

The use of Rapid Assessment Methodology to Compliment Existing National Assessment/Surveillance System: A Study among Injecting Drug Users in Kepala Batas, Penang, Malaysia.

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Abstract

The study aims to show how data from a rapid assessment study can compliment data produced by the existing National Drug Information (NADI) system. Qualitative data gathering techniques was used and the WHO guide for conducting rapid assessment among injecting drug users was used as a guide. We used an inductive research strategy using the principles of triangulation. Results from the rapid assessment showed us how specific information provided by the rapid assessment include information about the use of heroin with other substances, the context in which risky injecting practices are being practiced (sharing injecting paraphernalia but not needles), the reasons for increase in frequency of injecting, the price of drugs, the types of injecting networks, context of sexual behavior, information regarding the health and social consequences of drug use are needed to understand the problem of substance abuse more effectively. We suggest the current NADI system need to include more socio-behavioral and health related variables in its database in order to understand particularly the substance abuse HIV/AIDS relationship.

Keywords: Rapid Assessment Methodology (RAM), National Drug Information System (NADI), surveillance system, assessment

Introduction

The use of rapid assessment methodology (RAM) internationally in the field of substance abuse has been well documented by Fitch and Stimson (2003) and Rhodes et al , (2000) Des Jarlais et al (2005) and Fitch et al (2002) show how qualitative data can compliment survey data to better understand the contextual behavior of drug users in the WHO Phase II study Data from the rapid assessment have been utilized to design locally relevant questions for the cross-sectional survey Another example of how qualitative data has been used effectively is by the Asian Multicity Epidemiology Workgroup (AMCEWG) where gaps or unanswered questions from epidemiological data are identified and members were asked to conduct qualitative studies to answer these questions Specifically Fitch et al , (2002) documented the potential use of RAM in drug use epidemiology They outlined six potential contributions, in information poor situations, inform ongoing monitoring, involve the local community, informing quantitative research, questioning quantitative research and responding to health problems

We would like to show in this paper how these potential contributions (*especially inform ongoing monitoring and informing quantitative research*) has been useful in informing the national drug surveillance system The aim of this paper is to show how qualitative data collected using the RAM has helped compliment data produced by the National Drug Information System (NADI) NADI was developed in 1983 and at that time the goal of developing the system was to obtain the prevalence and incidence of drug use in the country Like any other parts of the world the HIV epidemic has brought a new dimension to the problem of substance abuse Friedman and Des Jarlais (1991) show how

HIV prevalence once reaches 10% can surpass 40 to 50% prevalence in 1 to 4 years. In Malaysia HIV infection rates in IDU population have grown from 0.1% in 1988 to 20% in 1994 (Ministry of Health, 2001). Therefore besides having data collection systems that collect routine data it is also useful to conduct rapid assessments to better understand new dimensions and subtle changes in drug users behavior vis-à-vis HIV/AIDS.

Before we examine how data was collected and how it helped provide contextual understanding of drug users behavior it would be useful to look at the Malaysian drug problem and also obtain some understanding of the NADI system.

Malaysian Drug Problem

There are 274,420 registered substance abusers in Malaysia from 1988-2004. This amounts to 1.09% of the Malaysian population. For the same period the state of Penang recorded one of the highest number of addicts (33,163) after Kuala Lumpur. More than half (64.7%) are from the Malay ethnic group followed by Chinese (18.7%) and Indian (10.2%). Majority (80.3%) of them are between 20-39 years old. The main drug abused continues to be heroin (55.6%) followed by morphine 14.7%, cannabis 21.6%, ATS 4.6% and others 3.3%. The main route of administration for heroin is "chasing the dragon" and followed by injecting (National Drug Information System, 2005). A total of 69,461 HIV cases have been reported in Malaysia from 1986 to June 2004 and 73.5% are attributed to IDU's (Ministry of Health Malaysia, 2005).

National Drug Information System (NADI)

NADI is the main drug information system administered by the National Anti-narcotics Agency. The system incorporates 3 other sub-systems. The three systems are Profile and information on addiction system (MAPP), Seizures and arrest system (STAR) and Treatment and rehabilitation system (SPAR). The system uses the National registration card number to avoid double counting (Narcotics Report, 2000). There are various government agencies responsible for providing data to the NADI system. Detection and detoxification centres in hospitals, Ministry of Health, treatment and rehabilitation centres (institutional and community), National Anti-narcotics Agency, Prisons Department, Royal Malaysian Police, Royal Customs and Excise Department, Pharmacy Division, Ministry of Health, Private Rehabilitation Centres, Anti-smuggling unit and the Armed Forces.

The data produced by the NADI system include socio-demographic information of drug users, status of drug users (new or repeat), prevalence and incidence of drug use, types of drugs used, modes of administration, drug use by geographical location, reasons for drug use and HIV infection rates among drug users.

The gaps in this current system are that the data capturing mechanism is institutional bias. The data produced by this system is purely quantitative. Results from this study will also show how qualitative information is needed to better understand the contextual risky behavior of injecting drug users. In addition, the current national system does not provide data on health and social consequences of drug use. Similarly Rhodes et al., (1999) found

that in many countries, epidemiological data trends are limited because of the inbuilt biases of data, which is based primarily on treatment populations rather than community populations

Methodology

RAM can use both quantitative and qualitative data gathering techniques (Fitch et al , 2002) However we only used qualitative techniques in this study, as the objective was to use this information to better understand the data generated by the NADI system The WHO guide for conducting rapid assessment among injecting drug users was used as a guide The research team employed an inductive research strategy using the principles of triangulation It is hoped that by using triangulation validity of measurements would be obtained and particular biases of the various data collection methods will be reduced Rhodes et al , (1999) stress the importance of using multiple method, sources, triangulation of data and the focus on social, culture and economic contexts in which drug users behaviors are taking place.

The study was conducted in the state of Penang, which is an island in the Andaman Sea off the northwestern part of the Malaysian peninsula The Northern Seberang Perai (SPU) district is 262.53 km and is the biggest district among the 5 districts in Penang The study location (Kepala Batas) is located in this district It has a population of 269,288 people

Several qualitative methods were used in this study to obtain primary and secondary data Firstly, the research team reviewed existing data from government agencies Informal

interviews were carried out with the local narcotics agency officers, local police and health care providers. Subsequently, observations were carried out and a social map was drawn to facilitate the information gathering process. Key informants, in-depth interviews and focus group techniques were also used to gather information.

The review of existing information was done by looking at the NADI database. This national database gave the research team a broad understanding on the extent of drug abuse in the state and in the study location

The research team felt that in order to get the community's support, a community support group needs to be established. Members from the youth movement district of Kepala Batas, local police, local health department and the local anti-narcotics agency officers were invited to be part of the community advisory board.

Key informant interviews with the local National Narcotics Agency officers (n = 2), local police (n = 1), health care providers (n = 2) and a private rehabilitation practitioner (n = 1) was done to obtain the location and basic information about drug users in the Kepala Batas district. Once we got some information from the interviews conducted, observations were carried out to determine the information we got from the interviews were valid. The observations were also helpful for us to map out the research area. The observation lasted for about a week and it was stopped once we had done the social mapping of the study area.

During the observation, the research team identified key informants (n = 4). The key informants identified were ex-addicts. They served as an important asset to the team as they gave important information on where to locate addicts and gain access to the drug injecting population. Snowballing technique was used to reach out to the addicts.

In-depth interviews were carried out to further understand the behavior of IDU's in the study location. A total of 30 (n = 30) in-depth interviews were carried out. All of them are current injectors.

Finally, focus group technique was used to elicit information from respondents. Information obtained during the in-depth interviews was useful to formulate the semi-structured questions for the focus-group sessions. A total of seven (n = 7) focus group sessions were done among the current injectors. Focus group session was used to corroborate and validate data obtained from the in-depth interviews.

Focus group I consist of 4 members and all of them were from the Malay ethnic groups. Their age ranged from 24 to 32 years old. They work as fisherman. They were all considered new injectors as they have an injecting career of less than 3 years. Focus group II consists also of 4 members and like in group I they were also all from the Malay ethnic group. They were also from the fishing village. This group was slightly older and their average age was about 36 years old. All of them have been injecting for more than 5 years except for one subject. Focus group III consists of 5 members. They were also from the fishing village and all of them are from the Malay ethnic group except one subject.

who was a Chinese. They were between the ages of 25 to 33 years old. Two of them just started injecting about a year back while the rest had been injecting for about 3 to 5 years. Focus group IV consists of 4 members and all of them were Chinese. All of them had odd jobs to support their habit. They were between the ages of 22 and 29 years old. All of them have an injecting career of less than 2 years. Focus group V consists of 6 members. Three of them were Malays, two Chinese and one Indian was from this group. They did not have any permanent jobs. Their average age was about 32 years old. They have been injecting for about two to three years. Focus group VI was from the flats in the Mak Mandin area. Four of them participated in this group. Two were Malays, one Chinese and one Indian. Two of them worked in a factory nearby and the other two did not have any permanent employment. They were between the ages of 29 and 43. Focus group VII was also from the flats area. There were five people from this group. All of them were from the Malay ethnic group. Three of them worked as fisherman and while the other two worked in a local factory nearby.

Results

Drug Use

There is no official data to indicate the actual number of drug users by the type of substance abused in the study location. But from the observations made it is obvious that heroin is the primary drug of abuse in Kepala Batas. All the addicts interviewed (n = 30) mentioned that heroin is their primary drug of abuse. Morphine, cannabis and alcohol are other substances used. In addition to heroin, injecting addicts (n = 19) use heroin together

with benzodiazepines such as triazolam (0.25mg) to inject. One addict was found to be injecting heroin together with birth control pills.

From our observations we estimate that about one third of the addicts in Kepala Batas are injectors. The main route of administration is 'chasing the dragon'. During the focus group sessions all the subjects reported that they initially started using drugs by either smoking or chasing and subsequently progressed to injecting. On an average, an addict would take about 2 to 5 years before he progresses to injecting. They were also asked during the focus groups about their reason for progressing to injecting. The common factors were the influence of peers, increase in heroin price, decrease in heroin purity, shortage of heroin supply in the market and the need to obtain a higher euphoric feeling.

In the focus group interviews subjects were asked about the reason why they injected heroin together with other drugs (pills). In all the focus groups subjects seem to agree that the reason for mixing heroin with other drugs is to increase the euphoric feeling. In addition, 43.3% (n = 13) of the subjects who had a longer injecting career (more than 10 years) mentioned that heroin obtained locally has declined in its potency. This may be due to the issue of purity. Vicknasingam and Navaratnam (1999) reported similar findings in Malaysia. Furthermore, in the focus group sessions subjects have not heard of any case of heroin overdose in the past 3 years. Secondary data from the National Narcotics Agency confirms this.

Thirteen subjects (n = 13) who have been injecting for a longer period during the in-depth interviews also mentioned that their frequency of injecting has increased compared to the previous years. On an average when injectors were injecting about 8 to 10 years back they needed only to inject about twice daily. Currently they need to inject about 4 to 5 times daily. While, most of the addicts (n = 27) said that when they inject heroin currently it acts for only 4 to 5 hours. This finding corroborates with the above finding. One caution is that this increase in the frequency of injecting could also be due to the need for a higher dosage after sometime of injecting.

Subjects were also asked if there was a reason why a particular (e.g. benzodiazepines) drug was used together with heroin. All the subjects (n = 30) during the interviews mentioned that the drug used with heroin depends on its availability. Often they are purchased from pharmacies locally. Sometimes these drugs are also obtained illegally. In terms of preference they seem to prefer "Upjohn" (triazolam).

The finding above shows that addicts do not have any knowledge about the drug used together with heroin. This is the reason why one subject was also found to be using heroin together with birth control pills.

The price of heroin ranges from RM 10 for a 3cm straw to RM 50 for 8cm straw (USD 1 is RM 3.80). When asked about the source of their drug they mentioned that it comes from Bukit Mertajam and Butterworth. These are both neighboring towns. An addict who injects about 4 to 5 times daily would need an 8cm straw for his daily consumption.

Observations revealed that bottle caps or spoons are used to cook the drugs (e.g. heroin and benzodiazepines). Once the drug is cooked, a syringe is used to draw the drug. All the injectors interviewed carried their own needle but shared other paraphernalia including the syringe. It was also observed that it is common practice to share the cooking paraphernalia (*more details of injecting sharing behavior is given in the risk behavior section*).

Risk Behavior

During observations we found that addicts were not sharing needles but were sharing syringes. The perception of the addicts was that HIV could infect them only if they shared contaminated needles. Each addict was seen carrying his own needle. This observation was further confirmed during the interviews and focus group sessions as all of them were of the opinion that sharing other injecting paraphernalia was not a risky injecting behavior.

They were seen sharing cooker, drug solutions, rinse water and syringes. During the observations and focus groups it was revealed that although injectors may not share needles but they often allow their friend to insert his needle into the same cooker (bottle caps and spoons) and draw his quantity of the drug (frontloading). Observation demonstrated that injectors normally withdraw blood a few times into the syringe and mix it with the drug first before flushing it or injecting it. They believe that this gives them a more rapid euphoric feeling. We also found empty syringes with traces of blood in the injecting site. Sharing common cotton swabs as filters was also common.

Observations and focus groups indicate that the average sharing group is about 3 to 4 persons. These are loose networks/groups, which are not permanent. Sharing of injecting paraphernalia is more likely to occur during withdrawal near the fishing boats, abandoned houses by the beach, public toilets and in the compound of the ice factory. These shooting locations were unhygienic. Most of the addicts (n = 27) during the interviews said that they injected in groups. In the study location we did not find any shooting gallery.

Only 2 cases during the interviews admitted that they had bought ready-filled syringes. This was not observed during the observations and in the focus group session subjects did not seem to be aware about this. These 2 addicts mentioned that they obtained these ready-filled syringes from a pusher in the nearby town (Butterworth). They were also not aware if these ready-filled syringes were new or used syringes.

During the interviews subjects were asked about their sexual risk behaviors. Among the 30 subjects, 3 of them are married. All the married subjects said that they have not had any other partner except for their wife. But they do not practice safe sex with their wives. Two subjects admitted that they have had sex with a sex worker in the last month before the interview. The frequency of this behavior depends on the amount of money they have. They (n = 2) practiced protected sex at all occasions, as the sex workers would not allow them to have unprotected sex. In the focus group session, most of the subjects also showed lack of interest in sex. Heroin addicts may report lack of interest in sex as the

drug may decrease their libido. In the district of Kepala Batas there are no premises where commercial sex is offered. The two subjects who reported visiting sex workers frequented them in the neighboring town of Butterworth and Bukit Mertajam.

Health and Social Consequences

There are 245 reported cases of HIV reported in the district of Kepala Batas. (Ministry of Health Malaysia, June 2003). In the state of Penang about 55% of the HIV cases are IDU's. There is no specific data to show the rate of HIV infection among IDU's in Kepala Batas but from the interviews conducted with the National Narcotics Agency officers and the local treatment practitioner indicates that there may be more HIV cases than what the official figures show.

In the year 2000 there was 8 cases of Hepatitis B reported in Kepala Batas. While there was no reported cases of Hepatitis A and C reported during this period. 27 cases of syphilis and 159 cases of tuberculosis were reported during the same period (Ministry of Health Malaysia, June 2001). This secondary data obtained is unable to give us an indication as to how many of these cases are attributable to IDU's.

During the focus group subjects were asked if they have heard any of their peers who have been infected by HIV. All of them said that they know at least one of their friends who have been infected by HIV. Subjects (n = 16) also mentioned that there is an increase in tuberculosis, hepatitis B and C infection among their peers who injected. Subjects did not seem to be aware of why there is an increase in these infections among

their peers. They also seem to lack the knowledge on why and how these infections occur.

Interview with the medical assistant in the local hospital reveal that IDU's in the project site often have skin complaints and tissue damage as a result of injecting. Data documented by local health practitioners is unable to specifically determine the mortality of drug users and its relationship from infections resulting from injecting. Bacterial, fungal and parasitic infections resulting from the use of unsterile injection equipment and contaminated injection materials is common. In addition, pulmonary tuberculosis, respiratory infections and malnutrition are also common infections among drug users. Infection at the injection site, such as abscesses and thrombophlebitis is also prevalent among injectors. This was further confirmed during our observation and interviews. We noticed that IDUs use needles until they get blunt. It is also not easy to procure syringes and needles in the pharmacy.

Twelve subjects said that they have been arrested previously for committing petty crimes. None of them mentioned that they were arrested for committing serious crimes. Police officers interviewed also mentioned that normally addicts were arrested for committing petty crimes. An addict if arrested for committing a particular crime is charged for that crime and the record would not be recorded as a drug related crime. This is the reason why we were not able to obtain secondary data from the police to show how many arrestees are drug users.

In addition, in the focus groups almost all the subjects agree that they have problems with their families and employment as a result of addiction. From the interview we found that nine of the subjects have changed jobs at least 3 times in the past year.

Discussion

Similar to NADI data, results from this study show that the primary drug used is heroin and the main mode of administration is 'chasing the dragon' followed by injecting. What the NADI data does not give us are the other drugs (e.g. benzodiazepines) that are used together with heroin and the context in which they are used. Subjects mentioned that the common reason for using other drugs together with heroin is to increase the euphoric feeling and subjects in this study seem to prefer heroin and triazolam combination. There is also a lack of knowledge about the effects of these other drugs and the use of these drugs depends on availability. Kumar (1997) reports similar findings among buprenorphine users in Madras, India. Polydrug abuse in the region has been reported in Madras, Manila, Beijing and Dhaka (National Centre for Drug Research, 1999). The initiation to injecting is much earlier now while the frequency of injecting has also increased over the years while there were no reported cases of overdose in the last few years. Similar findings have been reported by Reid et al., (2005) in their situation assessment of Malaysia. Reasons given for this behavior is lower purity levels.

The observations carried out also revealed that drug users had the wrong perception about sharing injecting paraphernalia. They were not sharing needles but were sharing all other injecting paraphernalia (e.g. syringe, cooker and cotton swabs). The practice of

'frontloading' was also common in injection sites. The main reason for this wrong perception is because prevention messages in the local language (Malay language) literally say 'do not share needles'. Addicts were precisely practicing what the message meant. In addition, addicts also injected in loose and not permanent networks. The risk of HIV infection associated with sharing injecting paraphernalia is common among drug users as diverse as Poland and Vietnam (Mc Keganey et al, 1998). More recent studies in the region show that sharing is still a common practice (Kumar et al, 2000, Yang, 2005 and Anh Ngo, 2005).

The data shows that subjects were not sexually active but those who were involved practiced risky behavior. Vicknasingam and Navaratnam (1999) showed similar patterns in their survey of Penang and Kuala Lumpur. Kumar et al. (2000) also found that heroin addicts lacked interest in sex compared to addicts using buprenorphine.

Establishing a causal relationship between drug use and its health and social consequences has always been difficult (Donoghoe and Wodak, 1998). All the common health problems faced by injecting drug users have also been reported in this study. Donoghoe and Wodak (1998) and Kumar et al, (2000) confirm that HIV, Hepatitis, TB, skin problems, tissue damage, abscesses and thrombophlebitis are common among injectors.

It is also common for drug users to face social problems. Subjects in this study have reported problems with police, employment, and family. The results of this study have

given us some insight as to what are the health and social problems faced by drug users. The current NADI system does not have the capacity to capture this kind of information as this type of health and social problems often are dealt with by the health and enforcement agencies. While it may take time before agencies are able to coordinate efforts to obtain a better understanding of drug users, rapid assessment studies are the fastest way of getting some kind of indication as to what extent is the health and social problems faced by addicts in a local area. As we are all aware with HIV, an understanding of the nature and extent of the problem got to be obtained quickly in order to implement public health responses hence averting an epidemic.

It is clear from the rapid assessment carried out that there are areas where data is needed to compliment the current NADI database. The WHO Phase II study is a good example how rapid assessment studies have been used to provide locally relevant questions. Taking the results from this study, specific information provided by the rapid assessment include information regarding the use of heroin with other substances, the context in which risky injecting practices are being practiced (sharing injecting paraphernalia but not needles), the reasons for increase in frequency of injecting, the price of drugs, the types of injecting networks, variables on sexual behavior, information regarding the health and social consequences of drug use. In addition to the suggestion on how behavioral variables are important for a surveillance system, there is also an urgent need to correct the perception of addicts with regard to their injecting practices.

Conclusion

Rapid assessment studies or qualitative assessment in general have been gaining acceptance and is becoming important in understanding epidemiology of substance abuse (Bourgois, 2002; Agar, 2002 and Rhodes and Moore, 2001). Rapid assessment is a method, which can help bridge rather than entrench further methodological disciplinary and sectoral divides in public health (Rhodes et al , 2000)

As we mentioned in the earlier part of this paper the NADI system was developed as a drug abuse surveillance system and with the emergence of HIV/AIDS the NADI system has to make provisions of more behavioral data to be collected. We have shown in this study how the current NADI system needs to include more socio-behavioral and health related variables in its database in order to understand particularly the substance abuse HIV/AIDS relationship

Acknowledgement

We would like to thank World Health Organization (WHO) for their support and funding of this study

Bibliography

Agar, M (2002) How the Drug Field Turned my Beard Grey *International Journal of Drug Policy*,13 249-258

Anh Ngo, D (2005). Rapid Need Assessment of Drug Users in Minority Ethnic Communities and HIV/AIDS in a Vietnam-Laos Border District Paper presented in the 16th International Conference on the Reduction of Drug Related Harm 20-24 March Belfast, Ireland

Bourgois, P (2002) Anthropology and Epidemiology on Drugs The Challenge of Cross Methodological and Theoretical Dialogue *International Journal of Drug Policy*, 13 259-269

Des Jarlais, D C , Perlis, T , Stimson, G V and Poznyak, V (2005) *Using Standardized Methods for research on HIV and Injecting Drug Use in Developing/Transitional Countries* (draft unpublished report)

Des Jarlais, D C , Friedman, S R , Sothorn, J L , Wenston, J., Marmor, M , Yancovitz, S R., Frank, B , Beatrice, S and Mildvan, D. (1994) 'Continuity and change within an HIV epidemic: Injecting drug use in New York City, 1984 through 1992', *Journal of the American Medical Association*, 274, pp 1226-31

Donoghoe, M C and Wodak, A (1998) Health and Social Consequences of Injecting Drug Use In: Stimson, G.V, Des Jarlais, D.C and Ball, A.L (edt), *Drug Injecting and HIV Infection Global Dimensions and Local Responses* World Health Organization, UK UCL Press

Fitch, C and Stimson, G V (2003) *An International Review of Rapid Assessments Conducted on Drug Use A Report from the WHO Drug Injection Study Phase II* Geneva, World Health Organization

Fitch, C , Rhodes, T , Hope, V , Stimson, G V and Renton, A. (2002) The Role of Rapid Assessment methods in Drug Use Epidemiology *Bulletin of Narcotics*, vol LIV, Nos 1 and 2 61-72.

Friedman, S R and Des Jarlais, D C (1991) HIV among Drug Injectors The Epidemic and Response *AIDS Care*,3 239-250

Kumar, M S , Mudaliar, S., Thyaragan, S P., Kumar, S., Selvanayagam, A and Daniels, D (2000) Rapid Assessment and Response to Injecting Drug Use in Madras, South India *International Journal of Drug Policy*,11 83-98

Kumar, S (1997) 'A study of buprenorphine abuse in Madras City, India' In Kumar, S , Mudaliar, S and Daniels, D "Research Monograph on Drug Abuse and HIV/AIDS" Sahai Trust, Chennai, 19-37

Mc Keganey, N, Friedman, S.R and Mesquita, F (1998) Overview The Social Context of Injectors Risk Behavior Stimson, G V, Des Jarlais, D C and Ball, A.L (edt), *Drug Injecting and HIV Infection Global Dimensions and Local Responses* World Health Organization, UK UCL Press.

Ministry of Health Report (2005) HIV Infection, AIDS Cases and Death Report in Malaysia

Ministry of Health Report (2003) HIV Infection, AIDS Cases and Death Report in Malaysia

Ministry of Health Report (2001) HIV Infection, AIDS Cases and Death Report in Malaysia

National Centre for Drug Research (1999) A Comparison of Drug Abuse Patterns of Selected East Asian and South Asian Cities In Navaratnam, V and Abu Bakar, A (edt) *Report of the Asian Multicity Epidemiology Workgroup International Monograph Series 15* Penang University Sains Malaysia

National Drug Information System (June 2001) *Ministry of Home Affairs, Malaysia*

National Narcotics Report (2000) *Ministry of Home Affairs, Malaysia*

Reid, G , Kamarulzaman, A and Sran, S.K. (2005) *Rapid Situation Assessment of Malaysia 2004* Centre for Harm Reduction, Melbourne and Infectious Disease Unit, University Malaya

Rhodes, T and Moore,D (2002) On the Qualitative in Drugs Research *Addiction Research and Theory*, 9 (4) 1-19

Rhodes, T , Fitch, C , Stimson, G V and Kumar, M S (2000) Rapid Assessment in the Drugs Field *International Journal for Drug Policy* ,11 1-11

Rhodes, T , Stimson, G V., Fitch, C , Ball, A and Renton, A (1999). Rapid Assessment, Injecting Drug Use, and Public Health *Lancet*, 354 65-68

Vicknasingam B and Navaratnam V (1999) 'A behavioral study on intravenous drug use and HIV/AIDS Knowledge in Malaysia' *International Medical Research Journal* 3(1) 45-49

Yang, Y (2005) Rapid Need Assessment of Drug Users in Four Counties of Yunnan Province Paper presented in the 16th International Conference on the Reduction of Drug Related Harm 20-24 March Belfast, Ireland