300 to 1,000
= 526 to 1,754 heroin users nationally = 0.01% to 0.03% of the adult population