CHAPTER II

LITERATURE REVIEW

2.1 INJECTING DRUG USE AND HIV/AIDS RISK IN INDIA

In India, injecting drug use for non-medical purposes has increased rapidly during the decade of the 1980s in the northeastern states of India, Manipur, which cultivates poppy for traditional consumptions. Manipur started reporting cases of heroin addiction among the youths in Imphal valley as well as in Churachanpur district, the two most developed town of Manipur (Hangzo M.).

The first HIV case among the IDUs was reported from Manipur in February 1990 from the blood sample collected in October 1989. This was followed by a rapid spread of HIV infection in other neighboring states like Nagaland and Mizoram. The HIV prevalence among IDUs rose from 0% in 1990 to 55% within 6 months of reporting. The HIV prevalence among IDUs was higher than 10% in some metropolitan cities in India like Chennai, Delhi, Mumbai, Bengalore and Kolkata where the problem of IDU is prevalent.

2.2 INJECTING DRUG USE AND HIV/AIDS IN MANIPUR

AIDS has emerged as a new and serious public health emergency in Manipur. Manipur is geographically very close to the notorious "Golden Triangle" (between Myanmar, Thailand and Laos) where more than 20% of the world's Heroin Drug is reportedly produced. Due to its proximity to the "Golden Triangle" with perforated borders, Manipur became an alternative route for illegal international drug trafficking in the late seventies and early eighties. Eventually Manipur become a " User State" by early eighties. The pure form of Heroin, which is the injectable form, locally, known as "No.4" is easily available. In early eighties, "Heroin Addiction" reached an explosive situation when many gruesome murders connected with drugs occurred in the state (MACS, AIDS Alert 1999). Since the first HIV case was reported in 1990 among cluster of IDUs, there had been rapid spread of HIV infection among IDUs during the early and late 1990s. As of October, 2003, a total of 16,501 HIV positive cases, 2647 females and 2690 AIDS cases with 380 deaths was reported out of total 10,6366 blood samples screened from September 1986 to October 2003 for surveillance giving a sero-positivity rate of 155.1 per 1000 blood samples (MACS-Epidemiological Report Oct 2003). Manipur with hardly 0.2% of India's population is contributing nearly 8% of India's total HIV positive cases. It ranks third highest as regards the total number of HIV positive cases- the first is Maharashtra State, the second is Tamil Nadu State. However the sero-prevalence rate of Manipur is at least 6 times higher than that of Maharashtra State, 20 times higher than that of Tamil Nadu State. The HIV seroprevalence rate among IDUs in Manipur had increased from 0 to 50% in just one year during 1990-91. During February-March 1994, 1995, 1996 and 1997; the sero-prevalence rate among IDUs in Manipur has increased from 59.9% in 1994 to 80.70%

in 1997 (MACS, Status Report 2001-02). However, it showed a declining trend from 1998 onwards with a seroprevalence rate of 72.78% in 1998. The HIV prevalence among IDUs was 55.4% in 1999 and 56.27% in 2001, 39.2% in 2002 and 30.7% in 2003 (MACS-Epidemiological Report 2003). Injecting drug use is the main determinants of HIV infection where more than 70% of the total HIV infection cases are due to sharing of contaminated needles and syringes among the injecting drug users. In 2003, 55% of the total HIV infection cases were contributed by injecting drug users. The HIV epidemic is no longer confined to the IDUs but it has gradually spread to the general population through sexual transmission and perinatal transmission. The infection has already spread to the spouses of IDUs and their children. Thus, the Manipur State Government considers the control of spread of HIV infection among IDUs as great public health emergency and a challenging task to be taken into consideration.

2.3 MANIPUR STATE RESPONSES TO INJECTING DRUG USE AND HIV/AIDS

In order to tackle the galvanizing problem of HIV infection among the IDUs, the Manipur State AIDS cell was formed that carried out the HIV prevention and control Programme. Soon the Manipur State formulated and adopted the State HIV/AIDS Policy on 3rd October 1996 that gives a great emphasis on the prevention of HIV infection among IDUs (MACS, AIDS Alert 1999). Manipur is the first state to come up with HIV/AIDS Policy and the only state that clearly and strongly support harm reduction measures. The policy statement described that " Harm reduction measures like "Drug Maintenance Therapy", "Needle Syringe Exchange Programme"

and " Safer Sex" will be introduced to minimize the risk of spread of HIV infection in the population"(12.1 pp7 State AIDS Policy MACS). This policy document is the first and only policy document of its kind in the whole county that clearly supports harm reduction measures for effective and rapid intervention of the spread of HIV infection among IDUs and their sex partners. Since 1996, the State of Manipur has approved and implemented a broad ranging harm reduction policy and program (Makunga 1998).

2.4 IMPLEMENTATION OF MANIPUR STATE AIDS POLICY

Soon after the formulation of State AIDS Policy, the Manipur State AIDS Control Society (MACS) was established in March, 1998 in order to implement the HIV/AIDS control and prevention programme more effectively and more efficiently. In order to ensure effective implementation of the Harm Reduction Programme in Manipur, the programme is integrated with care components under the project known as "Rapid Intervention and Care Project (RIAC) project. This project has been launched on 7th November 1998. The activities of the project comprise of community sensitization and mobilization, risk reduction education, voluntary counseling and HIV testing, Needle Syringe Exchange Programme, Bleach & Teach Programme, STD treatment, condom promotion, Drug Substitution Programme, home care components, referral services, and also creation of helpful, supportive and conducive social environment including formation of Self-Help Groups. The objectives of RIAC are to reduce further spread of HIV infection among IDUs and their sexual partners, to monitor and evaluate behavioral changes of IDUs, to achieve complete abstinence from addictive drugs in the long run and to minimize the spread of HIV infection to the female spouses of IDUs. Manipur is the first in India to have adopted Harm Reduction

Programme (MACS, Status Report 2001-02). The Manipur State AIDS Control Society has implemented the RIAC Project with funding from National AIDS Control Programme (NACO) in partnership with 18 major NGOs in 7 districts of Manipur out of total 9 districts (MACS 1999). Out of the estimated 15,000-20,000 IDUs in the state, the initial target was to cover 1,000 IDUs for the year 1998-99 which has increased to 18,000 in 2000-2001 and 20,000 for the year 2002-2003. Presently, the RIAC project is the single biggest Harm Reduction project in the entire South and South East Asia and is being currently implementing by 26 NGOs covering all the districts of Manipur with 100% funding by NACO (MACS, RIAC 2003). During 2001-2002, National AIDS Control Organization (NACO) has granted approval of the project to cover 18,000 injecting drug users. By December, 2002 the RIAC Project rendered services to 15,401 IDUs. The performance index of the project was 92 as per evaluation report of the NGOs implementing RIAC Project by an external organization and it showed that 59% of the IDUs have stopped the practices of sharing, 46% of them were regularly using condoms in 2003 which was only 4% when the programme was implemented in 1999, 89% of them have known how to sterilize the syringes with bleach and 83% of them have received home care services through the NGOs implementing RIAC Project (MACS, RIAC 2003). The fund allocated by NACO and financial expenditure for implementing the Targeted Interventions Programme among high risk groups such as IDUs, CSWs (Commercial Sex workers), MSM (Men having Sex With Men), truck drivers, migrant workers etc during 1999-2000 was Rs.150.93 lakhs and it increased to Rs.265.00 lakhs in 2001-2002. The financial expenditure spent increased from Rs.99.68 lakhs in 1999-2000 to Rs.159.83 lakhs in 2001-2002 (MACS-Status Report 2001-02).

2.5 INJECTING DRUG USE AND HIV/AIDS IN DELHI

In the early nineties, some major metropolitan cities like Delhi, Chennai, Kokalta and Mumbai had witnessed a new epidemic of pharmaceutical injecting, in particular buprenorphine (Dorabjee & Samson 1998). Due to low price and easy availability of brown sugar (brown heroin), and unavailability of poor man's cannabis or "ganga", had caused a growing demand among the lower socio-economic classes, which soon spread among the slum populations of Delhi. Heroin use was reported for the first time in 1981 and about 25-40% showed a transition to buprenorphine injectors. (SHARAN 2001). The first AIDS case was reported in 1988. There was an estimated 35,000 HIV positive cases in Delhi. In 2002, there were 22,400 HIV infected cases and Delhi constitutes about 4% of the total AIDS cases in India. (AIDS in Delhi. HFW Delhi). The sero-positivity rate was 2.25 per 1000 in 1993 and in 2000, it was 13.65 per 1000. The HIV/AIDS data is largely based on sero-prevalence report and among the IDUs there were three estimates. The first estimate is 8.43% according to sero-surveillance reports in 2000. However, according to a study conducted by SHARAN (Society for Service to Urban Poverty) in collaboration with John Hopkins University in 1999 found that 44.8% of the IDUs were HIV positive that cause a grave public heath concern (Dorabjee et al.2000).

2.6 DELHI GOVERNMENT RESPONSES TO INJECTING DRUG USE AND HIV/AIDS

The National Capital Territory of Delhi does not have a policy on HIV/AIDS apart from that of the National HIV/AIDS Control Policy and follow the guidelines issued by NACO under World Bank funded program known as National AIDS Control Project Phase II (1999-2000), which aims at reducing the spread of HIV infection in India and strengthening India's capacity to response to HIV/AIDS on long term basis. The NACP (National AIDS Control Programme) has five components and component 1 deals with the various Targeted Intervention (TI) programmes aimed at reducing HIV transmission among the high-risk groups that include IDUs. The National AIDS Prevention and Control Policy was formulated and passed on 2nd April 2002. The policy stated that " the most important strategy to combat the problem of intravenous drug use and its serious consequences in transmission of HIV/AIDS would be the "Harm Minimization" approach which is now being accepted world wide as a effective preventive mechanism. Harm Minimization in the context of Intravenous (IV) drug use would require not only appropriate health education, improvement in treatment services but in most practical terms, providing of bleach powder, syringes and needles for the safety of the individual" (5.10 NAPCP, NACO). However, to date in Delhi, there is no government funded or implemented programme that deals with HIV/AIDS in the context of drug users and there is no intervention either in the form of IEC (Information, Education ad Communication) or harm reduction strategies that have specifically targeted IDUs in Delhi. So far, only one non-governmental organization, SHARAN (Society for Service to Urban Poverty) with external funding works specifically with a focus on HIV/AIDS and harm reduction in the provision of drug

treatment services among IDUs. SHARAN operates a drop in center (DIC) in slum locations with a high HIV incidence of IDUs providing comprehensive treatment and care to prevent HIV/AIDS among IDUs and their sexual partners. The program offers a NSEP, sublingual Buprenorphine substitution, peer education, primary health services, abscess treatment, HIV counseling, referral services, drug use and HIV support groups and condom promotion. The program has offered services to 1453 drug users in one year from March 2000-March 2001 (SHARAN 2001). The Delhi Government's AIDS Control Society has estimated 45,000 injectors (Dorabjee & Samson 1999; Times 1999). Considering the sizable number of IDUs, the coverage by only one NGO under harm reduction programme is very low and inadequate.

2.7 HARM REDUCTION STRATEGIES

Harm Reduction is a public health philosophy that seeks to lessen the dangers that drug abuse and our drug policies cause to society. It is a public health model of incremental behavioral change which can be applied to active drug users with the goal of preventing HIV infection avoiding drug related harms and overdose and ultimately achieving abstinence. It is a comprehensive approach to drug use and drug policy. Harm reduction also seeks to reduce the harm caused by an over-emphasis on prohibition, such as increased purity, black market adulterants, and black market crime. It protects youth from dangers of drugs by offering factual, science-based drug education, and eliminating youth's black market exposure to drugs (Drug Policy Alliance 2002). This approach favors treatment of drug addicts by professional health care over incarceration and imprisonment. In short, it seeks to restore basic human

dignity with the disease or addiction. Harm Reduction in case of injecting drug use consist of the five components:

1. Outreach work and peer education-done through peer education-risk reduction education and others
2. Needle Syringe Exchange Programme (NSEP)
3. Drug Substitution Programme
4. Bleach and Teach Programme
5. Creation of an enabling, helpful and supportive environment in the community so as to enable the IDUs to come forward for voluntary counseling, voluntary HIV testing and for seeking care and support.
6. Care and support for people using drugs and people living with HIV/AIDS

Needle Syringes Exchange Programs (NSEP)

NSEP are established in order to increase the availability of sterile injection equipment, and to remove contaminated needles from circulation among the IDUs who participate in the program. Such programs also include other services such as education concerning risk behaviors, referral to drug treatment programs, and provision of condoms. Needle Exchange programs have been implemented in locations in a variety of developed countries (Kara S.R. 1996). NSEP was widely practiced in many western countries in late 1980s and early 1990s when the HIV epidemic was started among IDUs in such regions or countries. To mention some of the few cities where NSEP was practiced and was found effective to control the HIV epidemic are as follows: Sydney

(Australia), Glasgow (Scotland), Lund (Sweden), Tacoma (Washington), Toronto (Canada). In some of the studies on the effectiveness of NSEP in US, it was found that:

(i) Frequent use of a NSEP is associated with reduced sharing in studies in California, Maryland and NY: the NY study found the number of study participants sharing needles and syringes dropped from 26% to 8% after the first visit to needle exchange, then to 3% after 8 months of attending the needle exchange (Vlahov et al. 1997; Paone et el. 1999).

(ii) The number of times a syringe is used was reduced by more than half after IDUs started attending NSEPs in three US cities (Heimer et al. 1998). Some of the studies on effectiveness of NSEP conducted in those cities of the world are as follows:

- The prevalence of HIV in syringes collected by a NSEP in Connecticut fell from 66% to 43% within three months of opening of NSEP (33% reduction) (Heimer et al. 1998).
- 70% reduction in HIV incidence when comparing NSEP participants against non-participants in NY (Des Jarlais et al. 1996); and a reduction in prevalence among NY IDUs from 50% to around 30%.
- There was 15% to 70% reduction in HIV incidence in a range of US cities, using three different models (the difference between these results may be largely explained by level of reach of NSEPs- the greater the reach, the greater the likely effect on HIV incidence) (Lurie and Drucker 1997).
- Study found that on average, seroprevalence increased by 5.9% per year in the 52 cities without NSEP, and decreased by 5.8% per year

in the 29 cities with NSEP. The average annual change in seroprevalence was 11% lower in cities with NSEP (Hurley et al 1997).

The RIAC Project for rapid intervention of HIV infection among the IDUs that is based on harm reduction has been implemented in Manipur, India since 1999 till date. From the harm reduction project (RIAC) in Manipur, it is learnt that (i) needle syringe exchange programme does not increase drug use (ii) it does not promote initiation of drug injection (iii) it reduce sharing of injection works (iv) it increase condom use (v) it increases community acceptance and lastly (vi) it reduces HIV prevalence among IDUs (MACS, AIDS Alert 2002). However, safe injection programmes although appears to reduce the HIV risk behaviors among IDUs, they have not resulted in the complete elimination of HIV transmission in IDUs (Des Jarlais 1992).

Drug Substitution Programme

Drug Substitution Programme is one of the components of harm reduction strategy that refers to substitution of an illegal and harmful drug used in injection with a legal and less harmful drug orally. It helps in lessening the harmful consequences of drug injection. The drug commonly used in substitution is either methadone or buprenorphine, which are opiates derivatives. They are safe and effective medications for opiate addiction that are administered by mouth in regular, fixed doses. Their pharmacological effects are markedly different from those of heroin. In western countries, drug substitution with methadone is very common and is the most effective

known treatment for drug addiction. In Asian countries like India, oral substitution is done with buprenorphine, an antagonist of morphine

Bleach and Teach Programme

The use of bleach has been long recognized as one of the best effective technique for sterilizing injecting equipments. Bleach (Sodium Hypochlorite 5.25% diluted 1:10) is an ideal disinfectant for IDUs as it is effective in killing HIV, fast acting, safe to the user as well as to the equipment, it is inexpensive and toxicity is low. Many bleach distribution programs are incorporated into NSEP relying on a community outreach approach. In some countries where sterile needles and syringes are difficult to access, it is rather more difficult for IDUs to obtain it for both economic and political reasons. Henceforth, bleach distribution is a viable and effective alternative.

2.8 INJECTING PRACTICES AND HIV RISK

HIV is transmitted among injecting drug users (IDUs) primarily through the sharing of infected injecting equipment that include needle, syringes and other drug paraphernalia, such as "cooker" (spoons or containers for dissolving drugs), "cotton" (filters), and washwater. Syringe sharing can involve injection with equipment previously used by others (which pose a risk of injection to the recipient) and passing on equipment (which poses a risk of transmission to the recipient). There is direct contact of the drug paraphernalia and drug user's blood when drug is injected intravenously. Sharing of injecting equipments is also very common mainly in developing countries among IDUs. In Bangkok, 55% of IDUs reported sharing equipments on monthly basis. 30% of IDUs in Rio de Janeiro reported these behaviors

and 53% in Santos shared equipments on monthly basis (WHO 1994). 45% of the IDUs reported no sharing in the six months before the interview conducted in 12 major cities of the world (WHO 1998)). And 95% reported cleaning their equipment before injecting themselves.

2.9 SOCIO-DEMOGRAPHIC CHARACTERISTICS OF INJECTING DRUG USERS

There were striking similarities in the demographic characteristics of injecting drug users across the world in spite of the vast differences in socio-cultural background of the cities participating in the survey conducted in 1998 in 12 cities of the world where HIV infection was prevalent among IDUs (WHO 1998). Injectors were predominantly males, despite the high proportion of females recruited in the study. Injectors were mostly aged between 21 to 34 yrs at the time of interview except in Glasgow where majority were less than 25 yrs and in New York, most were above 34 yrs of age. Between 20% to 35% of them were homeless in Madrid, New York, Sydney and Toranto. Henceforth, in this study, the profile of IDUs in a global scale would be a male, in his late twenties, unmarried, unemployed with a permanent place of residence and a high school education.

The profile of IDUs in India showed a rather different picture as compared to global scale in respect to education level as per a Behavioral Surveillance Survey in 2002, in five major cities study where IDUs were prevalent. Overall, three-fourth of the respondents reported between 19 yrs and 35 yrs of age. Nearly half of them belonged to 26 to 35 yrs age group. The mean and median age was 31 yrs and 30 yrs

respectively. The mean age of respondents varied from 34 yrs in Chennai to 27 yrs in Manipur. The proportion of illiterate respondents was higher in Kolkata (56%), Mumbai (42%), and Delhi (39%) as compared to Chennai (15%) and Manipur (11%) respectively. Overall 41.2% reported that they had ever been married. About 26% of them were non-agricultural or casual laborers. Nearly 95% of them were living in the city or town where they were interviewed (NACO, BSS-II 2002). In short, the profile of IDUs in India would be a male, in his late twenties, unmarried, unemployed and working as a casual laborer, live in the city/town and a primary school education.

2.10 RISK PRACTICES OF INJECTING DRUG USERS IN INDIA

As per Behavioral Surveillance Survey (BSS) of IDUs in 2002 in five cities, the risk practices of IDUs showed some variations among the cities. It was reported that that the age at first initiation of injecting addictive drugs was lowest in Manipur where 46.8% had started injection by 20 yrs of age, 8% of them injected 4 or more times a day, 35% reported that they had ever shared injecting equipment in the last time of drug injection, the frequency of cleaning needles & syringes every time they inject was 40%, 4% of them cleaned with bleach. Regarding the sexual practices, 22% of them reported having sex with commercial sex workers in last 12 months, the condom use rate with commercial sex workers was high at 80%, the mean number of commercial sex workers visited and non-regular sex partners in last 12 months were 3.1 and 1.2 respectively. The percentage of IDUs reported consistent condom use with commercial sex workers and non –regular sex partner were 34% and 50%. The high-risk perception of contracting HIV infection was 24% (NACO, BSS- II 2002).

In Delhi, in the same study, more than a quarter started injecting after 30 years of age, the mean age of IDUs was 27.5. 12.4% of them injected 4 or more times a day, 55% reported that they had ever shared injecting needles and syringes in last time of drug injection, the frequency of cleaning needles & syringes every time they inject was 34%, 2.2 % of them cleaned needles and syringes with bleach. Regarding the sexual practices, 26% of them reported having sex with commercial sex workers in the last 12 months. The mean number of commercial sex workers and non-regular sex partners were 7 and 2.8 respectively. The percentage of consistent condom use rate with commercial sex workers and non-regular sex partners were 42 % and 14.6%. The high-risk perception of contracting HIV infection was 30.7%, 14% had moderate risk perception and 39 of them had low risk perception (NACO, BSS-II 2002).

2.11 SEXUAL RISK BEHAVIOR AND INJECTING DRUG USER IN INDIA

The IDUs are equally sexually active as non-injectors. The frequency of sexual intercourse with someone of the opposite sex was similar for most centers, with most reporting intercourse in the last six months (WHO 1998). Highest condom use rate was reported in Madrid, New York, Rome, Santos where 15 % to 20% of IDUs stated that they always use condom even with regular sex partners. There was also report of men having sexual practices with the same sex that varied between 4% in Rome to 20% in Sydney.

In India, sexual risk behavior is equally important as India's HIV epidemic is driven by heterosexual transmission. Unprotected sex, including commercial sex, is quite common with substantial high STD prevalence among IDUs. About 60% of

respondents reported condom use with commercial partners in the last 12 months of interview as compared to 34% of respondents reported using it with casual partners and 34% reported using it with regular partners (NACO, BSS-II 2002). Only 32% reported consistent condom use with commercial partners in the last 12 months of survey and 12% with casual partners; 6% with regular partners respectively.

There are various studies conducted to assess the risk behavior in IDUs. In one study conducted to characterize the association of select drug use behaviors and duration of drug use in IDUs, using multi-site prospective cohort study in five US urban areas between 1997 to 1999, it was found that among recent drug use behaviors (injecting with others the last time ever injected and injecting on an average of more than in last 6 months) examining across 3 sequential cohorts of 0-1 yrs, 2-3 yrs and 4-6 yrs of age, the 0-1 yrs IDUs group was more likely then 4-6 yrs to report injecting with others, the last time injected and to inject on average more than they did in last 6 months (Meredith B.B. 2002). The recent needle sharing among IDUs was found correlated with number of IDU friends, engaging in illegal jobs, being unable to use new needles at all times as per research study to examine factors associated with needle sharing among IDUs in southern Thailand using a cross-sectional survey (Permgmark P et al. 2003).

2.12 KNOWLEDGE ABOUT HIV/AIDS AMONG INJECTING DRUG USERS IN INDIA

There were studies on the knowledge, attitude and practices of IDUs regarding HIV/AIDS. In a study conducted in Manipur in 1992, 94% of IDUs were males, 28 % were in the age group of 15-24 yrs, 62 % in the age group of 25-34 and 9 % in age group 35 to 44yrs and 38% of them are unemployed. The knowledge of IDUs about the basic facts related to HIV/AIDS was 88 % with $P < 0.05$ (compared to general population), knowledge that AIDS can be transmitted by sexual contact with HIV carrier was 83%, $P < 0.05$, regarding needle sharing with HIV infected persons can lead to AIDS was 79 %, $P < 0.01$, about willing to take tests for HIV/AIDS was 66%, $P<0.01$ (MVHA & VHA 1992).

Regarding prevention methods on HIV/AIDS, 64% of them had positive knowledge that drugs should not be injected intravenously, knowledge on prevention method by not sharing needles & syringes was 79.5%, using condoms every time when having sex with others was 63.7%. 70.5% of them have knowledge that having sex with only one uninfected faithful spouse would protect from getting HIV infection (MVHA & VHA 1992).

In Manipur as per Behavioral Surveillance Survey (BSS) conducted in 2002, Manipur 100% of IDUs have ever heard of HIV/AIDS, 97% of them were males, the mean age of IDUs was 26 96%, 90% are literate, 78% are employed, and 85% live in city or town. The knowledge level was found very high in IDUs where 100% of them had reported that they had ever heard about HIV/AIDS. Out of them, 96.8% of them

reported that needle sharing could lead to HIV transmission. Awareness on HIV prevention by consistent condom use was 90%, by sticking to one uninfected faithful sex partner was 78% and by switching to non-injecting drugs was 41% respectively and 60.8 % of them had correct beliefs about HIV transmission (NACO, BSS-II 2002).

In Delhi, it was found that mean age was 31.4, 62 % of them are literate, 88% of them are employed, 97% of them live in city. The knowledge on HIV/AIDS was comparatively lower than the five cities under studied, where 94% of IDUs reported that they have ever heard about HIV/AIDS, 85% of them knew that needle sharing can lead to HIV transmission. Awareness on HIV prevention by consistent condom use was 77%, and by sticking to one uninfected faithful sexual partner was 59%, switching to non –injecting drugs was 36% and 24% of them had correct beliefs about HIV transmission (NACO, BSS-II 2002).