ECONOMIC STUDY OF HIV-PATIENTS IN IMPHAL, MANIPUR

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DECLARATION

I, Koko Wangjam, hereby declare that this thesis entitled "**Economic study of HIV-patients in Imphal, Manipur**" submitted by me under the guidance and supervision of **Prof. Naresh Kumar Sharma**, School of Economics, University of Hyderabad, is a *bonafide* research work, which is also free from plagiarism. I also declare that it has not been submitted previously in part or full to this University or any other University or Institution for the award of any degree or diploma. I hereby agree that my thesis can be deposited in Shodganga/INFLIBNET.

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CERTIFICATE

This is to certify that the thesis entitled "Economic study of HIV- patients in Imphal, Manipur" submitted by Koko Wangjam bearing registration number 13SEPH16 in partial fulfilment of the requirements for award of Doctor of Philosophy in the School of Economics is a bonafide work carried out by her under my supervision and guidance. This thesis is free from plagiarism and has not been submitted previously in part or in full to this or any other University or Institution for award of any degree or diploma. The candidate has satisfied the UGC Regulations of publication and conference presentations before the submission of this thesis. Details are given below:

A. Publication: Koko Wangjam (2015): "Epidemiological Overview of HIV/AIDS in India'', 277-288, ISBN-81-7211-353-6, 2015, Northern Publications, New Delhi.

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Abstract

HIV/AIDS as an epidemic covers great deal of disciplines in academia, policy-making and personal or household issue of patients and care-givers. However, in health economics the concern for the type of problem is: When an individual is infected with HIV, what are the decisions he/she makes; which is as its best the most efficient. How the policies of the government affect the individual and society? A cross-sectional study through simple random sampling without replacement (SRSWOR) on 200 HIV+ patient cases aged 25-65 years who attended the ART centre Jawaharlal Nehru Institute of Medical Sciences (JNIMS), Imphal between March- July 2016 were included in the study. Out of which, 100 patients were HIV+ only and the other 100 patients were HIV+ with Hepatitis-C virus (HCV) co-infection. From the policy point of view, there is need to pay close attention to occurrence of co-morbidities such as HCV, since this significantly and adversely affects survival time and possibly quality of life. The parameters are type of patient (HIV/ HIV+HCV), sex of patient, marital status, employment status, spouse employment status, family income, CD4 count and transmission of disease. The average survival time of HIV patients at 9.55 years is observed to be longer of the patients with both HIV and HCV at 6.89 years; while the overall average survival time of the patients is 8.22 year. With the rise in awareness plus an availability of advance PreP the world is at the precipice of finding a cure of HIV. An additional year of life can improve the chances of an individual patient to benefit from such medical advancement.

ABBREVIATIONS

ART	: Anti- Retroviral Therapy
ARV	: Anti-Retro Viral drugs
AIDS	: Acquired Immune-deficiency Syndrome
ARD	: AIDS related deaths
ANC	: Ante-natal Clinics
AZT	: Zidovudine
CD4	: Cluster of Differentiation 4
CST	: Care, Support and Treatment services
CLHIV	: Children living with HIV
CSW	: Commercial Sex Workers
CI	: Confidence Interval
DR	: Drug Resistance
ELM	: Employer Led Model
FSW	: Female Sex Worker
GSOEP	: German Socio-Economic Panel
HAART	: Highly Active Anti-retro Viral Therapy
HRGs	: High Risk Groups
HIV	: Human Immune-deficiency Virus
HCV	: Hepatitis-C Virus
Hep-C	: Hepatitis C
ICONA	: Italian Cohort of Antiretroviral Naive Patients
IDUs	: Intravenous/ Injecting Drug Users
ICTC	: Integrated Counselling and Testing Centres
JNIMS	: Jawaharlal Nehru Institute of Medical Sciences

KFT : Kidney Function Test

LFT : Liver Function Test

MDGs : Millennium Development Goals

MSM : Men having sex with men

NGOs : Non-governmental Organization

NtRTI : Nucleotide Reverse Transcriptase Inhibitors

NsRTI : Nucleoside Reverse Transcriptase Inhibitors

NNRTIs : Non-nucleoside reverse transcriptase inhibitors

NACO : National AIDS Control Organisation

NACP : National AIDS Control Program

NDHS : National Demographic and Health Survey

NFHS : National Family Health Survey

OST : Opiate substitution therapy

PHC : Primary Health Centre

PreP : Pre-Exposure Prophylaxis

PLHA : People Living with HIV/AIDS

PPTCT : Prevention of Parent to Child Transmission

PCP : Pneumocystis pneumonia

RIMS : Regional Institute of Medical Sciences

QOL : Quality Of Life

RT : Reverse transcriptase

SES : Socio-economic status

SNEP : Syringe needle exchange programme

SRSWOR : Simple random sampling without replacement

STI : Sexually Transmitted Infections

SW	: Sex workers
TI	: Targeted Interventions
TG	: Trans-gender
UNO (or UN)	: United Nations Organisation
UNAIDS	: United Nations AIDS Programs
UT	: Union Territory
WHO	: World Health Organisation

CHAPTER - 1

INTRODUCTION

1.1 Outlook on HIV/ AIDS

Human immune-deficiency virus/ Acquired Immune-deficiency Syndrome (HIV/AIDS) is an ongoing and ever-changing public health issue since its incidences were observed in 1980s. The effects of this pernicious disease are felt by both developed and developing countries alike. The advancement in the treatment procedure, say, Highly Active Anti-retro Viral Therapy (HAART) has made the mortality rate to decrease to a significant degree. HIV as such is a condition. It culminates in fatal disease when the infection advances into AIDS stage. In some way, HIV can be considered as a chronic disease if the patient takes enough care and not let it progress to AIDS, which can prove to be fatal. An HIV+ person can live a normal even vigorous life by making the suitable lifestyle changes. This includes enrolling oneself in ART program and adhering to it; eating a balance diet; avoiding use of alcohol, smoking and chewing tobacco; and use of condoms during intercourse. In broad sense, barring the stigma associated with HIV, the disease itself is manageable like any other lifestyle, chronic diseases like diabetes or hypertension etc. But, it should not be discounted that public health policies and intervention by government and international bodies have helped a great deal in alleviation of the disease burden.

The shift in mortality can be attributed to many factors such as easy access for detection and counselling stronger drugs and awareness among people who

have HIV or HIV+ relative(s) or family member(s). With the initiation of anti-retroviral therapy (ART) all these three factors are met by regular visit to an ART centre. In order to make treatment more accessible, ART centres are located in medical colleges and district hospitals. Also, primary health care centres in remote areas and non-profit institutions assist treatment services to people living with HIV/AIDS (PLHA) by providing care and support. A PLHA network person at each of the ART centre facilitates access to care and treatment services at these centres by providing peer-counselling i.e, an PLHA talking and listening to problems of another HIV-patient. ART centres also provide counselling and follow upon treatment adherence and support through community care centres. As of 2016, there are 528 ART centres across India of which 13 are in the state of Manipur, one of the eastern most international bordering states with Myanmar. By 2017-2021, the numbers of ART centres have risen to 1,261.

Anti-retroviral therapy (ART) "effectively suppresses replication, if taken at the right time. Successful viral suppression restores the immune system and halts onset and progression of disease as well as reduces chances of getting opportunistic infections" – this is how ART is aimed to work. Adherence to ART regimen plus medication thus enhances both quality of life and longevity; consequently is very vital in this treatment. Any irregularity in following the prescribed regimen can lead to resistance to HIV drugs, and therefore can weaken or negate its effect. ART is now available free to all those who need it. Public health facilities are mandated to ensure that ART is provided to people living with HIV/AIDS (PLHA). Special emphasis is given to the treatment of sero-positive

women and infected children. As people live longer, healthcare focuses less on mortality than on improving how people feel and function, often in the face of multiple chronic diseases or conditions. The present study is an economic evaluation of HIV-patients using relevant econometric models.

1.2 Understanding Health Economics

Health economics, compared to traditional economics is relatively a late entrant. Health economics gained popularity as a discipline after Kenneth J. Arrow's seminal paper in 1963. In order to elaborate the understanding we can draw more from the various definitions and the scope of health economics.

A good number of economists have defined health economics in various ways: Health economics is "a branch of economics concerned with issues related to efficiency, effectiveness, value and behaviour in the production and consumption of health and healthcare". It is important "in determining how to improve health outcomes and lifestyle patterns through interactions between individuals, healthcare providers and clinical settings" (Howard, 2020). Health economics is "an applied field of study that allows for the systematic and rigorous examination of the problems faced in promoting health for all. By applying economic theories of consumer, producer and social choice, health economics aims to understand the behaviour of individuals, health care providers, public and private organizations, and governments in decision-making". Morris et al. (2012) describes "h*ealth economics is the application of economic theory, models and*

empirical techniques to the analysis of decision-making by individuals, health care providers and governments with respect to health and health care."

In fact, Health economics uses "economic concepts and methods to understand and explain how people make decisions regarding their health behaviours and use of health care. It also provides a framework for thinking about how society should allocate its limited health resources to meet people's demand/need for health care services, health promotion and prevention". As more and more technologies develops in the field of medicine and also in finance; the vastitude of what truly defines health economics will shift from time to time. With the advancement in AI (artificial intelligence) and Big Data; the ways in which we approach health and health systems are swiftly changing.

1.3 Setting of the Study

The 2015 HIV estimates "suggest that the State of Manipur had an adult prevalence rate of 1.15%" and thus, is "the only State in India that currently had 'generalised' epidemic" (NACO Report, 2017). By 'generalised' HIV epidemic means HIV prevalence rate is greater than 1% in the general population. HIV/ AIDS is a serious "public health challenge in Manipur. The first HIV-positive case in the state was reported in February 1990 from the blood samples drawn from a cluster of injecting drug users (IDUs). Till 2005, out of the 1,22,561 blood samples screened, 19,372 (15.81%) were HIV-positive, out of which 3,552 (18.32%)were of women". A majority of the intravenous drug users in Manipur consists of young persons, mostly "between the age groups of 15 to 35 years.

Among IDUs, those in the rural areas have slightly higher rates of infection than those in urban areas" (NACO Fact Sheet, 2017).

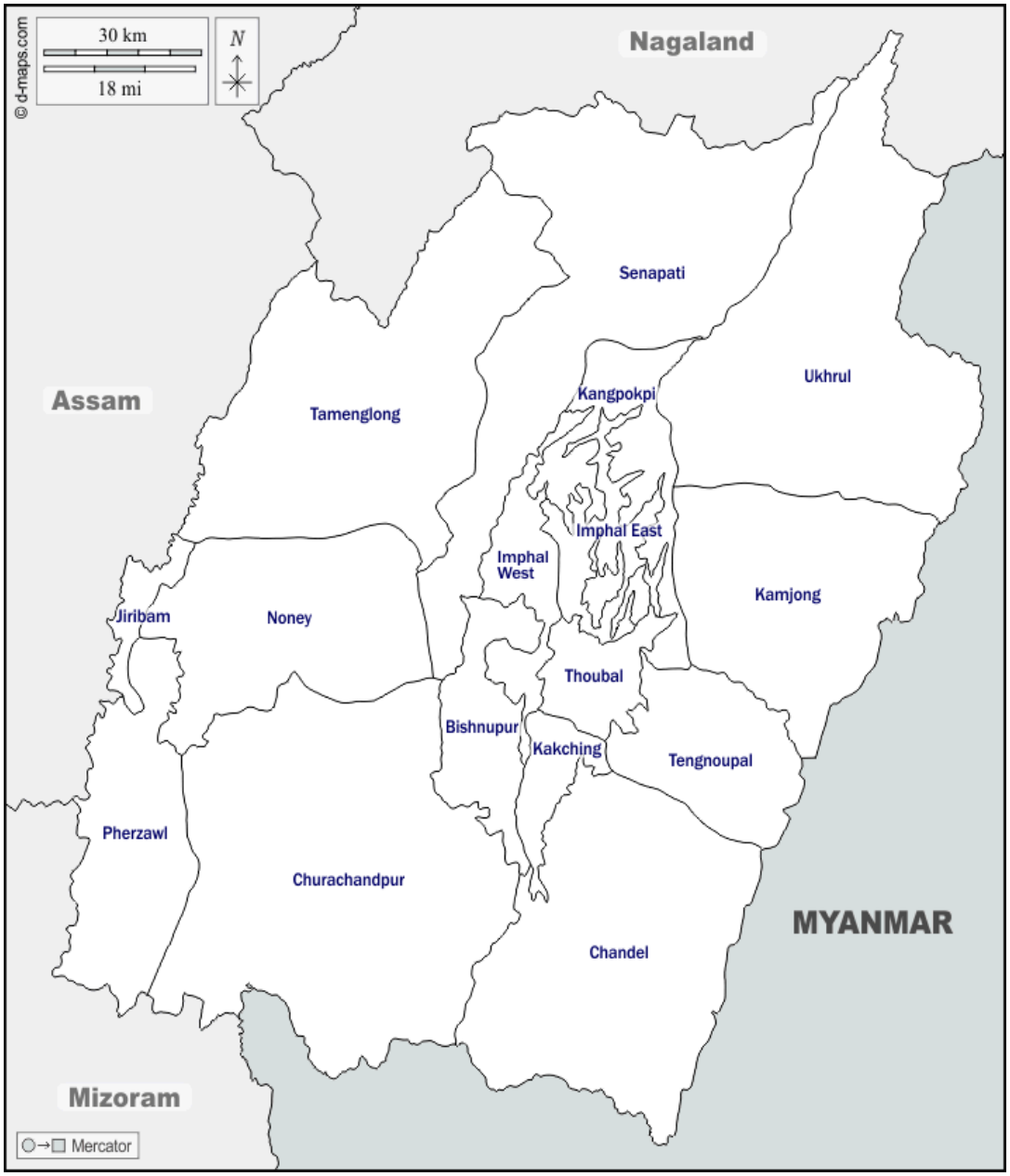

Figure - 1: Districts of Manipur State
(Source: Google image)

As per India HIV Estimation 2017 report, "national adult (15-49 years) HIV prevalence in India is estimated at 0.22% (0.16-0.30) in 2017. In this year, adult HIV prevalence is estimated at 0.25% (0.18-0.34) among males and at 0.19%

(0.14-0.25) among females". The adult "HIV prevalence at national level has continued its steady decline from an estimated peak of 0.38% in 2001-03 through 0.34% in 2007, 0.28% in 2012 and 0.26% in 2015 to 0.22%" in 2017.

India is estimated to have around "87.58 thousand new HIV infections in 2017, showing new HIV infection decline by 85%" since the peak of 1995 and by 27% during 2010-2017. Of the total annual new HIV infection in 2017, women are accounted for 40%. Annual new HIV infections are "increasing in three states of Assam, Mizoram, Meghalaya and Uttarakhand", while in "Nagaland, Manipur, Delhi, Chhattisgarh and Jammu & Kashmir decline is less than 10% in last 7 years". Ten states: Telangana, Bihar, west Bengal, Uttar Pradesh, Andhra Pradesh, Maharashtra, Karnataka, Gujarat, Tamil Nadu and Delhi accounts for "71% of total annual new HIV infection."

Since 2005, when the number of "AIDS related deaths (ARD) started to show a declining trend, the annual number of AIDS related deaths has declined by almost 71%." In 2017, an estimated, "69.11 (29.94-140.84) thousand people died of AIDS related causes nationally. AIDS-related deaths have dropped in all of India's States/UT with the exception of Assam, Bihar, Jharkhand, Haryana, Delhi, and Uttarakhand."

Note: Here, he estimates of years before and during the time of data collection (field work) i.e, 2016 is taken into consideration. As HIV data is publicly available in government portals as internet sources, more recent data during the time of thesis completion is given in Chapter 3.

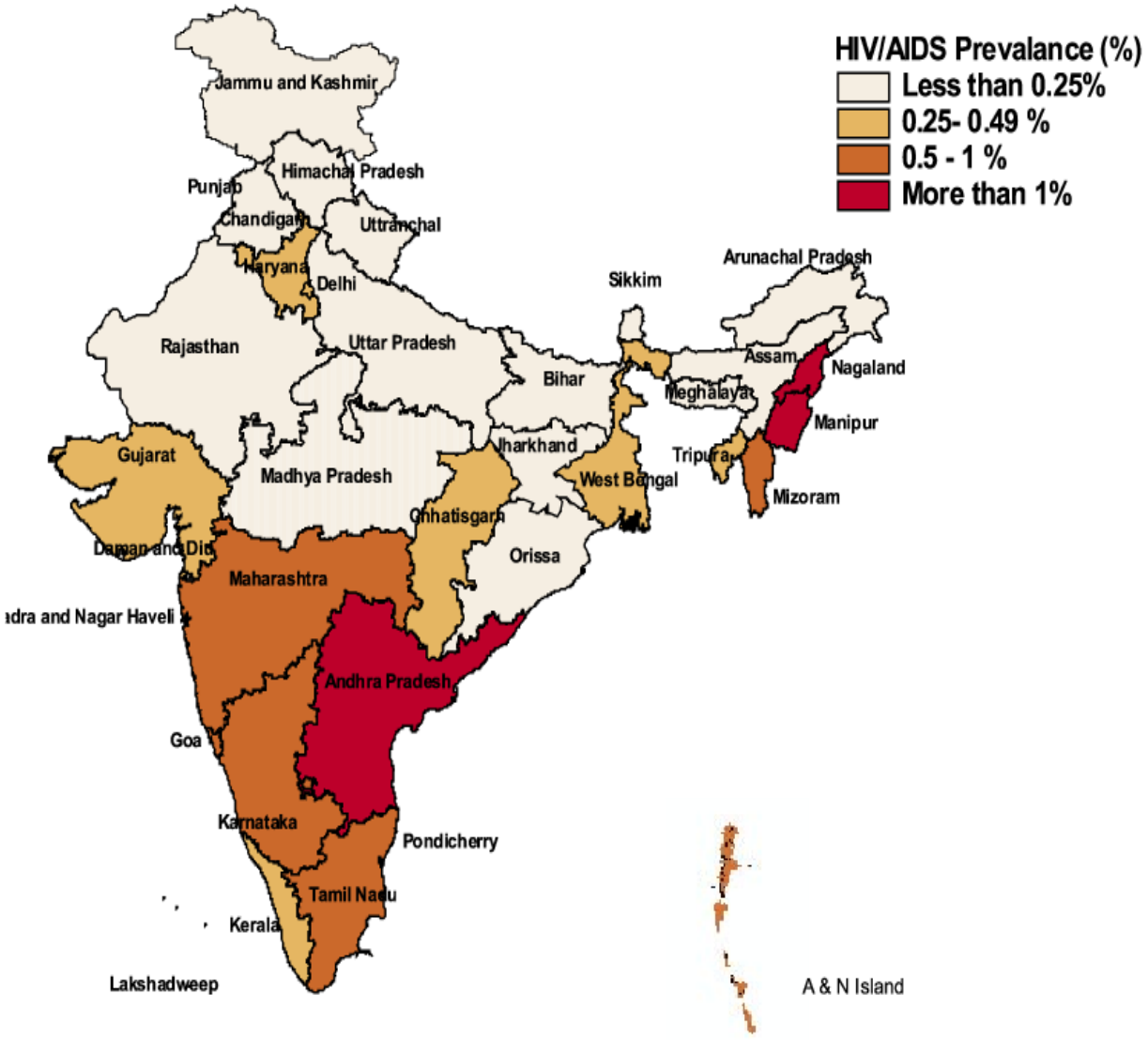

Figure 2: Map of India with HIV/ AIDS Prevalence (%)
(Source: Google image/naco records)

Meanwhile, a 2015 study by Solomon et al, on "burden of Hepatitis-C virus disease and access to Hepatitis-C virus services in people who inject drugs in India was a recent study to assess the burden of Hep-C in 15 cities across India. The prevalence of HIV among this population was found to be 5.7%." However, the Hep-C prevalence was "25.6% and prevalence of co-infection of Hep C and HIV was 14.4%. In addition, 6 of the 15 cities showed a co-infection of higher than 30%." The National Strategic Plan (2017-2024) under NACP- IV (National AIDS

Control Program-IV) envisages ‘comprehensive Hepatitis-C screening and treatment among key population.’

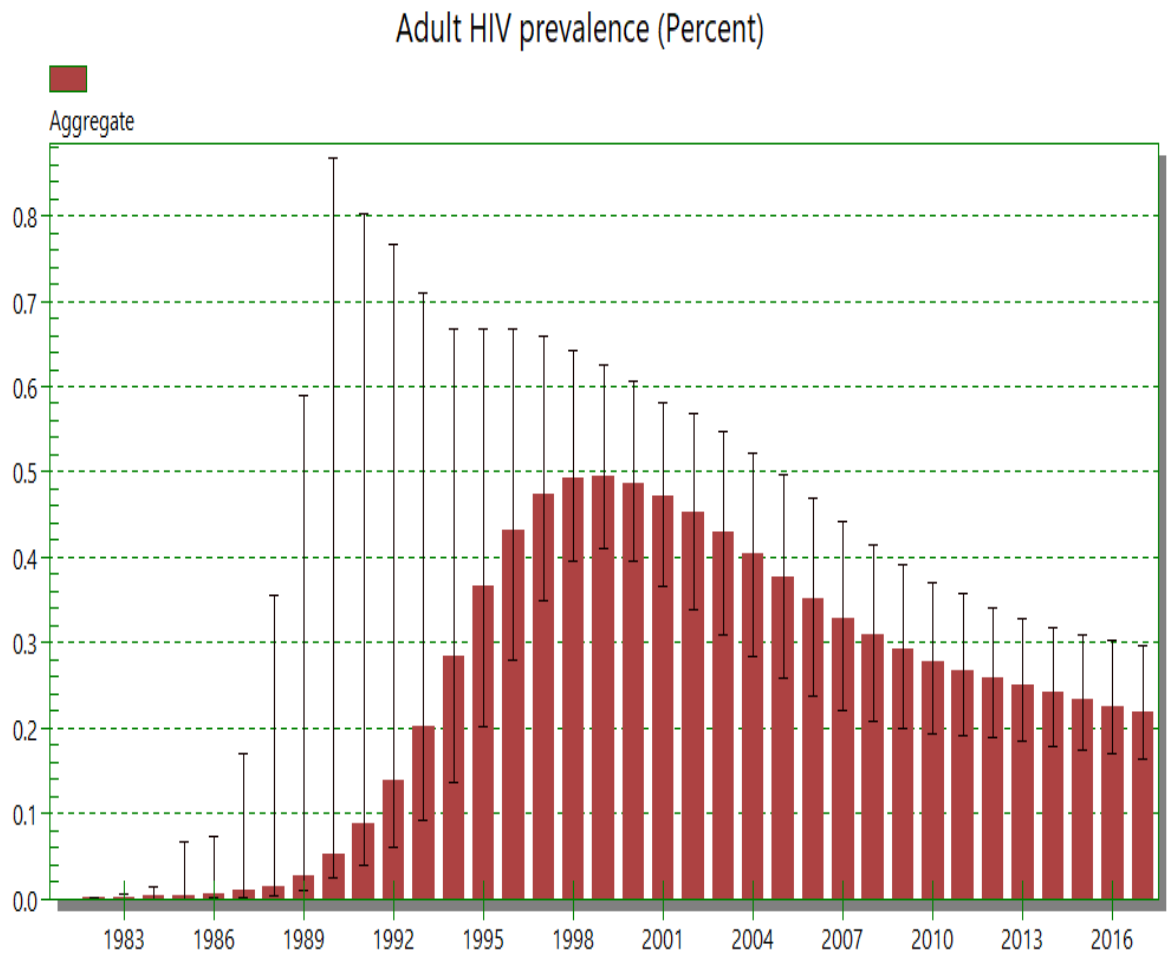

Figure - 3: Adult HIV Prevalence in India during 1990 to 2017
(Source: NACO, HIV Estimations 2017)

As per the India HIV Estimation 2017 report, “national adult (15-49 years) HIV prevalence in India is estimated at 0.22% (0.16-0.30) in 2017. In this year, adult HIV prevalence is estimated at 0.25% (0.18-0.34) among males and at 0.19% (0.14-0.25) among females”. The adult HIV prevalence at national level has continued its steady decline from “an estimated peak of 0.38% in 2001-2003 through 0.34% in 2007, 0.28% in 2012 and 0.26% in 2015 to 0.22% in 2017.”

Among the States/UTs in 2017, "Mizoram has shown the highest estimated adult HIV prevalence of 2.04 % (1.57-2.56), followed by Manipur 1.43% (1.17-1.75), Nagaland 1.15% (0.92-1.41), Telangana 0.70% (0.50-0.95) and Andhra Pradesh 0.63% (0.47-0.85). Besides these States, Karnataka 0.47% (0.37-0.63), Goa 0.42% (0.21-0.79), Maharashtra 0.33% (0.25-0.45) and Delhi 0.30% (0.18-0.47) have shown estimated adult HIV prevalence greater than the national prevalence (0.22%), while Tamil Nadu 0.22% (0.14-0.31) had point prevalence like the national average. All other States/UTs have levels of adult HIV prevalence below 0.22%."

1.4 Objectives

The general objective of the present study is to investigate the economic life of the patients with HIV and HIV+HCV with various socio-economic, demographic, cultural, behavioural factors by utilizing suitable econometric models. Specific objectives are:

1. To compare the economic life of patients with HIV and the patients with HIV+HCV;
2. To study the survival duration of the patients after detection of the disease; and
3. To examine the cost linkages in treatment of the disease.

1.5 Sample and Sampling Technique

A cross-sectional study through simple random sampling without replacement (SRSWOR) on 200 HIV+ patient cases aged 25-65 years who attended the ART centre Jawaharlal Nehru Institute of Medical Sciences (JNIMS), Imphal between March- July 2016 were included in the study. Out of which, 100 patients were HIV+ only and the other 100 patients were HIV+ with Hepatitis-C virus (HCV) co-infection. A personal interview was conducted taking the verbal and written consent from each respondent. The interview was conducted by the researcher herself. After completion of each interview the questionnaire sheet were co-signed by an attending medical officer.

1.5.1 Sample Size Determination

The sample size is determined by the formula "$n = \frac{\zeta_{\alpha}^{2}\sigma^{2}}{\varepsilon^{2}}$" where n is the sample size; ζ_{α} which is taken as 1.96, the standard normal variate value at α (0.05) significance level; σ, the standard deviation and ε is the margin of acceptable error. The desired sample size in this case is 200. It is computed on the basis of the pilot survey consisting of 15 patients under study (Mean $\pm$ SD of the survival time of the patients = 9.7 ± 3.5 years) under 95 per cent degree of precision with 5 percent margin of error to the mean.

Computation:

$$n = \frac{1.96^{2} x 3.5^{2}}{(0.05 x 9.7)^{2}}$$

$$= \frac{3.84x12.25}{(0.485)^2}$$

$$= \frac{47.04}{0.235}$$

$$= 200.17$$

Therefore, **n = 200**

As already mentioned,the sample was equally divided into two segments: persons with HIV (100 nos.) and persons with HIV as well as Hep-C (100 nos.).

1.5.2 Exploration of the interview questionnaire:

The major part of this study is based on primary data collected through field work. A questionnaire is prepared up which includes five sections. These sections seek information with respect to:

A) Personal profile

B) Infection status

C) Employment status

D) Treatment Cost

E) Cost on travel

In each section related questions are posed. The personal profile includes: name, age, sex (gender), contact number, residence, marital status and family size of the patient. The infection status includes: the time (year) when the HIV test was conducted, route of transmission, whether they are on ART, name of ART centre, CD4 count, co-infection and Hepatitis-C co-infection. Although a consent form is signed by the

patients, this interviewer made efforts to ensure that the respondents were comfortable and do not feel coerced to share their information.

In employment status section, information about employment status and related aspects is obtained. Here, the goal is to identify the economic aspect of income of the patient. Elucidating: The first question is whether the patient is employed (with the option of Y/N/NA); followed by spouse's employment with the same option of response. The details of employment status are collected and categorised in eight sub-sections: "Employee (full-time), Employee (part time), self-employed, government-supported training, other training or education, employee on sick leave, not in paid employment due to retirement and not paid in employment for other reasons". In case of employed patient, information as income (by clan intervals) is sought. This is due to the fact that people are not very comfortable disclosing their exact income. Also, in this study the respondents are from low-income, mostly informal sector. The following two questions in this same section are targeted for daily-wage earners viz.: "If you are in paid work please tell us the number of days you have been away from work due to treatment related purposes". And, please estimate the "earnings lost on account of absence from work due to treatment related purpose" during the past one year. Here, one thing that is observed is the nature of employment and enumeration. In case of patients who have responded as employed when answering the details of employment and income it generates, becomes uncomfortable and discrete. This necessarily is not the unwillingness to share but more to do with the type of employment.

The section of treatment cost assimilates three important aspects in the course of HIV treatment: hospitalization, supplementary medicines and co-infection prophylaxis. The cost of treatment for HIV patients includes routine check-ups by doctor, mandatory diagnostic tests (CD4 count, viral load, LFT, KFT and X-ray) which are taken every three or six months apart. Apart from ART, patients are asked whether they also take supplementary medicines. In case, the respondent answered yes, further details of the type of medicine, dosages per week and amount spent on those medicines are noted. For co-infection, as mentioned earlier the focus for this study is hepatitis- C (HCV) co-morbidity. So, the detailed enquiry on whether the patients have specifically tested for HCV is asked. If the patient has responded yes (n=100), details of the diagnostics are gathered viz.: when was the test done, where was the investigation carried out, the amount spent, are you taking treatment (Y/N); if yes, the cost of treatment, who funded it, dosages; if no, the reasons (high-cost of treatment, lack of resources for affording the treatment or do not felt the need for taking treatment). Lastly, in this section, respondents' opinion on whether the government should support treatment of hepatitis-C is sought; with the option to respond on: fully subsidize, partially subsidize and no necessity.

The final section of the questionnaire is on cost of travel. This is the expenditure borne by the patient to attend ART. It starts by asking the respondent how they commute to the ART centre from their place of residence (walking, private vehicle or public transport), fare, frequency of visit (for this study: once every month), do they have accompanying person, do they need to stay overnight for visiting ART centre. If yes, the mode of accommodation and amount spent per visit.

The questionnaire is placed at Annexure II.

1.6 Sample Selection Criteria

The eligibility criteria (sample frame) include firstly, HIV+ patients enrolled in ART centre; secondly, regular or 100% adherence to the program and thirdly aged between 21-70 years that is adult population.

It is a fact that not all HIV positive persons are enrolled in ART program. The reasons for this are: unawareness of the availability of such program, in case of knowledge of ART some people choose not to attend the centre due to the proximity to their place of residence and attending the centre would lead to disclosure of their HIV status and the fear of actual or perceived stigmatisation from society inhibits them from enrolling. On the other hand, some patients residing in remote places could not be a part of program as cost of running an ART centre is very high for very less density of population. In cases like this, the village primary health care centre (PHC) doubles as an ART centre and the main service it provides is the distribution of ARV drugs on time. Prior to 2017, some PLHIV could not be part of ART program due to medical reasons i.e. when the CD4 count was above 500mm^3. Now, it is advised that as soon as anyone tests positive for HIV, he/she should immediately be assigned to the nearest ART centre.

The exclusions are: 1) children with HIV; 2) HIV+ patients with chronic co-morbidity like cancer, diabetes etc.; 3) patients whose adherence to the program is less than 50%; and 4) HIV-patients who are on ART-II program also known as second-line treatment.

1.7 Pilot Study

The pilot study was carried out in two parts one in 2014 and later during 2015 in the Imphal East and Imphal West region of Manipur. During the earlier parts of the pilot survey, I visited NGO's who are/were working in HIV/AIDS. At their suggestion, an informal door to door interview survey was carried out with one key informant on my side whose purpose was pointing out the house-holds in which one or more members of the family was HIV+. Despite their earnest effort and my persistence, this method did not yield the best or even in some cases the minimal requirement to be considered proper data as the respondents were unwilling to participate or would give very vague response. I was instructed not to take any notes in front of them and also to carry out the interview more like a casual conversation without giving them a hint that it was for research. The informant who accompanied me was a person who have known the patients personally before.

Simultaneously, I interacted with HIV-patients attending the ART centre at Regional Institute of Medical Sciences (RIMS), Imphal. Here, I took out my questionnaire and approached patients in the waiting area; where I would take a verbal consent from the patient and explain the purpose of the interaction was data collection for my research. Eventually, during February 2015 and November-December 2015, I approached several NGO's formally. It resulted in few interviews with HIV+ patients who were registered members of the respective NGO. This also could not yield required results; as the number of persons promised and the actual number who were willing or in this context consenting to

take part in the study was not very satisfactory. Ultimately, by the beginning of 2016, I approached the JNIMS-ART centre formally and was granted permission to conduct face-to-face interviews with patients who were willing to participate.

1.8 Organisation of the thesis

This thesis is organized into six chapters. The first chapter gives the general introduction, the objectives of the study and background of where and how the field is conducted for primary data collection. The second chapter is the literature review section of the thesis. The third chapter deals with the importance of epidemiological overview of HIV/AIDS. This section is significant as it provides the bird's eye view of the disease in India. The fourth and fifth chapters are where the analysis and results are presented. Lastly, the sixth chapter offer the concluding remarks of the study.

1.9 Summary

The way in which HIV as a medical condition and HIV/AIDS as an epidemic can cover great deal of disciplines in academia, policy-making and personal or household issue; however, in health economics this is exactly the kind of problem we are concern with. When an individual is infected with HIV, what are the decisions he/she makes; which is as its best the most efficient. How the policies of the government affect the individual and society?

CHAPTER - II

REVIEW OF RELATED WORKS

The study of economic life of HIV/AIDS patients is a complex process due to the fact that it is influenced by various socio-economic, socio-cultural, behavioral, and health care factors. Here review of research work which have a direct or an indirect bearing and relevance to the present work is considered. It has been thematically carried out so as to have clear understanding about relationship between the present variables of interest and the similar ones of the past investigations. With the views and interactive discussions furnished by a good number of researchers, the review work has been incorporated in the thesis in terms of influential factors of indices patients' economic life.

2.1 **Studies conducted on global and international level**

In Europe and the USA, socio-economic factors such as "poverty, low income, and low educational level have been associated with poorer outcomes for several diseases, including cancer, and cardiovascular disease" (Woods et al., 2006; Saydah and Lochner, 2010; Hawkins et al., 2012). Various findings have suggested that "lower socio-economic status quantified by education or income is associated with poorer adherence to treatment, such as steroids for asthma and insulin for diabetes" (Apter et al., 1998; Peyrot et al., 2010). It is now 35 years since Acquired Immune Deficiency Syndrome (AIDS) was first "recognized and identified officially as a new disease in communities of homosexual men with multiple partners" in New York City. After two years, "a new retrovirus, HIV was

identified as being the unique cause and health authorities internationally agreed that any person acquiring this virus would sooner or later succumb to AIDS and die. HIV is a disease that disproportionately affects those with socio-economic disadvantage" (Pellowski et al., 2013). In the USA, in people with HIV receiving antiretroviral therapy (ART), "lower education level, unemployment, homelessness, or household poverty are associated with having poorer virological and immunological outcomes" (Shacham et al., 2010; Simoni et al., 2013; Beer et al., 2014; Burch et al., 2016). "HIV-positive populations in the UK and Europe also comprise distinct demographic groups, with substantial variation in social circumstances. As such, social inequalities may result in disparities in HIV health outcomes."

In contrast to USA, "the UK has universal free access to health care, including HIV diagnosis, hospital consultations, and antiretroviral treatment, which should greatly lessen financial barriers to accessing HIV treatment and care. The association between socio-economic factors and HIV outcomes in the USA might not be generalized to settings with free universal health care, which have been little studied" (Burch et al., 2016). Additionally, in the Italian ICONA cohort study (Saracino et al., 2016), "in individuals who had been taking ART for at least 6 months, unemployment was associated with double the risk of virological failure compared with working full-time". The socio-economic variations in virological outcomes in people treated for HIV in the UK have not been found in previous studies. "ART non-adherence is the major determinant of virological non-suppression and subsequent virological rebound" (Paterson et al., 2000) which in

turn predicts poorer prognosis for people living with HIV (Chene et al., 2003). The findings of some European studies (Moralejo et al., 2006; Glass et al., 2006; Collazos et al., 2010; Burch et al., 2016) have shown that 'lower socioeconomic status (measured by education, employment, and social support) is associated with ART non adherence, but a minority of studies found no evidence' (Sherr et al., 2010).

Recent studies suggested that 'the economic value of increased health have been enormous' (Nordhaus, 2003; Murphy and Topel, 2006). The relationship between socio-economic status of people and HIV infection in developing countries is controversial. Considerable research attention has been given to "the relationship between socio-economic status and HIV in these countries that suffers a disproportionate higher burden of HIV/AIDS". Some studies suggest that "people with low, while others suggest that those with high socio-economic status are more vulnerable to HIV infection" (Fortson, 2008; Parkhurst, 2010; Fox, 2012). More studies have demonstrated "the positive relationship between SES and vulnerability to HIV infection in less developed and developing countries" (Gillespie and Greener, 2007; Msisha et al., 2008; Durevall and Lindskog, 2012). Previous studies have used diverse measures of socio-economic status including employment.

The association between educational attainment and HIV infections is found to have mixed evidence. Some studies indicates that "education is negatively associated with HIV infection" (Gupta and Mahy, 2003; Glynn et al., 2004) while others "report a positive association" (Fortson, 2008; Meekers and

Ahmed, 2000; Dinkelman et al., 2007; Marteleto et al., 2008; Magadi, 2011). There is more convincing argument in support of the former; for example, "education may be associated with HIV infection through schooling. Schooling keeps young people away from environments which would increase their vulnerability to HIV infection and inspires students to develop long term goals. This contribute to delaying sex, which makes young people avoid HIV infection" (Walque, 2007; Zuilkowski and Jukes, 2012). "Higher educational attainment (defined here as complete secondary or higher education) provides knowledge, which individuals use to avoid HIV infection" (Durevall and Lindskog, 2012; Bradley et al, 2007) and "provides employment, which enhances the capacity of people to act on their plans to reduce vulnerability" (Gillespie and Greener, 2007; Walque, 2007; Zuilkowski and Jukes, 2012). The SES-HIV evidence is controversial and context specific. However, Parkhurst (2010) examined "changes in HIV prevalence over time, and as much as the role of rural urban residential area and gender in the construction of vulnerability has been addressed in the previous research" (Magadi, 2011; Messina et al, 2010; Madise et al, 2012) there is none about Uganda. Besides the controversy on SES (Scio-economic Status), majority of previous research has 'focused on the influence of individual characteristics (demographic factors) on their risk of being infected with HIV' (Bloom et al., 2002; Hillemeier et al., 2009; Stephenson, 2009; Tiruneh et al., 2017). Scholars argue that "the personal characteristics of the individual do not fully explain their risk of HIV infection" (Clarke et al, 2010).

The findings of the past studies evinced that "wealth status is linked to HIV infection through complex pathways. The first link is through the income effect" (Fotso and Kuate-Defo, 2005) that may be in the opposite direction. "People with high income tend to lead lifestyles associated with increased number of sexual partners which increases their vulnerability to HIV, while those with low income may be unable to access HIV services also leading to increased vulnerability" (Gillespie and Greener, 2007; Durevall and Lindskog, 2012). "Poverty makes people vulnerable to HIV in diverse ways including dropping out of school; marrying early; loss of livelihood; and being homeless due to displacement by war, all of which have been linked to increased HIV vulnerability" (Whiteside, 2002).

Many findings of various studies also reported that as "the HIV infection progresses, it affects the quality of life of the individual" (Kemppainen et al., 2001; Bourgoyne et al., 2001; Paton et al., 2002; Penedo, 2003). Various "factors apart from physical and mental health like employment status, age, gender, income, education, HIV stage, severity of HIV infection, etc. are found to impinge on the quality of life of people living with HIV/AIDS" (Cowdery and Pesa, 2002). Also, quality of life is identified as a useful "medium to measure or determine the efficacy of treatment or interventions like dietary interventions" (Echeverria et al., 1999).

In this new millennium, HIV/AIDS has become a serious socio-economic and health problem with "33 million people living with HIV virus in the Globe and 2.4 million people in India in the year 2007" (UNAIDS, 2008). National

AIDS Control Organization (NACO) reports ‘stabilization of virus in the southern part of the country’; however, “26 districts have been identified with the increase in HIV prevalence. In India, anti-retroviral (ARV) treatment is given free of cost to PLHIVs registering themselves at the anti-retroviral treatment (ART) center. In 2009, NACO reports that there are 4 987 integrated counseling and testing centers (ICTC) and 211 ART centers where ART treatment is given free of cost to over 2 lakh people living with HIV” (NACO, 2009). Anti-retroviral drugs have ‘revolutionized the treatment for HIV’ by increasing the average lifespan of HIV-positive individual. Quality of life of ‘people living with HIV have become a salient issue after the increase in availability of anti-retroviral treatment and increase in average life span’. WHO defines “quality of life (QOL) as individuals’ perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns (WHO, 2002).”

In case of HIV/AIDS information, socio-cultural and economic factors predispose women to this disease infection in most of the African regions. The “factors are more worrisome in the rural areas where women are most vulnerable to the disease. It is owing to unequal right and access to basic necessities of life such as education. The HIV/AIDS has been recognized as a social disease and its aftermath is attributed to social sexual behaviour” (Dallabetta, 1999; Dibua, 2009). In one view, cultural beliefs and imposition of it on women have increased the risks and restricted their decision regarding risky behaviour. Early marriage and adolescent pregnancies cause girls to drop out of school at early age thereby

undermining their economic status. It also causes women to be completely dependent on their husbands for survival. “Polygamy and widow inheritance are other cultural practices that contribute to the incidence of HIV/AIDS among women. Other social practices such as son preference, women circumcision, polygamy, and use of contraceptives have significant implications on HIV/AIDS infection.” Some men even refuse to wear condoms because they claim it is not in their culture to do so. Preston-Whyte (1999) reported “that common socio-cultural barriers to embracing protective behaviour against HIV/AIDS are critical topics of research implemented to understand why some preventive strategies, especially those encouraging the use of condoms, have been unsuccessful in many parts of Africa.” However, in addressing this socio-cultural and economic divide, the Joint United Nations Program on HIV/AIDS emphasized “the need to address the socio-cultural behaviours and values of communities that expose individuals to HIV risk behaviours. This approach is believed would lead to effective HIV/ AIDS intervention strategies” (UNAIDS, 2006). Furthermore, UNAIDS (2002) observed that “sexual behaviour is the most important factor influencing the spread of HIV in Africa and that behaviour varies greatly across cultures, age groups, socio-economic class and gender.” Culturally, women are particularly vulnerable to sexual exploitation with most of them are not able to or denied the freedom to manage their lives. Poverty has also been “identified as a serious economic factor that could predispose persons mostly women to HIV/AIDS infection.” Women who are poor are often sexually exploited as a result of the dire conditions in which they have to make a living.

In this regard, Dibua (2009) alleged that "the developing countries particularly, sub-Saharan African bear the brunt of the HIV epidemic on account of poverty and cultural factors among others which create particular vulnerability to the agonizing consequences of the infection." Panos Institute (1990) previously noted the similar view that "developing countries have indicated that two out of every three person who fall below poverty line are women who have the highest rate of illiteracy, lowest educational levels and may not even have access to radio and television. Studies on socio-cultural, economic and political factors determining HIV/AIDS infection" have been carried out. The available studies place much emphasis "on adolescents (both males and females) due probably to their sexual behaviour" (Conjoh et al., 2011), others examined "the effects of these factors on commercial sex workers" (Dibua, 2009). Several findings also related "the influence of socio-cultural, economic and political factors on contraceptive use" (Preston-Whyte, 1999; Falola and Heaten, 2007).

2.2 HIV studies in India

In India, the first HIV infection case was detected in 1986 among female sex workers in Chennai. Paranjape and Challacombe (2016) observed "four southern states – Andhra Pradesh, Karnataka, Maharashtra, Tamil Nadu, and two North East States – Manipur and Nagaland were categorized as high-prevalence states." The epidemic was concentrated among female sex workers, men having sex with men (MSM) and intravenous drug users (IDU). In their findings, "majority of the transmissions was found to be attributable to the heterosexual route and the transfusion-associated transmissions were high, but concentrated

efforts at regulating blood supplies brought down transfusion-associated transmissions to less than 1% of total infections."

In case of prevention, efforts are largely focused on information, education and communication among target populations. "Enhancing availability of condoms and treatment of STIs are key components of the prevention programmes. Among intravenous drug users (IDU) – the focus is on opiate substitution therapy (OST), syringe needle exchange programme (SNEP) and treatment of sexually transmitted infections (STI)" (Ramakrishnan et al., 2015). India implemented 'Prevention of mother to child infection' by "treating the mother with Zidovudine (AZ) from the 2nd trimester and then moved on to single-dose nevirapine treatment for prophylaxis." Nowadays, India has accepted in principle the WHO recommendation that "highly active antiretroviral therapy (HAART) should be provided to all HIV-positive pregnant women and be continued for life. The evidence that male circumcision is associated with protection from HIV was inferred from the studies in Pune among STI clinic attendee cohorts" (Reynold et al, 2004) and there has been much "discussion on whether male circumcision might be a clinically useful preventive measure" (Sinha et al, 2015).

Prior to introduction of antiretroviral therapy (ART), in HIV/AIDS treatment, management of HIV-infected patients comprised the treatment of opportunistic infections like cryptococcal meningitis, pneumocystis pneumonia (PCP), oropharyngeal candidiasis and cytomegalovirus retinitis. At present, "Indian pharmaceutical companies manufacturing low-cost generic ART and

availability of free antiretroviral drugs in the National Programme, advanced cases of HIV disease are rarely seen" (Paranjape and Challacombe, 2016). "Adherence to ART is the major problem nowadays and if not addressed will lead to the emergence of strains resistant to HIV therapy" (Chakravarty et al, 2015). Viral load testing and resistance testing of HIV should be a future priority of prophylaxis in India; if a secondary epidemic of drug resistant viruses is to be avoided. Stigma and perceived stigma of the disease has led to more deaths than HIV itself. HIV/AIDS on its own is a chronic manageable disease nowadays.

The previous findings of HIV-infected patients have been observed on the recent scenario related to transmission, molecular epidemiology, drug resistance and co-infection in Manipur and some other states having its high incidence. IDU has received high attention because of "the high risk of HIV transmission and, recently, hepatitis B virus (HBV) and hepatitis C virus (HCV). While 98% of IDU injected heroin in Manipur, main injecting drug in Nagaland was dextropropoxyphene (99%)" (Mahanta et al., 2008). In their findings, "the majority of respondents reported using chlorpheniramine (87%) and heroin (99%) in Mumbai. In these states, almost half of IDU reported sharing needles and syringes; consistent condom use with non-paid female partners was also low." In findings of Kermode et al. (2009), "the main cause of using drugs was for pleasure seeking, influence of peers and economic reasons. The idea of injecting drug was initiated by commonly a friend, who helps in injecting the drugs in the well-established social networks". Opioid substitution therapy is effective, in cases involving IDUs; and leads to the improvements in the quality of their lives (Kumar

et al., 2009; Armstrong et al., 2010). Armstrong et al. (2011) again found that "those IDUs having the knowledge of HIV prevention services was more likely to engage in safe injecting, sexual practices and avoid risky characters". "The effective HIV prevention and care programmes for IDUs may hinge on several contexts; supportive government policy on harm reduction programmes; an end to harassment by military, and anti-drug groups, with education of these entities regarding harm reduction and creation of partnerships with the public health sector" (Chakrapani et al., 2011). "Not only men but women also used injecting heroin" (Kermode et al., 2012). The study further observed that "heroin on women has negative health impact such as reproductive health, mental health, social exclusion, violence, children's welfare and financial difficulties." It also revealed that "64% of young women of aged 31 year who used heroin and alcohol were widowed or divorced. It further indicated that women used drug and alcohol to avoid symptoms of withdrawal, to suppress emotional pain, to overcome the shame of sex work, pleasure and widowhood" (Kermode et al., 2013). Armstrong et al. (2015) highlighted that "most of the HIV-positive people who inject drug in Manipur were not aware of their HIV status and practice unsafe injection and sexual activities". However, Ganju et al. (2016) revealed that "HIV testing among IDUs is low". Phukan et al. (2017) provided a useful program to understanding the "network pattern of injecting drug users for enriching the HIV prevention in this population."

There is a report on HIV drug resistance (DR) profile in the north-east India. In the findings of recent studies, "53% of HIV-infected antiretroviral

therapy (ART) experienced individuals in Manipur bear DR mutation at different DR sites" (Sharma et al., 2016). It also further revealed that "29%, 37% and 8% have mutations at the target sites of nucleoside reverse transcriptase inhibitors (NRTIs), non-nucleoside reverse transcriptase inhibitors (NNRTIs) and protease inhibitors (PIs) sites respectively. Predominant drug-resistant mutations at reverse transcriptase (RT) genes were M184V, T215Y, M41L and V108I and H221Y while at protease (PR) genes were M46I and I47V. Among the high-risk groups, IDUs have the highest number of drug-resistant mutations followed by heterosexual individuals. It was further shown that drug-resistant mutations at the target sites of RT inhibitors are high and these were found to have developed resistance to the primary ART drugs that are used in Manipur."

In case of co-infection, Kermode et al. (2016) particularly "focus on IDUs residing in two districts of Manipur. Among the 31% of HIV-positive IDUs, 95% were co-infected. HCV/HIV co-infection was associated with district, older age, being employed, being widowed/divorced, longer duration of injecting and feeling at risk of HIV infection". The study also showed that, among the HIV patients in Manipur, there is higher prevalence of HCV co-infection, where prevention diagnosis and treatment options are limited.

The relation between HIV infection and sexual behaviours is also an interesting area of study. "Nearly half of IDUs have engaged in sexual activity with at least one female" (Mahanta et al. (2008). Suohu et al. (2012) highlighted that a "significant proportion of IDUs engage in unsafe sex and have multiple sexual partners. They have more sexual partners as compared with non-injecting

heroin users. At least 27% IDUs reported to have unsafe sex with two or more female partners in a year which provide a higher chance of transmitting or contracting HIV." "IDUs aged 18–24 years had two or more female sexual partners (50.2%) compared with aged 35 or older (10.9%) indicating youth have higher risk" (Armstrong et al., 2014). A recent finding suggested that "40% of IDUs had a casual sexual partner and among those who had casual sexual partners, 65% of them have inconsistently used condom" (Mishra et al., 2014). IDUs who shared needles/syringes were more likely to engage in unprotected sex with their regular partners. Similarly, "IDUs who reported inconsistent condom use with casual partners were more likely to report unprotected sex with their regular partners." Kermode et al. (2015) observed that "condom use with regular partners was poor: 40.6% used a condom the last time they had sex with their regular partners, and only 10.7% reported consistent condom use with their regular partners."

2.3 **Studies in relation to SES (Socio-economic status) of HIV/AIDS**

A good number of researchers observed from their studies conducted in many parts of the world that number of children or so termed as fertility level of a family is significantly related with socio-economic conditions of the family. Roy et al. (1999) tried to explore economic rationality of fertility preference in Punjab, Maharashtra, Kerala and Uttar Pradesh by using data of National Family Health Survey (NFHS) 1995. Negative association between economic status (standard of living) and fertility change was found in Punjab. Such negative relation was also found in other remaining three states though to a lesser extent and it was more evident in higher

educated group. Strong negative relation between fertility and size of land holding was seen only in Punjab. It is worth to mention that there was no impact of standard of living on the attitudes of couples towards ideal family size in Kerala. They argued that the relationship between standard of living and economic condition with fertility had remained at best unclear and a set of social factors directly influenced couples' decision on family size.

Using a sample of 106 countries, Ghannam (2005) highlighted that among the less developed countries (LDC) the fertility rate was at least triple as high as among the more developed countries (MDC). The result indicates that total fertility rate decreased among women in MDCs who have more number of years of female life expectancy and more participation in labour force. The fertility among LDCs was at least triple as high as among the MDCs method. The study of Khan and Rane (2010) was to find out demand side determining the factors of contraceptive use by married women in Pakistan. Their approach was also a kind of finding out fertility determining factor assuming the close relationship between the use of contraceptive and the level of fertility. Chani et al. (2012) conducted an "empirical study to investigate the role of various socio-economic factors in determining fertility of women in Pakistan covering a period from 1980 to 2009." Utilizing regression model, they found that urbanization played a major role in controlling fertility because in urban areas rearing of child is costly; and secondly, educated women had less fertility than illiterate females. Using the National Demographic and Health Survey (NDHS) 2008 data, Siow-Li Lai (2014) analysed "the socio-economic and proximate determinants of fertility in Philippines.

Bongaarts Model was used to estimate the indices of the four main proximate determinants of fertility." The findings highlighted that fertility differentials were affected by ethnic group, place of residence, educational attainment, women's work and family wealth. These socio-economic factors influence fertility mainly through the composition of age, age at marriage, contraceptive uses were important factors affecting fertility. Adhikari (2010) found that traditionally "Nepalese society favoured high fertility owing to the children were symbol of well-being both socially and economically. Even if fertility was decreasing in Nepal since 1981, it was still high as compared to many other developing countries." Using the data from the National Demographic and Health Survey (NDHS - 2006) of 8644 married women of reproductive age, he performed the analysis with both bivariate and multivariate analysis to study the fertility differentials.

Dribe (2014) studied "the relationship between socio-economic status and fertility during and after the demographic transition using micro level socio-demographic data for five communities/areas in Sweden, Netherlands, Italy, United States and Canada covering the period from early 19th century until the mid-20th century." More specifically, he looks at the development of socio-economic differences in marital fertility and relates it to common theories of fertility behaviour as adjustment and innovated process. Kreyenfeld and Gunner (2014) surveyed "a large body of research on the economic determinants of child bearing behaviour". They found that most of the empirical works assumed that economic hardship and labour market uncertainties would cause people to

postpone their fertility plans. In this study, they examined how "the association of unemployment and fertility varied with socio subgroups using data from the German Socio-Economic Panel (GSOEP) and from Danish Population Registers." They found that "male unemployment was related to a postponement of first and second child bearings in both countries while the role of female unemployment was found less clear. Both male and female unemployment were positively correlated with third birth." More importantly, the results pointed out that there was strong correlation between fertility and educational unemployment in various socio-economic groups. Fertility tended to be "lower during periods of unemployment among highly educated women and men but not among their less educated counterparts."

Breschi et al. (2014) attempted to demonstrate the importance of "social and economic factors in determining natural fertility before the diffusion of contraceptives." Their finding showed that before fertility decline the main determinant of fertility was biological and physiological factors and socio-economic factors played minor role in regulating the fertility. Yurtseven (2015) attempted to find out "the determinants of fertility in predominantly Muslim countries. His finding indicated that the past realization of fertility, income, college enrolment rate, contraceptive and time trend were the significant determinants of fertility." Mohanty et al. (2015) found that the "strong relation between the level and changes of female literacy with the variation in fertility." Such relation was also shown in the case of fertility and under-five mortality, despite to a lesser degree while the impact of improved socio-economic status was

negligible. However, the socio-demographic variables – age at menarche, age at first conception, occupational status, use of birth control measures and household per capita income did not affect the variation in fertility (Chandiok et al., 2016). Using the fertility rates in Malaysia during the period between 1980 and 2014, Awadand Yussof (2017) also revealed that in the long run, GDP, females' education and employment influenced total fertility negatively and significantly.

2.4 Conclusion

The critical recap on studies on HIV/AIDS is daunting: With the importance of the disease being of a medical research challenge till now. The phase of combating HIV from life- threatening disease to manageable chronic disease in the span of three to four decades is laudable and is the consequence of high-level research undertaken by both scientific and socio-economic communities. For this study, the review aimed at three board themes: international studies on HIV, studies conducted in India and the studies which canvass on socio-economic status (SES).

CHAPTER - III

EPIDEMIOLOGICAL OVERVIEW, ETHNOGRAPHY AND ECONOMICS OF HIV/AIDS IN INDIA

3.1 Introduction

The term “Epidemiology” simply means the study of what is upon the people. With HIV/AIDS being the major public health issue in India as well as in the global scenario, it is important to know “what is upon” in regard to this ‘disease’. HIV as such is a condition. It culminates to a fatal disease when the infection advances into AIDS stage. The ‘window phase’ in which a person is infected with HIV but has not reached the AIDS stage is the most crucial. These people are HIV+ and they act as ‘carriers’. An HIV+ person in its initial stage is usually physically fit or appears to be so. Such a person can continue to perform all normal functions and thus contribute effectively to the society. HIV is a “slow-epidemic”. It is not highly contagious but virulent in its own specific way. The routes of transmission are: having unsafe sex with an infected person, transmission of infected blood through blood products and vertical transmission from infected mother to child (vertical transmission). In recent medical sciences, anti-retroviral drugs have changed the perception of HIV/AIDS treatment. Anti-retroviral Therapy (ART) consists of advanced pharmaceutical products that are given to patients to combat HIV. It does not cure HIV infection, but it can add additional years to life.

The present section is an exploratory and descriptive study based on secondary data. The sources of secondary data are the published official reports from National AIDS Control Organization (NACO), United Nations AIDS Program (UNAIDS), World Health Organization (WHO). The work done previously in this field, data from various published journals, articles, annual reports and working papers are also taken into account. The focus is on NACO data as compared to UN data as the latter result in shifting the area from which data is collected.

3.2 Incidence versus Prevalence

The term incidence refers to "the flow of new infections during a stated period of time" while prevalence refers to "the stock of existing infections at a point in time." Within a given population, incidence is the better gauge of the advance or retreat of an epidemic, but prevalence is usually much easier to measure. India's tryst with the epidemic has been laudable. The nation's knowledge about HIV infection came when the epidemic was underway and has spread through its all possible routes of transmission. "The adult HIV prevalence at national level has continued its steady decline from estimated level of 0.41% in 2001 through 0.35% in 2006 to 0.27% in 2011" (NACO, 2012).

As we can see in table 3.1, there is a decline in number of people living with HIV. There is a consistent decrease in number of infected people among both men and women at national level. The diminishing trends in "adult HIV prevalence are seen in all the high prevalence States (Andhra Pradesh, Karnataka,

Maharashtra, Manipur, Nagaland and Tamil Nadu) and also in states of Mizoram and Goa. However, some states such as Odisha, Chhattisgarh, Jharkhand and Uttarakhand, some in north-west region including Punjab, Chandigarh and Delhi, and some low prevalence States of North East including Assam have shown rising trends in adult HIV prevalence" (NACO, 2012-2013). In its 2012 Annual Report, NACO, states that, "the HIV prevalence among the young population (15-24 years) at national level has also declined from 0.30% in 2000 and has stabilised over the last four to five years at around 0.11%." These continued declining trends in HIV prevalence among the young population (15-24 years) are also noted in most of the states.

Table 3.1a
HIV Estimates in 2012

Indicators	**2007**	**2011**
Adult(15-49 years) HIV Prevalence (per cent)	0.33	0.27
Number of Persons Living with HIV	22,52,253	20,88,642
Number of Adult New HIV infections	1,23,890	1,16,456
Number of Annual AIDS-related Deaths	2,06,671	1,47,729

Source: NACO, 2012

Table 3.1b
HIV Estimates 2022

Indicators	**2013**	**2021**
Adult(15-49 years) HIV Prevalence (per cent)	0.3	0.21

Number of Persons Living with HIV	7, 68,000	24,01,737
Number of Adult New HIV infections	78,613	62,970
Number of Annual AIDS-related Deaths	90,000	41,970

(Compiled by the author)

3.3 Combating HIV/AIDS in India

The saga of HIV/AIDS began in the late 1980's. In India, the jolt of HIV/AIDS was first felt in 1986 when it was discovered among female sex-workers in Chennai. It led to a mass panic of this unfamiliar, incurable, fatal 'disease'. The Ministry of Health and Family Welfare, Government of India established the National AIDS Committee, which formed the basis for the current apex HIV surveillance body in the country, the National AIDS Control Organization (NACO).

In 2000, "the global community took an historic step in the United Nations Millennium Declaration by acknowledging the importance of an effective response to HIV/ AIDS" and by placing it in the context of the broader development agenda. Among the many health targets that were then established in the Millennium Development Goals (MDGs), "MDG-6 calls for unprecedented action to halt and begin to reverse the AIDS epidemic" (UNAIDS, 2013 Global Report). These led to opening and data –sharing of India with the rest of the world. One of the main improvements was the mobilization of financing of HIV-related activities (medicines, testing kits, preventive measures etc.) in low and middle-

income countries. The public-health system in India imbibed useful aids in term of research, treatment and funding.

The emergence of several non- governmental organizations (NGOs) tackling the various issues on HIV/AIDS is a boon. The enthusiasm with which they perform has helped many sections of the suffering population to be reached and be heard. For example, some NGOs provide "a variety of services to gays, lesbians, transgendered and those impacted by HIV/AIDS." This includes programs for men having sex with men (MSM); palliative, home-based medical care like nurse visit and other support for those with HIV/AIDS and sexual health; peer education to students on sexuality and; orphanages for children with HIV/AIDS. These very personalized care facilities may be an impossibility to provide by welfare system. Likewise, other NGOs which have their own specified goals and target groups have acted as the vehicle in mitigating the problem of reaching out and spreading awareness in the society. Before we further delve into epidemiology, it is worthwhile to briefly mention the major events and important steps taken up by the Government of India. It is chronologically listed in Table 3.2.

Table 3.2
Chronological presentation of HIV-related issues in India

Year	**Events and Programs**
1986-87	First reported cases of HIV infection in commercial sex workers of Chennai and Mumbai respectively leading to establishment of National AIDS Control Program

1989	HIV infection reported among intravenous drug users (IDUs) in Manipur
1990	Medium term plan launched in 4 states (Tamil Nadu, Maharashtra, West Bengal and Manipur) and 4 metropolitan cities (Chennai, Kolkata, Mumbai and Delhi)
1991	Indian National AIDS Control Program was launched
1992	National AIDS Control Program-I (NACP-I) was launched and National AIDS Control Organization established
1999	NACP-II begins and SACS (State AIDS Control Society) established
2000-01	India PPTCT (Prevention of Parent to Child Transmission) feasibility studies initiated by NACO Antiretroviral (ARV) drugs made available at considerably reduced price
2004	ARV Treatment started and free ART programme roll-out
2007	NACP-III launched
2012	NACP-IV launched
2014	High Risk Groups (HRGs) and Bridge Population are classified. This segregation strengthens the surveillance system among these groups and help in targeted approach for preventive measures
2017-18	HIV/AIDS Prevention & Care Act launched, protecting the legislative rights of persons with HIV
2020	National Toll-Free AIDS Helpline (1097) is made operational in 15 languages. It provides information, counselling, referral &

	feedback services regarding HIV/ AIDS to the callers.
2021	Employer Led Model (ELM) under the National AIDS Control Program, which is no-cost intervention, is launched. It provides HIV/AIDS prevention care services to informal labourers who are directly or indirectly linked to the industries.

NACP Phase I (1992-1999) focused "on awareness generation and controlling spread through blood, etc. The Phase II of the program was launched in 1999 with a strategic plan for HIV prevention." The administrative and technical basis for program management was established in this plan and it created the State AIDS Societies to streamline response to HIV/AIDS at the state level. It was during this phase that specific interventions were "targeted towards FSWs, MSM, IDUs and policies for blood banks for screening for HIV" were also introduced. In Phase III of NACP, launched in July 2007, the goal was to "halt and reverse the epidemic." This was to be achieved over a period of 5 years i.e., 2007-2012, by scaling up prevention efforts and integrating them with care, support and treatment (CST) services. Prevention and CST formed the two key pillars of all HIV/AIDS control efforts in India. Currently we are at Phase IV and the primary "goal of NACP IV is to accelerate the process of reversal and further strengthen the response through a cautious and well-defined integration process over the next 5 years." The existing HIV/AIDS situation in India is optimistic. NACP Phase-V will commence from Financial Year 2025-26. It is due to the consistent, arduous and responsive steps taken in the above mentioned programs. Yet, in many ways it

can still be said that ‘the journey has just began’. This is owing to the fact that the number PLHA (People Living with HIV/AIDS) is hitherto overwhelmingly large.

3.4 Perception of epidemiological determinants

According to 2011 census, India is home to 1.21 billion people. In the same year, the total number of people living with HIV/ AIDS (PLHA) in India is estimated at around 2.9 million. The number of children below 15 years of age account for 7% (0.145 million) of all infections while 86% are in the age group of 15-49 years. Of all HIV infections, 39% (0.816 million) are among women. The estimated number of PLHA in India shows a steady decline from 2.32 million in 2006 to 2.09 million in 2011. Exploring the epidemiological determinants opens up the nuances in the present situation. The HIV demographics can be understood under the following subheads.

a) State-wise Epidemiology

Out of the 29 states and seven union territories of India, the categorization can be made according to the prevalence of HIV/AIDS that is into high, medium and low prevalence states. As per the most recent NACO data, “India is estimated to have around 1.16 lakh annual new HIV infections among adults and around 14,500 new HIV infections among children in 2011. Of the 1.16 lakh estimated new infections in 2011 among adults, the previously high HIV prevalence States of Andhra Pradesh, Karnataka, Maharashtra, Tamil Nadu, Manipur and Nagaland account for 32% of new infections, whereas, some low prevalence States of Odisha, Jharkhand, Bihar, Uttar Pradesh, West Bengal, Gujarat, Chhattisgarh,

Rajasthan, Punjab and Uttarakhand together account for around 57% of new infections."

Among the North-Eastern States, "Manipur has shown the highest estimated adult HIV prevalence of 1.22%, followed by Mizoram (0.74%) and Nagaland (0.73%). The NE states are estimated to have a total of 63,049 HIV infections, the highest being in the state of Manipur (25,369) and the lowest in Sikkim (593)" (NACO, 2012).

b) Gender-wise Distribution

In 2011, adult HIV prevalence among males and females is estimated at 0.32% and 0.22% respectively. Men account for a greater proportion of the epidemic's burden vis-à-vis women at 61% and 39% respectively. Women and children are increasingly becoming vulnerable to HIV/AIDS. This alarming trend is emerging as more HIV positive mothers unknowingly pass the virus on to their children that is the vertical transmission. "The incidence of parent to child transmission jumped from 2.7% to 3.5% in just one year" (UNICEF, 2009). In the phases II and III of NACP, efforts are made to halt this route of transmission. One of the best practices in PPTCT (Prevention of Parent to Child Transmission) in India is the outreach approach, used by the ICTC (Integrated Counselling and Tested Centre) to ensure that pregnant women, who have tested HIV-positive are followed up before, during and after and institutional delivery, and provided with anti-retroviral prophylaxis. The core principle of this approach rests on the continuum of care for women, children and their families – a chain of

interventions that begins before pregnancy and continues through pregnancy, labour and delivery and subsequently as part of routine or specialized continual care services after the child is born.

c) Age-wise Distribution

In India, the prevalence of HIV among 15-24 year-olds is 21% and that among adults of 25 years and above is 73%, indicating the vulnerability of the adult population to the epidemic**.**

d) Routes of Transmission

The vast majority of HIV infections in India occur through sexual transmission (87.1 per cent). Nearly five per cent of infections are attributable to parent-to-child transmission. According to the NACO, "India currently has an estimated 51 lakh people infected with HIV/AIDS of which 19 lakh are women. The usual perception is that most of these women are commercial sex workers, official numbers indicate that sex workers constitute about one lakh of the total female infections." Hence, the reality is that the majority of women with HIV/ AIDS in India have been infected by husband or primary male partner.

e) High-Risk Groups (HRGs)

In India, the core HRGs have been identified as Female Sex Workers (FSWs), Men who have sex with Men (MSMs), Trans-genders and Injecting Drug Users (IDUs). These populations are at high-risk of HIV infection. The sero-positive status plays a significant role in the transmission of HIV infection to

general population through the sexual networks. Hence, prevention through focused interventions amongst high risk groups is the need of the hour. Considerable declines in HIV prevalence have been recorded among Female Sex Workers at the national level (5.0% in 2007 to 2.67% in 2011) and in most of the states, where longstanding targeted interventions have focused on behaviour change and increasing condom use. Declines have been achieved among Men who have sex with Men (7.41% in 2007 to 4.43% in 2011) also, though several pockets in the country show higher HIV prevalence among them with mixed trends. Among the HRGs of drug-users, stable trends have been recorded at national level: 7.23% in 2007 to 7.14% in 2011. Besides, North Eastern states where declines have been achieved. New pockets of high HIV prevalence among IDU have emerged over the last few years, in the states of Punjab, Chandigarh, Kerala, Odisha, Madhya Pradesh, Uttar Pradesh and Bihar which were considered low prevalence states. Also, in metropolitan cities of Delhi and Mumbai, where the main cause of HIV infection was held as the commercial sex workers and migrants, the trend of IDUs is going high. Prevention strategies for IDUs in the newer areas have been initiated. In certain North Indian states, evidence indicates the possible role of migration and transient population is fuelling HIV epidemics. Besides high risk migrants, long distance truckers also show high levels of vulnerability and form an important part of bridge population.

In view of above facts, it may be observed that sound epidemiological research provides a good basis for public policy. Which disease and what interventions does public policy needs to focus upon are normally derived from

such evidence. The discrepancies in disease burden and its casual factors, and the mismatch in interventions adopted and priorities in resource allocation can be mitigated by well researched, longitudinal data. Judicious targeting of these loopholes can help decide what needs to be done where, for whom, and when. On the contrary, the absence of such good quality empirical data can affect programme design and consequently the outcomes.

The HIV/AIDS issue in India has brought out challenges in many forms. Describing the demographics and distribution enables to understand the state of affairs. The trend in a given decade (here, 2000-2009) reveals effectiveness of programs implemented so far. The estimated number of people living with HIV has decreased from 2.41 million in 2000 to 2.09 million in 2011; and as of 2020, 2.31 million. Wider access to ART has resulted in 29 per cent reduction in estimated annual deaths due to AIDS related causes between 2007 and 2011. The government's decision and implementation of free ART serves as a game-changer in policy interventions in HIV-related issues. It has increased the life expectancy and instilled hope in dismal cases where the infected person is the sole bread-winner in the household. Further, we can see, in the figure, above there is marked decline in the number of annual deaths. The former can be linked with the awareness programs while the latter is accounted to the implementation of ART.

Capacity, political commitment, and administrative leadership vary across states. In high-prevalence states of Manipur and Nagaland, the route of transmission is primarily through sharing of needles by intravenous drug users. The problem of drug abuse is high and it is perpetuated and fuelled by the porous

political boundary with the neighbouring country. It will take more than health awareness to curb the issue. Political will and efforts from both Government of India and Myanmar are needed to check and mitigated the drug trafficking.

The growth of subtype HIV-1 in India is attributed to high-risk, vulnerable populations such as sex workers (SW) and their clients. Indirect estimates suggest that most new infections in the heterosexual population arise from the male use of FSWs without use of condoms. However, these data are debated, and more direct epidemiological confirmation is needed.

Targeted programme for High Risk Groups (HRGs) is highly recommended and these are being implemented in several high-prevalence states. The main objective of Targeted Interventions (TI) is to enhance accessibility of high risk groups to key HIV prevention services and reducing their vulnerability and risk to acquire Sexually Transmitted Infections (STI) and HIV infections. Intervention services, such as behaviour change communication, condom promotion and clean needle and syringe for people who inject drugs, STI (Sexually Transmitted Infections) care, referrals for HIV and Syphilis testing and linkages with Anti-Retroviral Treatment are TIs which can greatly help in effective preventive approach. Despite the efforts given towards spreading awareness about HIV/AIDS among high-risk categories like commercial sex workers, very little has been done to sensitize women in the general public who are vulnerable to the infection from their husbands. An appreciable number of government and non-government organizations have undertaken programs to raise awareness among people regarding HIV/AIDS. To stop the spread of HIV/AIDS in India, the Tenth Five

Year Plan (2002-2007) was developed with targets set to achieve 90% coverage of schools and colleges through education programs and 80% awareness among the general population. Lack of longitudinal studies and data is one major drawback.

3.5 Conclusion

The epidemiological inputs for estimation and projection of HIV- related issues help in planning public health policies. Defining the nature of the epidemic and defining size of various population subgroups at different levels of risk of HIV infections aids to effective resource allocation in public health decision-making. India has been able to halt the spread of the HIV epidemic because of a committed affiliation between the governments, NGOs, network of positive people and civil 5society partners. In the last two decades many organizations have contributed significantly to India's battle against HIV. Global institutions like the United Nation and the World Bank have provided major assistance in terms of financial aid, technical assistance, strategy development and implementation. Although in India, the HIV epidemic is considered to be concentrated in some geographical areas, there should be a holistic approach in dealing with the problem as the populations is migratory in nature. India is on track to achieve the global targets of "Zero New Infections, Zero AIDS-related deaths and Zero discrimination". However, sustained focus on prevention and intensifying the efforts in the areas where significant declines have been achieved is highly critical to consolidate the gains, while effectively addressing the emerging trends in the epidemic.

CHAPTER - IV

EXPLORATION OF FIELD DATA

4.1 Introduction

The future social development is usually influenced by past and present investigations. In case of quantitative analysis on variation in socio-economic and health related factors say for instance, patient's survival time after detection of the disease, variables such as age of patient, family size, cost of hospitalization, cost of medical care, expenditure on supplementary medicine, monthly family income of the patient etc., are possible variable of interest.

Health care systems hinge on three main pillars: Access, management and prophylaxis. All three cover board concepts, in addition to implications, in the field of health care systems. 'Access' to health involves definition of health, its equitable distribution and availability in the society. 'Management' includes the running, planning and policy-making by various agents in a health system. As in, the running of a small primary health care centre to the enormous and complex operationalization of a multi-disciplinary hospital; policies on budgeting a particular health program to mandating guidelines for health insurance and emergencies etc. 'Prophylaxis' is the course of actions taken towards treatment of a disease. In simple terms it can be referred as treatment. Health system relies on these three principles for its smooth functioning.

4.2 Test Statistics

When testing whether the average properties, measured in terms of arithmetic mean of selected two samples drawn from the study population, survival time of patients under consideration is significantly different or not when comparing individuals belonging to two categories, it is assumed: (a) a normal (Gaussian) distribution of relevant random variable for the patient populations, and (b) that the standard deviations of both populations are same. The two means and the corresponding standard deviations for samples are computed by using the following equations. Here, n_A and n_B are the number of eligible members in data set A and data set B respectively.

$$\overline{X}_A = \frac{\sum_{i=1}^{n_A} X_i}{n_A}, \qquad \overline{X}_B = \frac{\sum_{i=1}^{n_B} X_i}{n_B}$$

$$S_A = \sqrt{\frac{\sum_{i=1}^{n_A} (X_i - \overline{X}_A)^2}{n_A - 1}}, \qquad S_B = \sqrt{\frac{\sum_{i=1}^{n_B} (X_i - \overline{X}_B)^2}{n_B - 1}}$$

Then, the pooled estimate of standard deviation S_{AB} is computed as

$$S_{AB} = \sqrt{\frac{(n_A - 1){S_A}^2 + (n_B - 1){S_B}^2}{n_A - n_B - 2}}$$

Finally, the statistic $\mathbf{t_{exp}}$ read as experimental *t* value is defined by

$$t_{\exp} = \frac{\left|\overline{X}_A - \overline{X}_B\right|}{S_{AB}\sqrt{\frac{1}{n_A} + \frac{1}{n_B}}}$$

"$\mathbf{t_{exp}}$" value is compared with the critical (theoretical) t_{th} value corresponding to the given degree of freedom N (N = n_A + n_B - 2) at 95% confidence level. If $t_{exp}>t_{th}$ then H_o is rejected else H_o is retained, where H_0 the null hypothesis that the two samples came from population with identical mean. Alternatively, p-values are considered, again based on sampling distribution being assumed to be t-distribution. If desired significance level is α then H_0 is rejected, whenever p-values is less than or equal to α.

When comparing the average measures of patients' socio-economic characteristics of more than two samples i.e. groups, *F*-test is applied. In this context, samples are defined by different categories or classes of an independent variable or factor say for instance, four levels of patient's family income – for example, below Rs. 1000, Rs. 1000-3000, Rs. 3000-5000 and above Rs. 5000. These different levels of patients' family income may be treated as different samples in the present analysis. The 'F'-test statistics is given by

$$F = \frac{S_B/(k-1)}{S_W/(n-k)}$$

follows *F*-distribution with *(k-1, n-k)* d.f

where, $S_B/(k-1)$ is called between samples mean sum of square while,

$S_W/(n-k)$ is called error mean sum of square.

The rejection or acceptance of the null hypotheses is checked by P-values and possible range of the estimated statistics of average measures in the present investigation is explored in terms of 95% confidence level. The analysis is based on observed field data of 200 different samples in the population under study.

While investigating the variations in the average measures, a disadvantage of choosing in advance, a level of significance of say, 5% of *'t'* and *'F'* may close or far from the cut-off, and the degree of closeness is not indicated. An alternative is to present the P-value (also known as the probability value of observed level of significance) or exact level of significance or exact probability of committing type-I error. The P-value is the test level that would just hereby allow rejection of null hypothesis, H_0 given the test-value is calculated from the sample. In other words, P value may be defined as the lowest significance level at which a null hypothesis can be rejected. It is the probability of observing a test-value at least as extreme as the test-value calculated from the sample, under the assumption that H_0 is true. Since P-values are probability, they range between 0 and 1. A low P-value is a number near 0, and a high P-value is a number near 1. A low P-value indicates a high observed level of statistical significance, and a high P-value indicates a low observed level of statistical significance. However, 0.05 is taken as cut-off statistical significance level and 0.01 is that high significance level in the present analysis.

The estimated parameter from a sample gives a single (point) estimate of the un-known population. Because of sampling fluctuations, single estimate is likely to vary from that of population value, though mean of repeated sampling is expected to be equal to true value. As a result of this an interval around point estimator is reasonable.

Using the definition of *t* distribution, we know that

$$\Pr\left(-t_{0.025} < t < t_{0.025}\right) = 0.95 \qquad \text{(i)}$$

where 'Pr' denotes probability. Allowing that β may be non zero, and substituting (b-β)/s_b for t, we can rewrite (i) as

$$\Pr\left(-t_{0.025} < \frac{b-\beta}{s_b} < t_{0.025}\right) = 0.95 \qquad \text{(ii)}$$

If we multiply the string of inequalities within parentheses by s_b , subtract b, multiply by -1 (thereby reversing the direction of the inequalities), and then flip the string of inequalities around, (ii) becomes

$$\Pr\left(b - t_{0.025}s_b < \beta < b + t_{0.025}s_b\right) = 0.95 \qquad \text{(iii)}$$

Equivalently, The 95%CI for β is $b \pm t_{0.025}s_b$ (iv)

Where, b is the estimate of β and s_b is standard error (= standard deviation divided by square root of d.f.) derived from our particular sample. Equation (iii) and statement (iv) say that there is a 95% probability (we are 95% confident) that the interval includes β. The 95% confidence interval may be viewed as an interval estimate of β. The size of the interval is a measure of the precision of the estimate. The width of the confidence interval is proportional to the standard error of the estimator. To be specific, the larger is standard error, the larger is the width of the interval. In other words, this larger value of the estimator implies the higher level of uncertainty of estimating the true value of unknown parameter.

4.3 Univariate Analysis on Field Data

The descriptive and exploratory aspect is presented by a simple univariate analysis.

4.3.1 Survival Time according to HIV and HIV+HCV

In this section, the differential in survival time (in year) of the patients is analysed according to two types of patient say patient with HIV only (50%) and the patient with both HIV and HCV (50%). Irrespective of the effects of other covariates, the average survival time of HIV patients is observed to be 9.55±4.97 (Mean±S.D) years which gives a 95%CI of 8.56-10.54 and that of both HIV and HCV, 6.89±4.70 years with 95%CI of 5.96-7.82 while the overall average survival time of the patients, study population, 8.22±5.00 (95%CI: 7.52-8.92) manifested in Table 4.1. It is found to be a significant variation in the patient's survival time according to type of patients (HIV and HIV+HCV) irrespective of the joint effects of other variables under observation. It is evidenced by t-value (3.89, P<0.01) with 198 degrees of freedom (d. f) in the population of patients under investigation, in the means test.

Table 4.1

Survival time according to type of patient

Type of patient	N (%)	Mean±S.D	95%CI for mean		Test values
			Lower	Upper	
HIV only	100 (50)	9.55±4.97	8.56	10.54	t=3.891, P<0.01
HIV+HCV	100 (50)	6.89±4.70	5.96	7.82	
Total	200 (100)	8.22±5.00	7.52	8.92	

4.3.2 Survival Time according to Sex of Patient

The variation in patients' survival time (8.22±5.00 years with 95%CI: 7.52-8.92) is also examined according to sex of the patients – male (66.5%) and female (33.5%) in this small section. Though there is visible difference, it is found statistically insignificant variation in average survival time of the patients according to gender of the patients (male: 8.11±5.40 years with 95%CI of 7.19-9.04 and female: 8.43±4.13 years with 95%CI: 7.43-9.44). It is witnessed by t-value (0.426, P>0.05) for the means test (Table 4.2).This statistical inference is drown when the joint effects of other factors are not controlled at any level. It is shown in graphically in Figure 5.

Table 4.2
Survival time according to sex of patient

Sex of patient	N (%)	Mean±S.D	95%CI for mean		Test values
			Lower	Upper	
Female	67 (35.5)	8.43±4.13	7.43	9.44	
Male	133 (65.5)	8.11±5.40	7.19	9.04	t=0.426, P>0.05
Total	200 (100)	8.22±5.00	7.52	8.92	

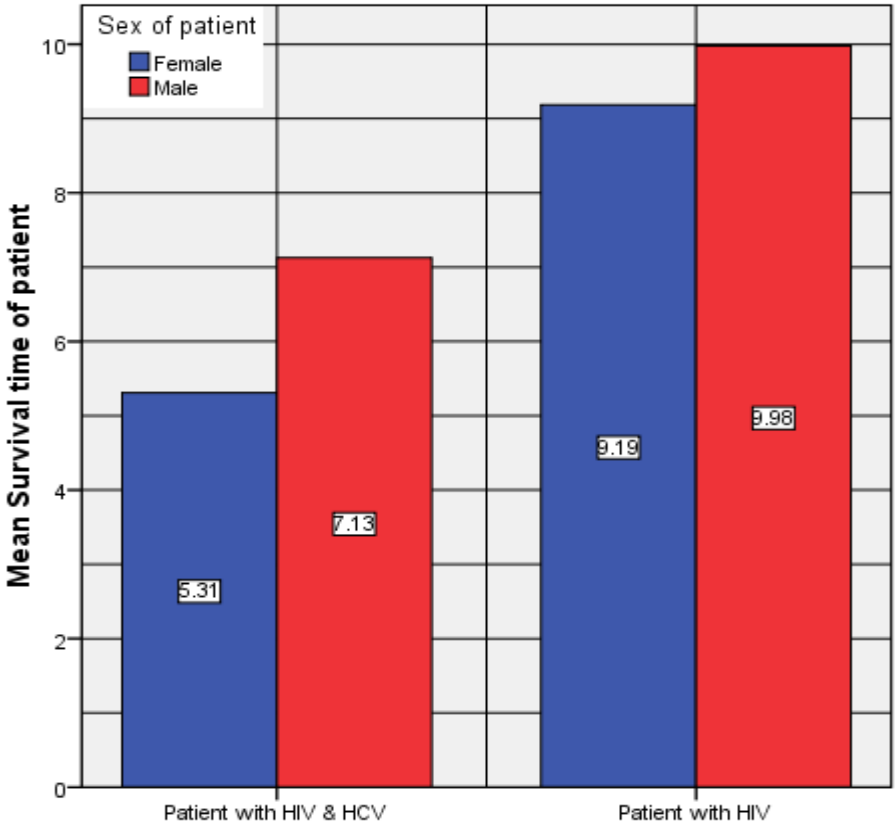

Figure 4: Survival time of patients (sex-wise) according to type of disease

4.3.3 Survival Time according to Marital Status

Here, the duration survival after detection of the disease is analysed according to marital status of the study subjects under three categories of 'single - 18.5%' (never married), 'married - 57%' and others - 24.5% defined to be widow, separated, or divorce. While the mean survival time of the patients under study is 8.22±5.00 year with 95%CI: 7.52-8.92, the longest duration of 9.10±4.30 year with 95%CI: 7.87-10.34 is found in the patients of other category say who are widow, separated, or divorce. It is followed by single or as termed as never married patients as quantified by 8.43±5.86 year (95%CI: 6.48-10.39). It may interestingly be noted that the shorter survival time after detection of the disease to be 7.77±4.97 year with 95%CI: 6.85-8.69 found in currently married patients. It is

presented in Table 4.3. Though this visible difference, the variation in the survival duration is found to be statistically insignificant as witnessed by its F - value of 1.26 (P>0.05). This insignificant inference is drawn without considering the joint effects of other parameters included in the present analysis.

Table 4.3

Survival time of patient (in yr) according to their marital status

Marital status	N (%)	Mean±S.D	95%CI for mean		Test values
			Lower	Upper	
Single	37 (18.5)	8.43±5.86	6.48	10.39	
Married	114 (57.0)	7.77±4.97	6.85	8.69	F=1.26, P>0.05
Widow, separated and divorced	49 (24.5)	9.10±4.30	7.87	10.34	
Total	200 (100)	8.22±5.00	7.52	8.92	

The pattern of the variation in the survival time is also illustrated in Figure 6 by a multiple bars graph with clusters of type of disease – HIV and HIV+HCV. In this figure the longest survival duration (12.62 year) indicated by highest bar is found in the patients with HIV only of single category of marital status (never married patients). It is followed by 10.14 year found in patients with HIV of others category (widow, separated or divorced). However, the shortest life span after detection of the disease quantified by 6.23 year is observed in the patients with HIV and HIV+HCV of other category of marital status. In this distribution of

average survival duration, the patients with HIV has shortest life span (8.73 year) is found in married category.

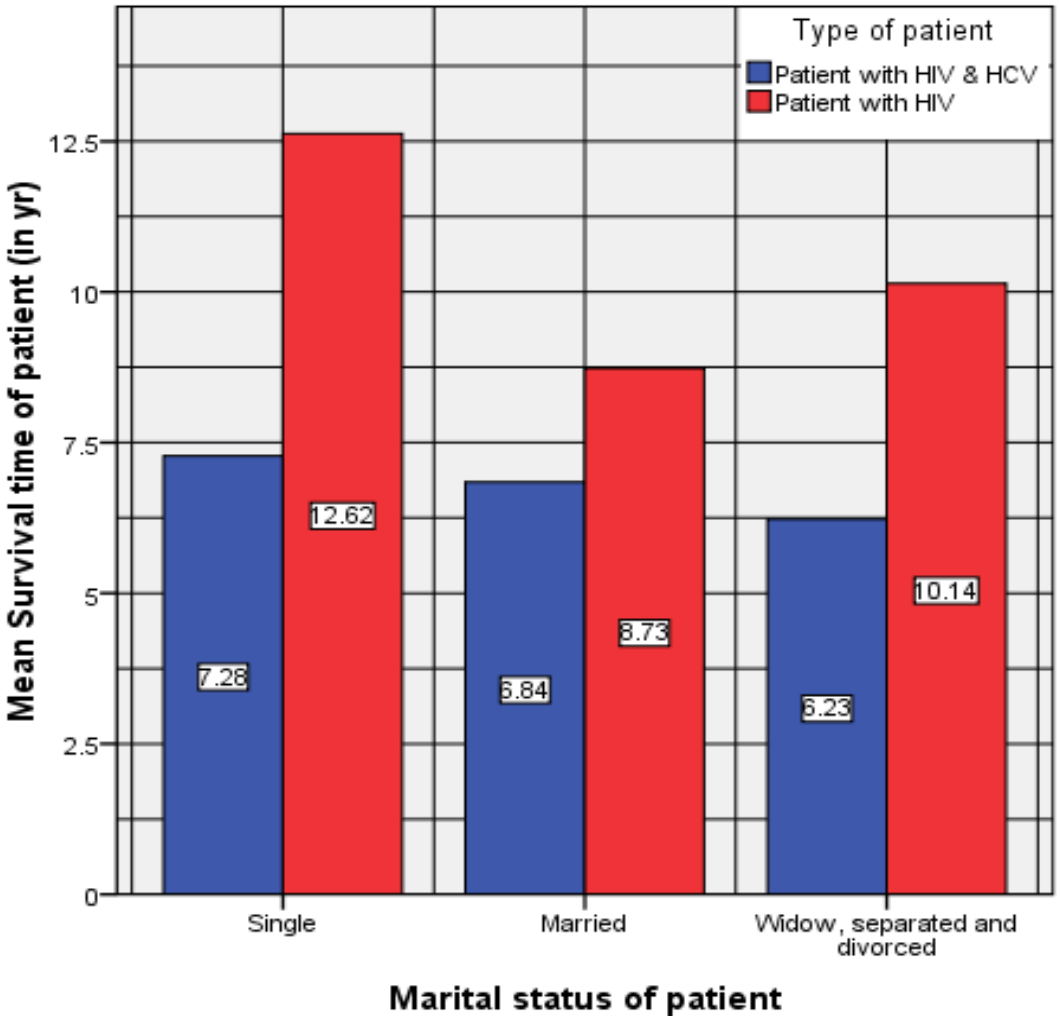

Figure 5: Survival time of patients according to their marital status

4.3.4Survival Time according to Patients' Employment Status

In this small section, the mean survival duration (8.22±5.00 year with 95%CI: 7.52-8.92) of the patients under observation is again distributed with respect to their employment status. Here, the employment status is categorized into six groups namely self-employed (53%), part time employed (15.5%), full time employed (8.5%), retired (6.5%), not in paid employment (10.5%), and

government support training and others (6%). In this distribution, the longest survival time say 9.88±7.14 year (with 95%CI{ 6.21-13.55) is found in patients who are full time employed followed by that of government support training and others (9.15±3.78 with 95%CI: 7.00-12.50) and self-employed (8.34±4.85 year).

Table 4.4

Survival time of patient (in yr) according to their Employment status

Employment status	N (%)	Mean±S.D	95%CI for mean		Test values
			Lower	Upper	
Self employed	106 (53.0)	8.34±4.85	7.41	9.27	
Part time employed	31 (15.5)	7.39±4.84	5.61	9.16	
Full time employed	17 (8.5)	9.88±7.14	6.21	13.55	F=1.70; P>0.05
Not in paid employment for other reasons	21 (10.5)	6.05±4.49	4.00	8.09	
Retired	13 (6.5)	9.15±3.78	6.87	11.44	
Govt. support training and others	12 (6.0)	9.75±4.33	7.00	12.50	
Total	200 (100)	8.22±5.00	7.52	8.92	

The shortest life time is observed in the patients who are in 'not in paid employment for other reasons' and the shorter duration of 7.39±4.84 year (with 95%CI: 5.61-13.55) is obtained in the patients who are part time employed in the population. It is shown in Table - 4.4. This pattern of variation in the survival time of the patients after detection of the disease (HIV/ HIV+HCV) may be

thought to be caused by economic conditions of their families. Despite its visible differences in the survival duration of the patients, the variation is noted to be statistically insignificant (F=1.70, P>0.05) irrespective of the joint effects of other socio-economic and health factors included in the analysis.

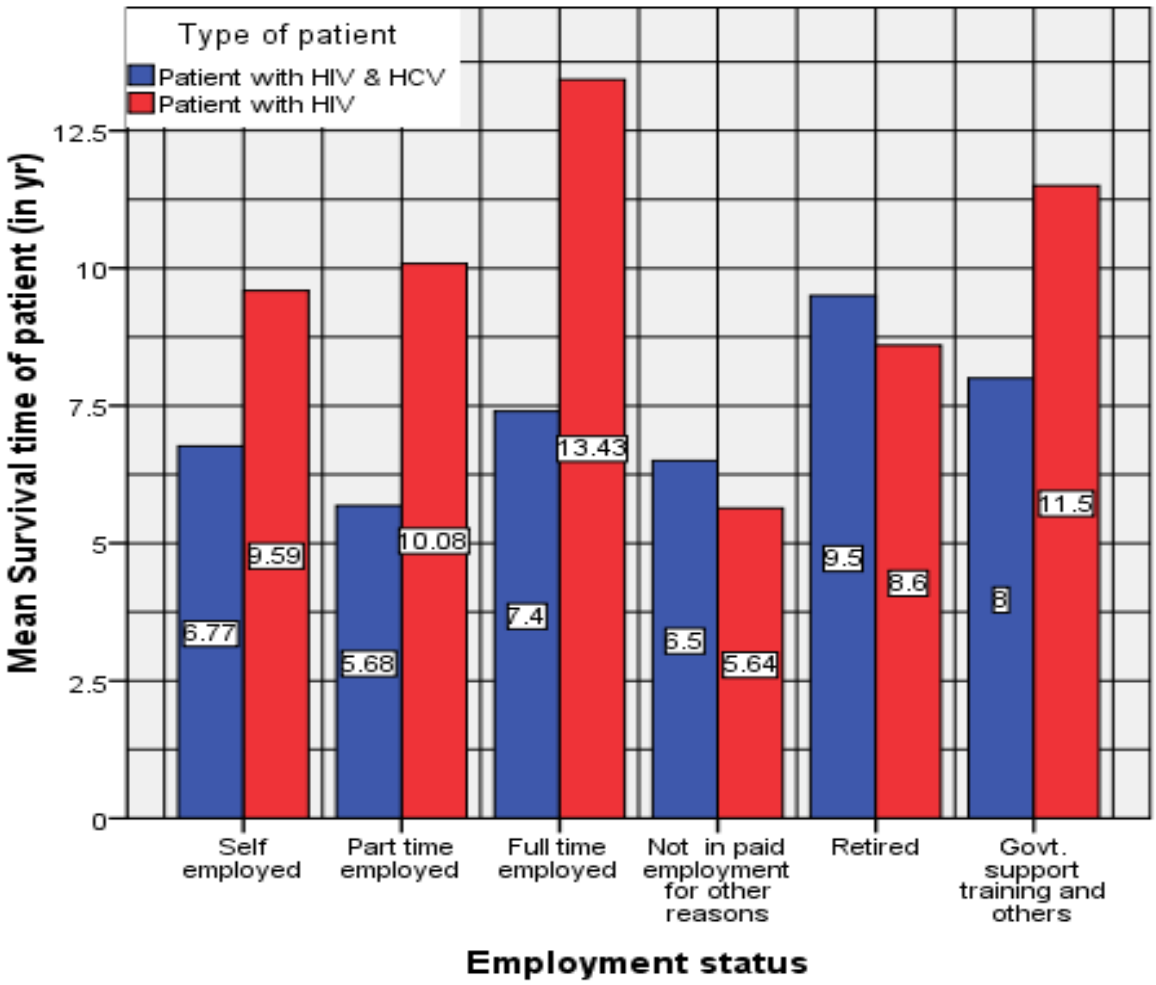

Figure 6: Survival time of patients according to their employment status

The graphical pattern of the variation in patients' survival duration after detection of the disease is manifested in Figure -6 by using multiple bars clustered by its type of disease – HIV and HIV+HCV. In this representation, the longest life span, the duration of the survival time after detection of the disease is observed in the patients with only HIV who are full-time employed in any public as well as

private sectors. It is noted to be 13.43 year just followed by the same category of patient in government support training and other of employment status. It may be observed that the considered life span of the patients with HIV only of all categories of employment status except 'not in paid employment for other reason' (5.64 year) is longer than overall average survival time (8.22±5.00 year). It is quantified by the patient categories of 'full time employed' (13.43 year), government support training and others (11.5 year), part time employed (10.08 year), self-employed (9.59 year) and retired from their services (8.6 year).

Among the patients with both HIV and HCV, only one employment status of retired from their respective services has longer survival time say 9.5 year and others categories are shorter that their average span of 8.22 year. It is seen in the figure as 8 year for government support training and others, 6.8 year for self-employed, 6.5 year for not in paid employment and 7.4 year for full time employed, 5.7 year for part time employed. The finding inferred that the survival duration of the patients under study may be associated with their income source as well as their families' income.

4.3.5 Survival Time according to Spouse Employment Status

The employment status of patients spouse is noted to be non-trivial parameter influencing on the variation in survival duration of HIV patients in many past findings. This impact of spouse employment may be due to financial support in health care of patients. In the present investigation, the mean survival time with standard deviation (mean±S.D) of the patients (8.22±5.00 year with

95%CI: 7.52-8.92) is distributed according to their spouse employment status which is categorized into three namely ‘not applicable’, (43.5%) that is unmarried (absence of spouse), ‘no employed’ (33%) and ‘employed’ (23.5%). There is no significant variation in the survival duration of the patients with respect to their spouse employment as advocated by F-statistics, 1.52 (P>0.05). Though its insignificant inference, the survival time of the patients has visible differences which are quantified as the longest duration 8.9±4.94 year ‘not applicable’ category followed by 7.88±4.94 year in ‘no employed’ and the shortest one 7.45±5.13 year (with 95%CI: 6.94-8.95) is observed in the category of ‘employed spouse, manifested in Table -4.5.However, the insignificant inference has been explored without considering the joint effects of other socio-economic and health factors under present observation.

The graphical structure of the variation in the survival duration of the patients with respect to spouse employment is shown in Figure 8 as multiple clustered-bars with type of disease (HIV/ HIV+HCV). Here the survival time of the patients with HIV only is longer than those patients with both HIV and HCV.

Table 4.5

Survival time of patient (in yr) according to their Spouse employment

Spouse employment	N (%)	Mean±S.D	95%CI for mean		Test values
			Lower	Upper	
Not applicable	87 (43.5)	8.90±4.95	7.84	9.95	
No	66 (33.0)	7.88±4.94	6.66	9.09	F=1.52, P>0.05

Yes	47 (23.5)	7.45±5.13	5.94	8.95
Total	200 (100)	8.22±5.00	7.52	8.92

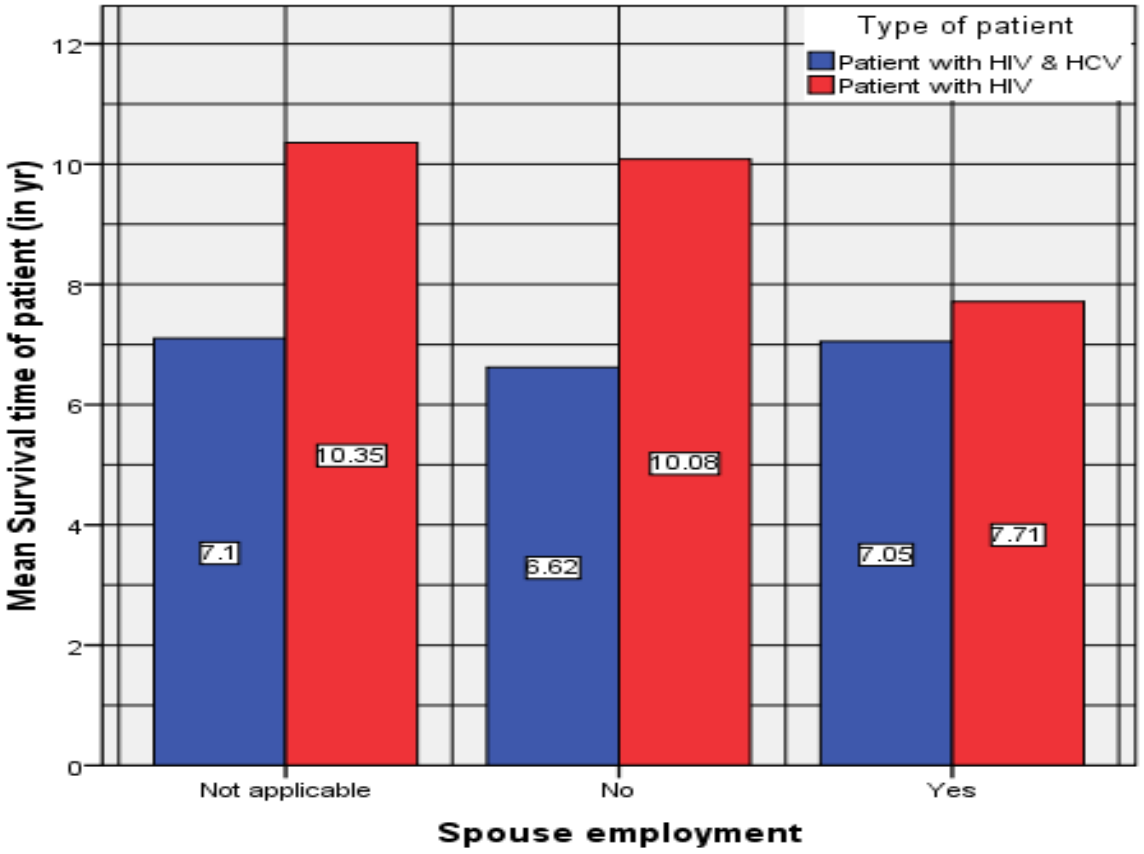

Figure 7: Survival time of patients according to their spouse employment

The patients with HIV have their longer survival duration after detection than their average duration, 8.22 year in two categories of spouse employment such as ‘not applicable’ (10.35 year) and ‘not employed’ (10.1 year). The present graphical representation indicate that the patients with both HIV and HCV are having their survival time lower than the average duration of 8.22±5.00 year as quantified by 7.1 year in ‘not applicable’ 6.6 year in ‘not employed’ and 7.1 year in employed category. However, the patients with HIV only whose spouse are

employed have their lower survival time, 7.7 year than their average figure of 8.2 year.

4.3.6 Survival Time according to Family Income

In this study population, the duration of survival time of patients under analysis does not vary significantly (P>0.05) with four categories of their family income (in '000 Rupee) viz., 'below 1' (31.5%), '1-3' (14%), '3-5' (27%) and '5+' (27.5%). It is distributed in Table - 4.6. The patients' life time after disease detection is in curvilinear movements according to their income groups. The visibly longest survival duration of 8.5±5.05 year (with 95%CI: 7.12-9.88) is noted in the patients of their family income of '3-5'. It is followed by 8.43±5.50 year with 95%CI: 7.04-9.81 in the patients of lowest family income of 'below 1'. While the average survival duration is 8.22±5.00 year (95%CI: 7.52-8.92), the shortest survival time 7.57±4.47 year is recorded in the patients of lower family income group of '1-3'. In this analysis, the survival duration of the patients of highest family income group is also found to be 8.04±4.69 year with 95%CI: 6.77-9.31 which is lower than that of their average time, 8.22±5.00 year. The variation pattern in the life span of the patients does not follow any mathematical rules in the present classes of family income.

Table 4.6

Survival time of patient (in yr) according to their family income

Family income (in '000 Rs)	N (%)	Mean±S.D	95%CI for mean		Test values
			Lower	Upper	

Below 1	63 (31.5)	8.43±5.50	7.04	9.81	
1-3	28 (14.0)	7.57±4.47	5.84	9.30	F=0.27, P>0.05
3-5	54 (27.0)	8.50±5.05	7.12	9.88	
5 and above	55 (27.5)	8.04±4.69	6.77	9.31	
Total	200 (100)	8.22±5.00	7.52	8.92	

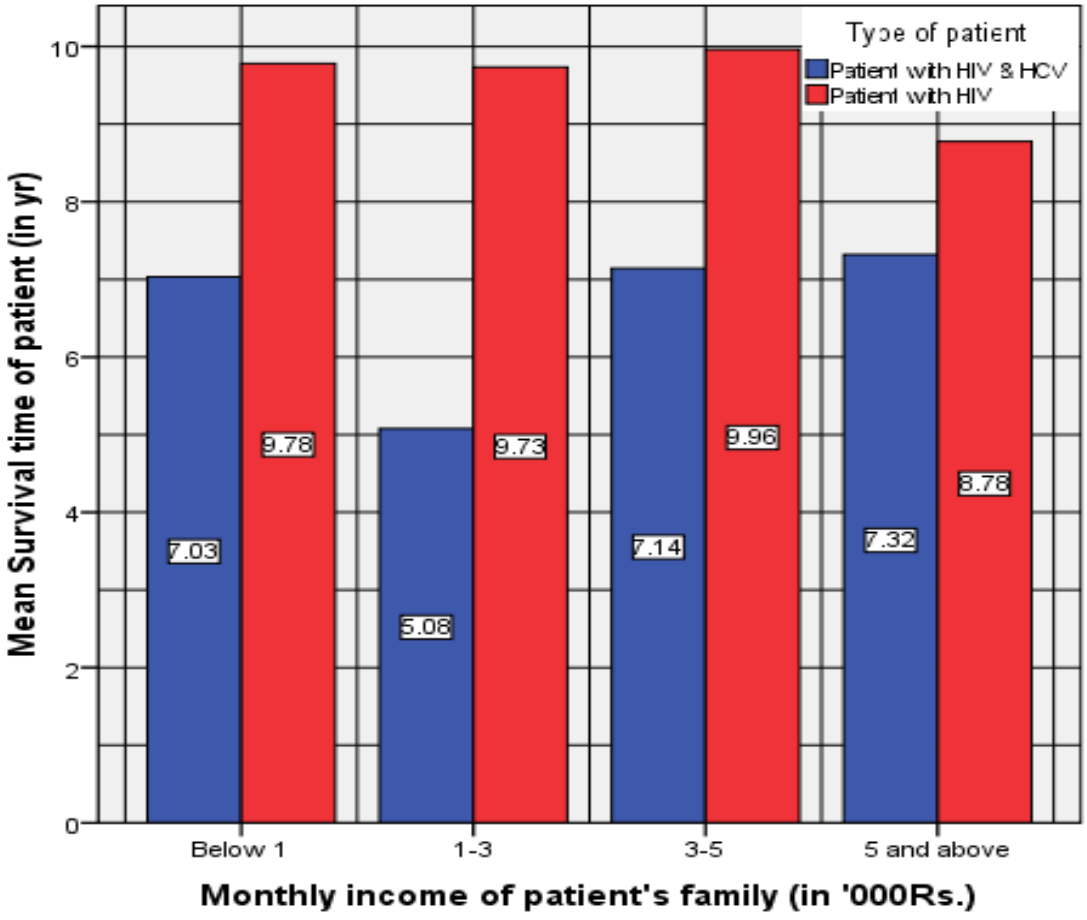

Figure 8: Survival time of patients according to monthly family income

The multiple bars with type of disease clusters again shows the variation in survival time of the patients in Figure 8 according to their family income (‘000 rupee) classes of <1, 1-3, 3-5 and 5+. In this graphical representation, the survival

duration after detection of the patients with HIV is longer than their average figure of 8.22 year ion all classes of income groups, It is found to be 9.96 year in 3-5 class, 9.78 year in '<1' class, 9.73 year in 1-3 and 8.78 year in highest income class of group of '5+'.

4.3.7 Survival Time according to CD4 Count

In this sub-section, the dynamics of survival time of patients is analysed according to the level of their CD4count. Categorizing the total study subjects into three levels of CD4 count viz., below 200 (8%), 200-500 (44.5%) and 500+ (47.5%), the variation in the survival time after detection of disease is found to be statistically significant as evidenced by F - statistics, 3.10 at 0.05 probability level; of significance. In this distribution, the life span of the patients just after detection of disease is monotonically increasing with the increase of CD4 count. While their average life span is 8.22±5.00 year (with 95%CI: 7.52-8.92), the longest duration, 8.76±3.83 year (with 95%CI: 7.98-9.54) is found in patients with their CD4 count of more than 500. It is followed by 8.15±5.98 year (with 95%CI: 6.89-9.41) in the patients having their CD4 count between 200 and 500. The shortest survival time of 5.44±4.53 year (with 95%CI: 3.02-7.85) is observed in the patients whose CD4 count is below 200, shown ion Table 4.7.

Table 4.7

Survival time of patient (in yr) according to CD4 count

CD Count	N	Mean±S.D	95%CI for mean		Test values
			Lower	Upper	

Below 200	16 (8.0)	5.44±4.53	3.02	7.85	
200-500	89 (44.5)	8.15±5.98	6.89	9.41	F=3.10, P<0.05
500 and above	95 (47.5)	8.76±3.83	7.98	9.54	
Total	200 (100)	8.22±5.00	7.52	8.92	

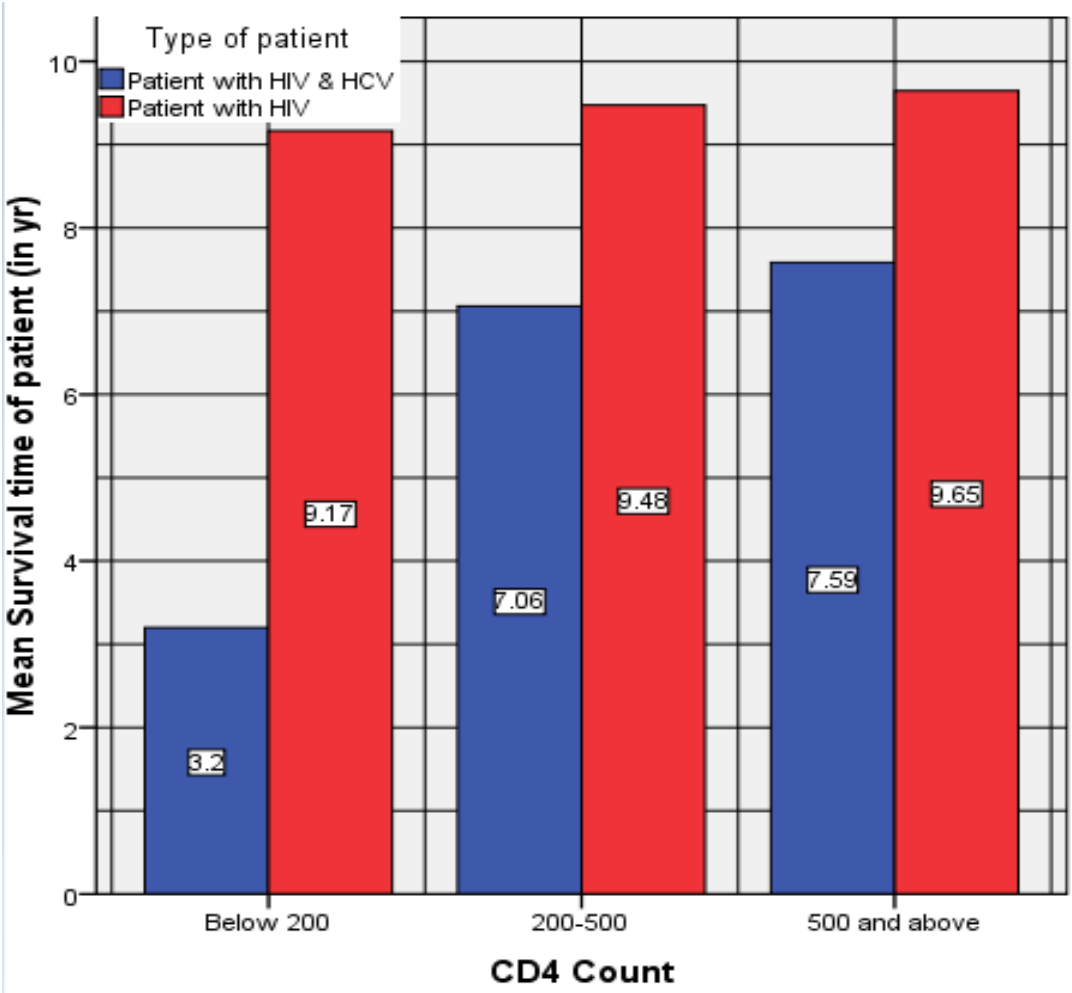

Figure 9: Survival time of patients according to CD4count

The graphical pattern of the variation in life time of the patients is shown in Figure 9. As in the previous case, the life span of the patients with HIV is longer than those of with HIV and HCV. However, the length of the duration varies as

9.17 year in the patients with CD4 count of below 200 which is increasing to 9.47 year in those with '200-500' CD4 count and 9.65 year in the patients having their CD4 count of more than 500. However, the life span is found to be significantly lowest 3.2 year in the patients with HIV+HCV of 'below 200' CD4 count, which is sudden jumped to 7.06 year in those of '200-500' CD4 count and to 7.59 year in the patients having more than 500 CD4 count.

4.3.7 Survival Time according to means of Disease Transmission

It is observed from the previous findings that survival time of HIV/ AIDS patients is influenced by means of transmission of the disease. In the present investigation, the life span of the patients after confirmation of the disease is analysed with respect to five different means of transmission. The means are unknown, sexual, IDU, blood, and vertical. The shortest survival duration of 5.88±3.09 year with 95%CI: 3.29-9.42 is found in the patients having unknown transmission of the disease. It is followed by 7.00±4.82 year in the patients who have blood transmission of the disease. While the average duration of survival after detection is 8.22±5.00 year in the study population, the longest duration of 8.46±4.39year with 95%CI: 7.50-9.42 is noted in the patients who have sexual transmission of the disease. It is just followed by 8.38±4.80 in vertical transmitted patients and by8.16±5.15 year (with 95%CI: 7.13-9.20) in IDU transmitted patients, manifested in Table 4.8.

Despite its visible difference, the survival time of the patients varies statistically insignificantly according to five different means of transmission of the

disease. It is advocated by the F – statistics, 1.86 (P>0.05). In figure 11, the variation in the life time of the patients is illustrated with a multiple bars clustered by type of disease (HIV/ HIV+HCV). An usual pattern of bar particularly for patients with vertical transmission may be due to the number of patients in this category is only 2, one is for HIV only and another one is for HIV+HCV.

Table 4.8

Survival time of patient (in yr) according to means of transmission

Means of transmission	N (%)	Mean±S.D	95%CI for mean		Test values
			Lower	Upper	
Unknown	8 (4.0)	5.88±3.09	3.29	8.46	
Sexual	83 (41.5)	8.46±4.39	7.50	9.42	F=1.86, P>0.05
IUD	98 (49.0)	8.16±5.15	7.13	9.20	
Blood	9 (4.5)	7.00±4.82	3.29	10.71	
Vertical	2 (1.0)	8.38±4.80	2.89	12.89	
Total	200 (100)	8.22±5.00	7.52	8.92	

The cluster bars could highlight the quantitative variation in the patients' survival duration in case of four different means of disease transmission – unknown, sexual, IDU and blood. As in the above pattern, the survival duration is longer in the patients with HIV only than those of the patients with HIV+HCV. Among these four means of transmission say unknown, sexual, IDU and blood, the

shortest duration of survival time, 4.33 year is observed in the patients with both HIV and HIV+HCV through unknown transmission of the disease. A little longer life span of 6.35 year is found in the patients of same category whose disease is sexually transmitted. The longest survival time in the present distribution, 11.12 year of the patients with HIV among the four categories is noted in those who are having IUD means of transmitted. It is followed by 9 year in the patients having sexually transmitted disease and the shortest duration of 6.8 year is observed in unknown transmitted patients with HIV.

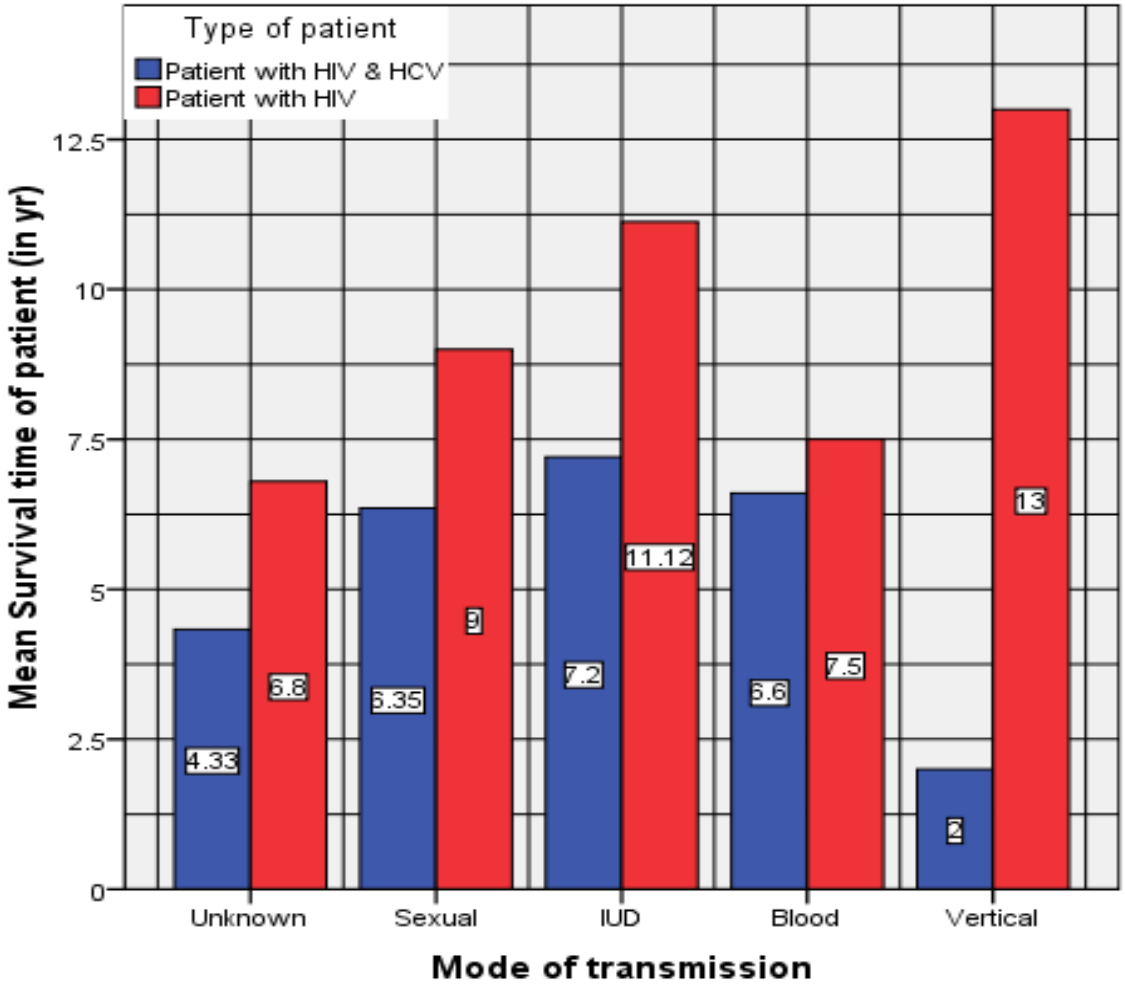

Figure 10: Survival time of patients according to means of transmission

4.4 Patients Socio-Demographic Conditions with Family Income

The socio-demographic conditions such as person's education, occupation and household income gives a board idea about the measure of individual's access to economic resources in the society.

4.4.1 Age of Patients according to Family Income

The variability in average age of patients (44.20±6.66 with 95%CI: 43.27-45.12)according to four different levels of family income say below Rs. 1000, Rs. 1000-3000, Rs. 3000-5000 and above Rs. 5000, is investigated by using F-Statistics. The proportions of patients of four different income levels are 31.5%, 14%, 27% and 27.5% respectively. In this analysis, average age of patients of lowest income group (<Rs.1000) is found to be 45.94±7.01 years with 95%CI: 44.17-47.70 indicating the oldest age group of the patients. It is followed by the Rs. 3000-5000 income level with the average age of 44.39±6.10 years with 95%CI: 42.73-46.05. The lowest average age of patients is observed to be 41.61±6.44 years with 95%CI of 39.11-44.10 in the income level of Rs. 1000-3000 which manifested in Table 4.9.

Table 4.9

Age of patient according to monthly family income

Income ('000 Rs.)	N (%)	Mean±S.D	95%CI for mean		Test values
			Lower	Upper	
< 1	63(31.5)	45.94±7.01	44.17	47.70	

1-3	28(14.0)	41.61±6.44	39.11	44.10	F=3.280,
3-5	54(27.0)	44.39±6.10	42.73	46.05	P<0.05
5+	55(27.5)	43.33±6.49	41.57	45.08	
Total	**200(100)**	**44.20±6.66**	**43.27**	**45.12**	

Without considering the joint effects of other covariates included in the analysis, the variation in the patients' age is found to be statistically significant in the sense that the age of the patients significantly varies with different income levels of the families under study. It is evidenced by F- value, 3.28 with P-value of P<0.05). In one sense, the variation in the present age of the patients is not influenced by the income level of their families in the study population.

4.4.2 Family Size according to Family Income

It may be observed from Table 4.10 that the average family sizes of studied patients are distributed according to four different income levels. Irrespective of the effects of other factors under analysis, the largest family size (4.41±1.30 with 95%CI: 4.08-4.74) is found in the lowest income level of below Rs. 1000. It is followed by 4.15±1.20 (with 95%CI: 3.82-4.48) in income level of Rs. 3000-5000 and the lowest family size of 3.79±1.50 is found in the income level, Rs. 1000-3000. These differences in the family size of the patients while their average (mean±S.D) of family size is 4.12±1.36 with 95%CI: 3.93-4.31. Though there is visible difference, it is observed to be statistically insignificant variation in the family size according to family income levels. It is witnessed by F-value (1.95,

P>0.05) in the study population of patients. This insignificant inference is observed without considering the pattern of variation in the family size of the patients under study. It may therefore be concluded that family size of the patients is independent of their income.

Table 4.10

Family size according to monthly family income

Income ('000 Rs.)	N (%)	Mean±S.D	95%CI for mean		Test values
			Lower	Upper	
< 1	63(31.5)	4.41±1.30	4.08	4.74	
1-3	28(14.0)	3.79±1.50	3.20	4.37	F=1.945,
3-5	54(27.0)	4.15±1.20	3.82	4.48	P>0.05
5+	55(27.5)	3.93±1.45	3.53	4.32	
Total	**200(100)**	**4.12±1.36**	**3.93**	**4.31**	

4.4.3 Adult Family Member and Family Income

As in the previous cases, the size (number) of adult family member of the patients is investigated whether it is to vary with income levels of their families. Here the size of adult family member is distributed into four categories of the income (in '000 rupee), <1 (31.5%); 1-3 (14%); 3-5 (27%) and 5^{+} (27.5%). It is shown in Table 4.11. Without considering the joint effects of other covariates under analysis, the size of adult family number is found to be insignificantly

varied (P>0.05) according to the family income classes. However, there is visible variation in the size of the adult family member in the study population despite, statistically insignificant variation. When the average (arithmetic mean) size of the adult family member is 2.94±1.28 (with 95%CI: 2.76-3.11), the maximum adult family member say 2.98±1.27 with 95%CI: 2.64-3.32 is found in the families having its maximum income level of 5+ followed by the adult of 2.96±1.23 with 95%CI: 2.63-3.30 in the family income group of '3.-5' and the lowest figure of 2.75±1.40 (with 95%CI: 2.21-3.29) is observed in the families with their income group of '1-3'. Despite, the number of adult family members of the patients is not related with the income of the patients' family.

Table 4.11

No. of adult family member according to monthly family income

Income ('000 Rs.)	N (%)	Mean±S.D	95%CI for mean		Test values
			Lower	Upper	
< 1	63(31.5)	2.95±1.29	2.63	3.28	
1-3	28(14.0)	2.75±1.40	2.21	3.29	
3-5	54(27.0)	2.96±1.23	2.63	3.30	F=0.231,
5+	55(27.5)	2.98±1.27	2.64	3.32	P>0.05
Total	**200(100)**	**2.94±1.28**	**2.76**	**3.11**	

4.4.4 Number of Children according to Family Income

In the present sub-section, the number of children is distributed according to one of the socio-economic factors, family income (in rupee) with four categories of 'below 100', '1000-3000', 3000-5000' and '5000 and above' (Table - 4.12).In this distribution, the highest average number of children (mean±S.D=1.59±1.40 with 95%CI: 1.24-1.94) is observed in the patients families of lowest income level of 'below 1000' and the lowest average figure (1.16±1.21 with 95%CI: 0.84-1.49) noted in the highest income group of '5000 and above'. While, the average number of children of the patients family is 1.34±1.38 with 95%CI: 1.15-1.54), the average is found to be 1.33±1.52 in lower income group of 1000-3000 which is gradually decreasing to the figure, 1.18±1.36 (with 95%CI: 0.65-1.71) in the income group of '3000-5000' in the study population of patients of HIV and HIV+HCV. Though insignificant variation (P>0.05) in the average number of children of patients' family with respect to their income level, the number of children is confirmed to be inversely related with family income level of the patients under analysis.

Table 4.12

No. of children in the family according to monthly family income

Income ('000 Rs.)	N (%)	Mean±S.D	95%CI for mean		Test values
			Lower	Upper	
< 1	63(31.5)	1.59±1.40	1.24	1.94	
1-3	28(14.0)	1.33±1.52	0.92	1.75	F=1.102,

3-5	54(27.0)	1.18±1.36	0.65	1.71	P>0.05
5+	55(27.5)	1.16±1.21	0.84	1.49	
Total	**200(100)**	**1.34±1.38**	**1.15**	**1.54**	

4.4.5 Cost of Transportation according to Family Income

The cost of transportation of the patients is analysed whether it is to vary with income levels of their families. In this small section, cost of transportation is again distributed into four categories of the income (in '000 rupee), <1 (31.5%); 1-3 (14%); 3-5 (27%) and 5^{+} (27.5%) manifested in Table - 4.13. Irrespective of the joint effects of other covariates under observation, the cost of transportation of the patients is observed to be statistically insignificantly varied (F=1.29, P>0.05) with respect to the family income groups.

Table 4.13

Cost of transportation (in Rs.) according to monthly family income

Income ('000 Rs.)	N (%)	Mean±S.D	95%CI for mean		Test values
			Lower	Upper	
< 1	63(31.5)	66.43±48.52	54.21	78.65	
1-3	28(14.0)	70.00±60.09	46.70	93.30	F=1.287,
3-5	54(27.0)	61.02±44.83	48.78	73.25	P>0.05
5+	55(27.5)	52.55±31.85	43.93	61.16	
Total	**200(100)**	**61.65±45.54**	**55.30**	**68.00**	

Notwithstanding, there is some visible differences in cost of transportation in the study population. When the average cost of transportation is 61.65±45.54 (with 95%CI: 55.30-68.00), the highest cost of transportation, Rs. 70.00±60.09 (with 95%CI: 46.70-93.30) is found in the families having its lower income level of '1-3' followed by cost of transportation say 66.43±48.52 (with 95%CI: 54.21-78.65) in the lowest family income group of '<1' and the lowest cost, 52.55±31.85 (with 95%CI: 43.93-61.16) is observed in the highest income group of '5+'. It might perhaps be caused owing to the fact that the patients belonging to the low income group are generally from far rural areas in the study population.

4.4.6 Cost of Hospitalization according to Family Income

From Table 4.14, it is observed that the average cost of hospitalization of the patients under investigation is distributed according to four different income levels. The average cost of hospitalization is positively correlated with the family income of the patients. Irrespective of the effects of other factors under study, the variation in the cost of hospitalization is found to be statistically insignificant according to family income levels. It is evidenced by the F-statistics (1.50, P>0.05). Despite, the average cost of hospitalization (Rs. 572.86±2115.31 with 95%CI: 247.37-1393.09) is found in the lowest income level of below Rs. 1000. It is monotonically increased to Rs. 4128.65±13167.42 (with 95%CI: 812.48-7444.82) in income level of Rs. 1000-3000, Rs. 6220.00±15437.63 (with 95%CI: 2006.34-10433.66) and the maximum cost of hospitalization of Rs.

6764.36±15777.03 (with 95%CI: 2499.24-11029.49) is recorded in the highest income level, Rs. 5000 and above. These differences in the patients' cost of hospitalization are noted while their average figure of Rs. 4920.32±13780.36 with 95%CI: 2998.81-6841.84. However, the insignificant variation in the cost figures might perhaps be caused due to irrespective of joint effects of other covariates of the patients under present analysis. The finding may thus inferred that the cost of hospitalization of the patients is directly proportional their family income in the population.

Table 4.14

Cost of hospitalization (in Rs.) according to monthly family income

Income ('000 Rs.)	N (%)	Mean±S.D	95%CI for mean		Test values
			Lower	Upper	
< 1	63(31.5)	572.86±2115.31	247.37	1393.09	
1-3	28(14.0)	4128.65±13167.42	812.48	7444.82	
3-5	54(27.0)	6220.00±15437.63	2006.34	10433.66	F=1.498,
5+	55(27.5)	6764.36±15777.03	2499.24	11029.49	P>0.05
Total	**200(100)**	**4920.32±13780.36**	**2998.81**	**6841.84**	

4.4.7 Cost of Medical Care according to Family Income

The cost of patients' medical care is directly linked with their survival duration after detection of the disease (HIV/ HIV+HCV) and also their quality of lives too. However, "the people with high income tend to lead lifestyles associated

with increased number of sexual partners which increases their vulnerability to HIV, while those with low income may be unable to access HIV services also leading to increased vulnerability" (Durevall and Lindskog, 2012). Poverty makes "people vulnerable to HIV in diverse ways including dropping out of school; early marriage; and loss of livelihood, all of which have been linked to increased HIV vulnerability" (Whiteside, 2002). Many findings also observed that "as the HIV infection progresses, it affects the quality of life of the individual" (Penedo, 2003). Various "factors apart from physical and mental health like employment status, age, gender, income, education, HIV stage, severity of HIV infection, etc. are found to impinge on the quality of life of people living with HIV/AIDS" (Cowdery and Pesa, 2002).

Table 4.15

Cost of medical care (in Rs.) according to monthly family income

Income ('000 Rs.)	N (%)	Mean±S.D	95%CI for mean		Test values
			Lower	Upper	
< 1	63(31.5)	489.64±820.04	171.66	807.62	
1-3	28(14.0)	744.36±894.86	502.45	986.28	
3-5	54(27.0)	831.85±1483.47	426.94	1236.76	F=0.493,
5+	55(27.5)	849.40±1786.45	399.49	1299.31	P>0.05
Total	**200(100)**	**765.41±1379.57**	**573.05**	**957.77**	

The average cost of medical care is also found to be positively correlated with family income of the patients under observation. It is observed that the average cost of medical care of the patients is distributed with respect to four different family income (‘000Rs) levels namely, <1 (31.5%); 1-3 (14%); 3-5 (27%) and 5^{+} (27.5%) shown in Table - 4.15.Without considering the joint effects of other covariates, the variation in the cost of medical care is found to be statistically insignificant according to family income levels as witnessed by the test-value (F=0.49, P>0.05). Apart from the insignificant variation, the average cost of patient’s medical care (Rs. 765.41±1379.57with 95%CI: 573.05-957.77) is distributed such as the lowest cost Rs. 489.64±820.04 in the lowest income level of ‘<1’. It is gradually increased to Rs. 744.36±894.86 (with 95%CI: 502.45-986.28) in income level ‘1-3’, Rs. 831.85±1483.47 (with 95%CI: 426.94-1236) in family income group of ‘3-5’ and the highest patients’ cost of medical care of Rs. 849.40±1786.45 (with 95%CI: 399.49-1299.31) is observed in the highest income level ‘5+’. From the present empirical findings, it may be concluded that the cost of medical care of the patients is associated with their family income. The variation in the cost of patients’ medical care is again associated with maintaining of their quality of life.

4.5 Cross Tabulation Analysis on some factors of Patients with Income Level

In this analysis, 200 number of study subjects are distributed in cross-tabulation distribution between type of patient and four categories of family income groups. As in the previous cases, the study subjects are distributed according to four categories of family income (in ‘000Rs) viz., <1, 1-3, 3-5, and

5+. In the lowest income families (<1), 50.8% of the subjects are the patients with HIV and the rest 49.2% are those with HIV+HCV. Likewise the number of patients with HIV (53.6%) is more than that of patients with HIV+HCV (46.4%) in the income group of '1-3'. In contrast with, the number of patients with HIV are lower in two income levels '3-5' (HIV: 48.1% and HIV+HCV: 51.9%) and '5+' (HIV: 49.1% and HIV+HCV: 50.9%) than those of HIV+HCV.

Table 4.16

Monthly family income of patient and Type of Patient

Income	Type of Patient			Test value
('000 Rs.)	HIV only	HIV+HCV	**Total**	
< 1	32	31	**63**	
	(50.8)	(49.2)	**(100)**	
1-3	15	13	**28**	χ^2_3=0.25
	(53.6)	(46.4)	**(100)**	
				P>0.05
3-5	26	28	**54**	
	(48.1)	(51.9)	**(100)**	
5+	27	28	**55**	
	(49.1)	(50.9)	**(100)**	
Total	**100**	**100**	**200**	
	(50)	**(50)**	**(100)**	

Out of the total study subjects, the maximum number of patient with HIV (32 say 16%) is existed in the lowest income class of '<1' and the lowest number

of study subjects (13, 6.5%) falls on the patients with both HIV and HCV and the income group of '1-3'. Without considering the influences of other factors under observation, the pattern of the type of patients' distribution is found to be statistically insignificantly different according to family income groups under study viz., '<1', '1-3', 3-5' and '5+' as shown in Table 4.16. This insignificant variation is advocated by the value ofχ^2 - Statistics say 0.25 at 0.05 probability level of significance (P>0.05).

Table 4.17

Monthly family income of patient and Sex of patient

Income ('000 Rs.)	Sex of patient			Test value
	Female	Male	**Total**	
< 1	12	51	**63**	
	(19.0)	(81.0)	**(100)**	
1-3	14	14	**28**	χ^2_3 =10.63
	(50.0)	(50.0)	**(100)**	
3-5	22	32	**54**	P<0.05
	(40.7)	(59.3)	**(100)**	
5+	19	36	**55**	
	(34.5)	(65.5)	**(100)**	
Total	**67**	**133**	**200**	
	(33.5)	**(66.5)**	**(100)**	

A statistically significant variation is found in cross-tabulation between the proportion of patients with sex and family income group as evidenced by χ^2 - value of 10.63 (P<0.05). Irrespective of the effects of other variables under analysis, the maximum proportion of 51 male patients (25.5%) is observed in the lowest income level '<1' and that of minimum proportion of 12 female patients (6%) in the same income group. The equal proportion, 7% each of male and female is observed in the income level '1-3', manifested in Table 4.17. From this distribution, it is also observed that 66.5% of the patients are male and the rest 33.5% are female. In the lowest income group of '<1', the male proportion is 81% and only 19% are female.

Table 4.18

Monthly family income of patient and sharing of contact number

Income ('000 Rs.)	Sharing of contact No.			Test value
	No	Yes	**Total**	
< 1	35	28	**63**	
	(55.6)	(44.4)	**(100)**	
1-3	13	15	**28**	χ^2_3=0.99
	(46.4)	(53.6)	**(100)**	P>0.05
3-5	26	28	**54**	
	(48.1)	(51.9)	**(100)**	
5+	28	27	**55**	
	(50.9)	(49.1)	**(100)**	

Total	**102**	**98**	**200**
	(51.0)	**(49.0)**	**(100)**

In Table 4.18, it is observed that the number of patients sharing their contact number (49%) is lower than those of patients (51%) who are not sharing their contact number in the cross tabulation distribution of the study subjects according to four different income levels. Without considering the joint effects of other patients' characteristics, the distribution of the patients with sharing of contact numbers according to the income groups as in the above cases is statistically insignificant at 0.05 probability level of significance (χ^2 = 0.99, P>0.05. In the lowest income level '<1', the proportion of patients having shared contact number (44.4%) is lower than those who are not sharing their contact number. A similar pattern of proportion of patients is also found in maximum income level of '5+). However in two income levels of '1-3' and '3-5', the lower proportions are found in the patients who are not sharing their contact numbers than those of having share contact numbers.

Table 4.19

Monthly family income of patient and marital status of patient

Income ('000 Rs.)	Marital status of patient				Test value
	Single	Married	Widow, separated & divorced	**Total**	
< 1	10	45	8	**63**	
	(15.9)	(71.4)	(12.9)	**(100)**	

1-3	7	11	10	**28**	
	(25.0)	(39.3)	(35.7)	**(100)**	χ^2_6 =11.82
3-5	11	26	17	**54**	P>0.05
	(20.7)	(48.1)	(31.5)	**(100)**	
5+	9	32	14	**55**	
	(16.4)	(58.2)	(25.4)	**(100)**	
Total	**37**	**114**	**49**	**200**	
	(18.5)	**(57.0)**	**(24.5)**	**(100)**	

The cross tabulation distribution of the patients according to their marital status and family income levels is shown in Table - 4.19. With three categories of marital status namely 'single - 18.5%' (never married), 'married - 57%' and others - 24.5% defined to be widow, separated, or divorce, the patients are again distributed over the four income groups as in the previous cases. The income (in '000Rs) are <1, 1-3, 3-5, and 5+. In the lowest income group, the patients are distributed as '15.9% in single' (never married), '71.4% in married' and '12.9% in others'. A patients' proportion of 16.4%, 58.2% and 25.4% are found as single, married and others respectively in the highest income group of '5+'. Similar pattern of variations in the proportion of patients with their marital status are also distributed in other income levels say, '1-3' and '3-5'. Despite its visible differences in the patients' proportion with their three categories of marital status is found to be statistically insignificant according to the four income groups at

0.05 probability level of significance as advocated by the χ^2statistics, 11.82 (P>0.05).The findings may be concluded that the proportion of patients with their marital status is independent of the income levels of their families in the study population.

Table 4.20

Monthly family income of patient and CD4 count

Income	CD4 Count				Test value
(‘000 Rs.)	<200	200-500	500+	**Total**	
< 1	8	30	25	**63**	
	(12.7)	(47.6)	(39.7)	**(100)**	χ^2_6=8.61,
1-3	2	13	13	**28**	P>0.05
	(7.2)	(46.4)	(46.4)	**(100)**	
3-5	3	28	23	**54**	
	(5.6)	(51.9)	(42.6)	**(100)**	
5+	3	18	34	**55**	
	(5.5)	(32.7)	(61.8)	**(100)**	
Total	**16**	**89**	**95**	**200**	
	(8.0)	**(44.5)**	**(47.5)**	**(100)**	

The number of patients under analysis is distributed in cross tabulation between CD4 count and family income. Categorizing the study subjects into three levels of CD4 count viz., below 200 (8%), 200-500 (44.5%) and 500+ (47.5%), the patients are distributed over the four income groups, manifested in Table 4.20.

In the same table, the study subjects are distributed with respect to four different family income ('000Rs) levels namely, <1 (31.5%); 1-3 (14%); 3-5 (27%) and 5^{+} (27.5%). In the lowest income group (<1), 12.7% of patients is found in '<200' CD4 count, 47.6% in '200-500' CD4 count and 39.7% in '55+' CD4 count. In the highest income level (5+), 5.5%, 32.7%, and 61.8% of patients are observed in the CD4 count levels of <200, 200-500, and 500+ respectively.

Table 4.21

Monthly family income of patient and employment status

Income ('000 Rs)	Employment status							Test value
	Self-empl.	Part time empl.	Full time empl.	Not in paid empl.	Retired	Govt. support training & others	**Total**	
< 1	24	8	14	8	5	4	**63**	
	(38.1)	(12.7)	(22.2)	(12.7)	(7.9)	(6.4)	**(100)**	χ^2_{15} =38.74,
1-3	14	4	0	6	2	2	**28**	P<0.01
	(50.0)	(14.3)	(00.0)	(21.5)	(7.1)	(7.1)	**(100)**	
3-5	33	12	0	3	1	5	**54**	
	(61.1)	(22.2)	(00.0)	(5.6)	(1.9)	(9.2)	**(100)**	
5+	35	7	3	4	5	1	**55**	
	(63.6)	(12.7)	(5.5)	(7.3)	(9.1)	(1.8)	**(100)**	
Total	**106**	**31**	**17**	**21**	**13**	**12**	**200**	
	(53.0)	**(15.5)**	**(8.5)**	**(10.5)**	**(6.5)**	**(6.0)**	**(100)**	

Despite its visible differences, the proportion of patients with their CD4 count is insignificantly distributed according to family income groups in the population as witnessed by test (F) value, 8.61 (P>0.05).

In this cross tabulation analysis, the proportion of the patients under observation is again distributed with their employment status according to four levels of family income (Table 4.21). The employment status is here categorized into six groups namely self-employed (53%), part time employed (15.5%), full time employed (8.5%), retired (6.5%), not in paid employment (10.5%), and government support training and others (6%). In the highest income class of Rs. 5000 and above, the proportion 63.6% of total patients are found in category of self-employed; 12.7% in part time employed; 5.5% in full time employed, 9.1% in retired, 7.3% in not in paid employment and only 1.8% of those patients in government support training and others. In this distribution, specifically in lowest income group (below Rs. 1000), the proportion 38.1% of the patients under observation is noted in the category of self-employed; 12.7% in part time employed; 22.2% in full time employed, 12.7% in not in paid employment, 7.9 in retired and 6.4% of those patients in government support training and others. This variation in the proportion of patients with their employment status is highly significant according to four categories of family income groups in the population. It is evidenced by the test statistics, F=38.74 at 0.01 probability level of significance (P<0.01).

The cross tabulation distribution of the patients with their spouse' employment status and family income level is manifested in Table - 4.21. With

three categories of spouse employment viz., 'not applicable -43.5%' (no spouse), 'no employed - 33%' and 'employed - 23.5%', the patients are again distributed over four income groups as in the previous cases<1, 1-3, 3-5, and 5+. In the lowest income group, the patients are distributed as 25.4% in 'not applicable', 41.3% in 'no employed' and 33.3% in employed category. A patients' proportion of 43.6%, 32.7% and 23.7% are observed as not applicable, no employed, and employed category respectively in highest income group of '5+'. Similar pattern of variations in the proportion of patients with their spouse employment are also observed in other income levels say, '1-3' and '3-5'.

Table 4.22

Monthly family income of patient and spouse employment

Income ('000 Rs)	Spouse employment			**Total**	Test value
	Not applicable	No	Yes		
< 1	16 (25.4)	26 (41.3)	21 (33.3)	**63 (100)**	
1-3	18 (64.3)	7 (25.0)	3 (10.7)	**28 (100)**	χ^2_6=16.23, P<0.05
3-5	29 (53.7)	15 (27.8)	10 (23.7)	**54 (100)**	
5+	24 (43.6)	18 (32.7)	13 (23.7)	**55 (100)**	
Total	**87**	**66**	**47**	**200 (100)**	

(43.5) (33.0) (23.5)

In this cross tabulation, the distribution in the patients' proportion with their three categories of spouse employment is found to be statistically significant according to the four income groups at 0.05 probability level of significance as evidenced by the χ^2 statistics, 16.23 ($P<0.05$). The findings may be concluded that the proportion of patients with their spouse employment is influenced by the income levels of their families in the study population.

4.6 Conclusion

This section of the study analyzes the primary data collected from the field (ART centre, JNIMS, Imphal). Here, the univariate analysis provides the descriptive and explorative results of the data allowing the fulfilment of the 1 & 2 objectives sought out in the study.

The comparison of economic life of patients with HIV and the patients with co-morbidity of hepatitis C i.e. HIV+HCV are elucidated in section 4.3 in addition to section 4.5 by cross-tabulation analysis.

The survival duration of the patients after detection of the disease in section 4.3.1 as type of patients (means table) and Table 4.8 provides survival time of patient (in years) according to means of transmission.

In the next chapter, multiple regression analysis is used to examine the cost linkages in treatment of the disease which is the third objective of the study

CHAPTER - V

COVARIATES' EFFECTS ON THE SURVIVAL TIME OF PATIENTS

5.1 Introduction

The present chapter concerns itself with investigation of the effects of socio-economic and health related factors on the variation in survival time duration of patients through multivariate approach. As an econometric tool, regression analysis infers the functional relations between dependent variable (survival time) and explanatory variables – socio-economic and health indicators. It is to estimate and/or predict the population average values of the dependent variable in terms of known or fixed values of explanatory variables obtained from the sampling. Though regression analysis does not necessarily mean causation, it helps in study of quantitative measure of effects of the factors considered relevant *a priori* on theoretical considerations. So, the present section attempts to highlights the dependence of patient's survival time on eleven socio-economic and health related variables which are hypothesized to have impact on patient's survival time by using regression models.

5.2 Statistical Models

The variation in survival time duration of the patients may be influenced by various causal factors like socio-economic and sources of health related factors.

The general form of the multiple regression models is

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \ldots + \beta_k X_{ki} + \varepsilon_i \qquad (1)$$

where ***k*** denotes the number of explanatory variables (X) and ***i*** denotes the ***ith*** patient of the cohort sample of the population concerned and β_j*'s* are regression coefficients. The corresponding estimated model, pertaining to a particular sample from the population, is

$$Y_i = b_0 + b_1 X_{1i} + b_2 X_{2i} + \ldots + b_k X_{ki} + e_i \qquad (2)$$

The equations (1) and (2) serve as a statistical model. However, we need to we make assumptions of homoscedasticity, absence of multi-collinearity, absence of serial correlation, $E(\varepsilon_i) = 0$ for each i, and that relation is linear. Under these assumptions, ordinary least square (OLS) method is use for estimation. The present analysis has been performed through SPSS version 21.

5.3 Dummy Variable

Dummy variables were used to represent categorical variables such as sex of patient (male/ female), employment status (employed/ unemployed) etc. It is also called dichotomous variables, binary variables, or contrast variables. Dummy variables take on only two values, usually *0* and *1* for two categories. Categorical variables with two categories can be represented by a single dummy variable. The variable – sex of patient may be an example:

X: 1, male (M) if the respondent/ patient's sex is male and

0, otherwise that is female (F)

The category with assigned value 0 is called the reference category. In this example, female is the reference category. However, we might just as well have defined male as the reference category:

X: 1, if the respondent sex is female, 0 otherwise that is male

Here, it makes no difference which category is chosen as the reference category. For instance, we regress 'mean survival time of patient after the date of detection of HIV/ HCV' (in year) say *Y* on M:

$$\hat{Y} = a + bM \qquad (1)$$

Because, $M = 1 - F$, we can derive the regression of *Y* on *M* directly from (1) as

$$\hat{Y} = a + b(1 - F) = (a + b) - bF = a^* - bF \qquad (2)$$

5.4 Specification of Variables

In the present regression analysis, the response variable is considered to be survival time duration of patient (in years). The longevity of survival time after detection of the disease (HIV/ both HIV and HCV) is assumed to be functionally related with eleven explanatory variables/ factors of interest. They are sex of patient (male=1, female=0), age of patient (count in years), marital status of patient (currently married=1 and 0, otherwise say single, widow, separated etc.), family size (count discrete number of family members), number of children (count discrete number), status of respondents employment (employed=1 and 0 otherwise), monthly family income of the patient (in '000Rs., ordinal: 1 for <1; 2 for 1-3; 3 for 3-5 and 4 for 5+), type of patient (patient with HIV=1, both HIV and HCV= 0), mode of transmission of the disease (sexual=1 and 0 otherwise – IDU,

blood, vertical, unknown etc.), CD4 count (ordinal: below 200=1, 200-500=2 and above 500=3) and application of supplementary medicine (yes=1 and no= 0).

5.5 Functional Relationship

In case of functional relationship, the patient's survival time after detection of HIV/ HCV (*Y*) is defined to be a function of eleven variables namely sex of patient, age of patient, marital status of patient, family size, number of children in the patient's family, respondents employment, family income of the patient, type of patient, mode of transmission of the disease, CD4 count and application of supplementary medicine.

5.6 Hypothesis

The null hypothesis (H_0) of the present investigation may be spelt out as: for each variable, H_0: $\beta_i = 0$, indicating that the survival time period of the patients is not influenced by that particular socio-economic and health related factor as against the alternative hypothesis (H_1), pronounced by H_1: $\beta_i \neq 0$, that is the survival time is significantly influenced by that particular socio-economic and health related factor under investigation.

5.7 Results and Discussion

To quantify some qualitative variables, binary dummy variable (0, 1) and ordinal scale techniques are used and 0.40 was also taken as a cut off zero-order correlation value for scanning the multicollinearity problems among the explanatory variables. While interpreting the findings measuring the effects of the

independent variables on duration of survival time of the patients, the regression coefficient (β) with its 95% confidence level and P-values of the t-test for the coefficients are also used. The probability levels of significance have been advocated by 5% (P<0.05) as statistically significant and 1% (P<0.01) as highly significant.

In the present analysis, the duration of survival time of patients under observation is assumed to be functionally related with eleven variables – sex of patient, age of patient, marital status of patient, family size, number of children, status of respondents employment, monthly family income of the patient, type of patient, mode of transmission of the disease, CD4 count and application of supplementary medicine. It is evident that the null hypothesis is rejected in the sense that all regression coefficients (β_i) cannot be zero indicating that some of the explanatory variables have significant impacts on the survival time period. It is evidenced by F-value of the regression model, say 3.02 (P<0.01) (Table -5.1). The total variation in the survival time is explained about 25% (R^2=0.251) by the explanatory variables or so called predictors in the multiple regression model. Out of eleven variables only two were observed to have their significant contributions on the variation of patient's survival time in the population. They were patient type that is patients with HIV and that of both HIV and HCV (P<0.01) and CD4 count (P<0.05).

In this multiple regression model, it is observed that mean survival time of patients under study is about seven (6.91) years without considering the effects of

present independent variables. It says that patient's survival time is found to be nearly 7 years under the assumption that there are no variations in the covariates or so called independent variables. From this multivariate analysis, it is found that the survival time of patient with HIV can extend by 3 year 5 months (b=3.439 with 95%CI: 1.854-5.023) than that of HCV. This positive effect of type of patient is highly significant as evidenced by the value of t-statistics, 4.28 (P<0.01). In the similar manner, survival time of patients may enhance 2.5 years (b=2.531) corresponding to each advancement of one level in CD4 count say from below 200 to 200-500 and again to above 500. This increment in the patient's survival time is statistically significant at 5% probability level of significance as witnessed by t-statistics (1.99, P<0.05), see in Table 5.1.

Apart from the statistical significance, the survival time of the patients after detection of the disease may also visibly enhance 1.5 years more if the patient is male than those of female (b=1.545), but it is not significant statistically. The survival time duration may be reduced by 0.7 years or eight and half months in sexual transmission of the disease than those of IDUs, blood, vertical, unknown etc. (b=-0.713). The fitted regression model so obtained is given by the Model – 1.

Table 5.1

Multiple regression analysis on patient's survival time after detection of HIV/ HCV

Factors	**b**	**t**	**P-value**
(Constant)	6.912	2.18	0.031

Sex of patient	1.545	1.46	0.147
Age of Patient	-0.001	-0.02	0.982
Marital status of patient	-1.167	-1.55	0.123
Family size	-0.553	-1.74	0.083
Number of children	-0.107	-0.34	0.736
Respondents employment	-0.363	-0.39	0.696
Monthly income	-0.129	-0.45	0.657
Type of patient	3.439	4.28	0.000
Mode of transmission	-0.713	-0.69	0.489
CD4 count	2.531	1.99	0.040
Supplementary medicine	0.425	0.54	0.587

Model diagnostics: Model F=3.02, P<0.001; Durbin-Watson=1.95; R^2=0.251

To identify other influencing factors on the variation in patient's survival time, backward stepwise regression analysis is applied. Screening of significant covariates or explanatory variables on the response variable (patient's survival time) has been performed through seven steps that is from Model 1 to Model 7 shown in Table -5.2. The 1st model is same as above fitted multiple regression model in which the effects of independent variables are explained. The last, 7th model is achieved with five covariates/ independent variables indicating that the

patients' survival time is significantly varied with sex of patient, marital status of patients, family income, patient type (HIV/ HCV) and CD4 count. Age of patient is screened out to be lowest insignificant effect in the 2nd model from the 1st model carrying the beta (regression coefficient) value of -0.002 with absolute t-value, 0.022 (P>0.05). The transition of 3rd model from 2nd model can screen out the number of children in the family with beta value of -0.029 (t= 0.339, P>0.05) along with patient's age (b=0.003, t=0.037, P>0.05). In this advancement of each model the amount of covariates' effects on survival time duration are also changes. In this way, six less influencing independent variables can be screened out in the last fitted 7th regression model. The excluded variables are age of patient (*b* = 0.013, t=0.19), number of children (*b*= -0.033, t=0.39), respondents employment (*b*= -0.030, t=0.44), monthly income (*b*= -0.033, t=0.48), supplementary medicine (*b*= 0.051, t=0.74) and mode of transmission (*b*= -0.086, t=0.89) each at 5% probability level of significance (P>0.05) shown in Table 5.2a.

Table 5.2

Multiple regression analysis with factor's effects under stepwise method

Model	Factors	b	t	P-value
	(Constant)	6.912	2.178	0.031
	Sex of patient	1.545	1.458	0.147
	Age of Patient	-0.001	-0.022	0.982

1	Marital status of patient	-1.167	-1.549	0.123
	Family size	-0.553	-1.740	0.083
	Number of children	-0.107	-0.337	0.736
	Respondents employment	-0.363	-0.391	0.696
	Monthly income	-0.129	-0.445	0.657
	Type of patient	3.439	4.281	0.000
	Mode of transmission	-0.713	-0.693	0.489
	CD4 count	2.531	1.996	0.040
	Supplementary medicine	0.425	0.544	0.587
2	(Constant)	6.866	2.866	0.005
	Sex of patient	1.545	1.461	0.146
	Marital status of patient	-1.169	-1.575	0.117
	Family size	-0.553	-1.755	0.081
	Number of children	-0.106	-0.339	0.735
	Respondents employment	-0.364	-0.395	0.693
	Monthly income	-0.128	-0.447	0.655

	Type of patient	3.437	4.315	0.000
	Mode of transmission	-0.712	-0.695	0.488
	CD4 count	2.529	1.997	0.040
	Supplementary medicine	0.423	0.547	0.585
	(Constant)	6.992	2.961	0.003
	Sex of patient	1.556	1.477	0.141
	Marital status of patient	-1.218	-1.676	0.095
	Family size	-0.616	-2.416	0.017
	Respondents employment	-0.384	-0.418	0.676
	Monthly income	-0.125	-0.438	0.662
3	Type of patient	3.416	4.312	0.000
	Mode of transmission	-0.738	-0.723	0.471
	CD4 count	2.580	2.036	0.043
	Supplementary medicine	0.412	0.534	0.594
	(Constant)	6.725	2.965	0.003
	Sex of patient	1.489	1.433	0.154

4	Marital status of patient	-1.231	-1.699	0.091
	Family size	-0.604	-2.390	0.018
	Monthly income	-0.136	-0.478	0.633
	Type of patient	3.395	4.303	0.000
	Mode of transmission	-0.731	-0.718	0.473
	CD4 count	2.570	2.033	0.043
	Supplementary medicine	0.408	0.531	0.596
	(Constant)	6.337	2.997	0.003
5	Sex of patient	1.531	1.482	0.140
	Marital status of patient	-1.214	-1.681	0.094
	Family size	-0.594	-2.362	0.019
	Type of patient	3.425	4.364	0.000
	Mode of transmission	-0.733	-0.721	0.472
	CD4 count	2.515	2.002	0.047
	Supplementary medicine	0.408	0.531	0.596
	(Constant)	6.832	3.606	0.000

	Sex of patient	1.463	1.429	0.155
6	Marital status of patient	-1.267	-1.774	0.078
	Family size	-0.586	-2.339	0.020
	Type of patient	3.401	4.349	0.000
	Mode of transmission	-0.870	-0.887	0.376
	CD4 count	2.404	1.944	0.053
	(Constant)	6.226	3.525	0.001
	Sex of patient	1.989	2.388	0.018
7	Marital status of patient	-1.237	-1.735	0.084
	Family size	-0.594	-2.374	0.019
	Type of patient	3.188	4.286	0.000
	CD4 count	2.423	1.961	0.051

In the best fitted regression model (7^{th}), the duration of patient's survival that is the time duration from date of detection of disease to survey date is estimated to be at least six years (b=6.226) The survival time of male patient is on average about two years more (b= 1.99) compare to that of female. It means that duration of survival time of patient after detection of disease is significantly influenced by the sex of patient and it is statistically significant (t = 2.39, P<0.05).

Survival duration of currently married patient may be reduced by 1 year and 3 months than those of others say single, widow, separated etc. (b= -1.237).

Survival time is also reduced by seven months while increasing of one member in the patient's family (b= -0.594). This reduction is found to be statistically significant (t= 2.374, P<0.05).

Table -5.2a

Excluded variables from the Stepwise Regression Models

Model	Variable	beta in	t	P-value
2	Age of Patient	-0.002	-0.022	0.982
	Age of Patient	0.003	0.037	0.970
3	Number of children	-0.029	-0.339	0.735
	Age of Patient	0.001	0.011	0.991
4	Number of children	-0.031	-0.366	0.715
	Respondents employment	-0.029	-0.418	0.676
	Age of Patient	0.004	0.062	0.950
5	Number of children	-0.030	-0.354	0.724
	Respondents employment	-0.032	-0.461	0.646
	Monthly income	-0.033	-0.478	0.633
6	Age of Patient	0.008	0.121	0.904
	Number of children	-0.028	-0.332	0.740

	Respondents employment	-0.031	-0.456	0.649
	Monthly income	-0.033	-0.479	0.633
	Supplementary medicine	0.038	0.531	0.596
	Age of Patient	0.013	0.189	0.851
7	Number of children	-0.033	-0.387	0.699
	Respondents employment	-0.030	-0.440	0.661
	Monthly income	-0.033	-0.481	0.631
	Supplementary medicine	0.051	0.740	0.460
	Mode of transmission	-0.086	-0.887	0.376

It is noted that the survival time of patient with HIV can extend at least 3 years (b=3.188) than the patient of both HIV and HCV. This enhancement of survival time is highly significant as witnessed by t-statistic, 4.29 (P<0.01).

Lastly, the survival time of patients may also be increased by 2 years 5 months (b= 2.423) to each increment of one level in CD4 count. The fitted seven regression models of patient's survival time duration according to eleven covariates by using backward stepwise method with model diagnostics are given by the functional equations.

*Model **1** (Model F=3.02, P<0.001; R^2=0.251):*

Y = 6.912 + 1.545 (Sex of patient) – 0.001 (Age of Patient) – 1.167 (Marital status of patient) – 0.553 (Family size) – 0.107 (Number of children) –

0.363 (Respondents employment) – 0.129 (Monthly income) + 3.439 (Type of patient) – 0.713 (Mode of transmission) + 2.531 (CD4 count) + 0.425 (Supplementary medicine).

Model 2 (Model F=3.34, P<0.001; R^2=0.250):

Y = 6.866 + 1.545 (Sex of patient) – 1.169 (Marital status of patient) – 0.553 (Family size) – 0.106 (Number of children) – 0.364 (Respondents employment) – 0.128 (Monthly income) + 3.437 (Type of patient) – 0.712 (Mode of transmission) + 2.529 (CD4 count) + 0.423 (Supplementary medicine).

Model 3 (Model F=3.72, P<0.001; R^2=0.250):

Y = 6.992 + 1.556 (Sex of patient) – 1.218 (Marital status of patient) – 0.616 (Family size) – 0.384 (Respondents employment) – 0.125 (Monthly income) + 3.416 (Type of patient) – 0.738 (Mode of transmission) + 2.580 (CD4 count) + 0.412 (Supplementary medicine).

Model 4 (Model F=4.18, P<0.001; R^2=0.249):

Y = 6.725 + 1.489 (Sex of patient) – 1.231 (Marital status of patient) – 0.604 (Family size) – 0.136 (Monthly income) + 3.395 (Type of patient) – 0.731 (Mode of transmission) + 2.570 (CD4 count) + 0.408 (Supplementary medicine).

Model 5 (Model F=4.77, P<0.001; R^2=0.248):

Y = 6.337 + 1.531 (Sex of patient) – 1.214 (Marital status of patient) – 0.594 (Family size) + 3.425 (Type of patient) – 0.733 (Mode of transmission) + 2.515 (CD4 count) + 0.408 (Supplementary medicine).

Model 6 (Model F=5.53, P<0.001; R^2=0.247):

Y = 6.832 + 1.463 (Sex of patient) – 1.267 (Marital status of patient) – 0.586 (Family size) + 3.401 (Type of patient) – 0.870 (Mode of transmission) + 2.404 (CD4 count).

Model 7 (Model F=6.49, P<0.001; R^2=0.243):

Y = 6.226 + 1.989 (Sex of patient) – 1.237 (Marital status of patient) – 0.594 (Family size) + 3.188 (Type of patient) + 2.423 (CD4 count).

5.8 Conclusion

In this regression analysis, it is sought to be analysed as to how that the patient's survival time after detection of HIV/ HCV is functionally related with eleven variables namely sex of patient, age of patient, marital status of patient, family size, number of children in the patient's family, respondents employment, family income of the patient, type of patient, mode of transmission of the disease, CD4 count and application of supplementary medicine. Out of eleven variables only two are found to have significant influence on patient's survival time. These are: one, patient type that is patients with HIV and that of both HIV and HCV (P<0.01); and two, CD4 count (P<0.05).

Even though statistically insignificant, we note that the patients' survival time after detection of the disease may be enhanced by 1.5 years if the patient is male than if the patient is female. The survival time duration may be reduced by 0.7 years (eight and half months) in sexual transmission of the disease than those of IDU, blood, vertical, unknown etc.

In the last fitted regression model in 7^{th} step. The value of constant term suggests that the mean duration of patient's survival is estimated to be at least six years when effects of five covariates namely sex of patient, marital status of patients, family income, patient type and CD4 count are not considered. The survival time of male patient is larger by two years than that of female patient. while controlled the joint effect of other four covariates say marital status of patient, family size, type of patient and CD4 count. It means that duration of survival time of patient after detection of disease is significantly influenced by the sex of patient. Similarly, the survival duration of currently married patient is an average smaller by 1 year and 3 months than those of others say single, widow, separated etc. The survival time is also significantly reduced by seven months while increase of one member in the patient's family takes place. In this analysis, the survival time of the patient with HIV can extend at least 3 years than the patient with HIV+HCV. Thus, co-morbidity for a HIV patient shows its significant adverse effect in his/her life. Finally, the survival duration of patients may also be increased by 2 years 5 months to each increment of one level in CD4 count.

Thus, model 7 brings out the factors that seem to critically impact on survival time, and possibly the quality of life.

From the policy point of view, one following points are of particular significance: One, there is need to pay close attention to occurrence of co-morbidities such as HCV, since this significantly and adversely affects survival time and possibly quality of life. Efforts may be warranted to reduce chances of getting co-morbidities as well as extra care for those suffering from co-morbidities.

Two, greater attention may need to be paid for the patients who are (a) females; (b) not currently married (and perhaps have a weaker support system); and (c) those who have become victims of drug abuse.

Finally, close monitoring of CD4 count may be helpful in enhancement of quality of HIV patients.

CHAPTER - VI

SUMMARY AND CONCLUSION

Health economics is an applied field of study for the systematic and rigorous investigations of the problems faced in promoting health for all. The association between socio-economic factors and HIV outcomes in many parts of the world might not be generalized to settings with free universal health care. Among the Indian States/ UTs, Mizoram, Manipur, Nagaland, Telangana and Andhra Pradesh have their high prevalence of HIV. It seriously affects socio-economic and health conditions of the people living in these regions. In this context, the present study concerns itself to investigate the economic life of the patients with HIV and HIV+HCV in Manipur. The findings of the present investigation may be seen as one of the baseline information for economic life of HIV/AIDS patients in North East India, particularly in Manipur.

With the rise in awareness, availability of advance PreP plus the possibility of cure (in cases of medically declared Berlin patient and London patient) the world is at the precipice of alleviating the epidemic. An additional year of life can improve the chances of an individual patient to benefit from such medical advancement.

The survival duration of the patients after detection of the disease is analysed with eight socio-economic and health parameters using t-test and F-statistics. The parameters are type of patient (HIV/ HIV+HCV), sex of patient, marital status, employment status, spouse employment status, family income, CD4

count and transmission of disease. The average survival time of HIV patients at 9.55±4.97 years is observed to be longer of the patients with both HIV and HCV at 6.89 years; while the overall average survival time of the patients is 8.22 year. The corresponding figures for standard deviation are: 4.97, 4.70 and 5.00 years respectively. The findings reveal that the variation in patient's survival time is found to be highly significant ($P<0.01$) according to type of patients (HIV and HIV+HCV) irrespective of the joint effects of other parameters under study.

The variation in patients' survival time is also analysed with respect to sex of the patients (male: 66.5% and female: 33.5%). The mean survival time of the female patients (8.43, 4.13) is longer than that of male patients (8.11, 5.40). In this study, the study subjects are divided into three categories of marital status such as single (never married, 18.5%), married (57%) and others (24.5%) which is defined to be widow, separated, or divorce. While the overall patients' survival time is 8.22 years, the longest duration of 9.10 (standard deviation 4.30) year is observed in other category (widow, separated, or divorce) followed by single patients 8.43 (s.d.5.86) years and the shortest survival time 7.77 (s.d. 4.97) years is detected in currently married patient. Though this visible difference, this variation is statistically insignificant ($P>0.05$). This insignificant result may perhaps be due to uncontrolled the joint effects of other factors included in the analysis.

The mean survival duration of the patients is again tested with respect to six categories of their employment status namely self-employed (53%), part time employed (15.5%), full time employed (8.5%), retired (6.5%), not in paid employment (10.5%), and government support training and others (6%). The

longest survival time 9.88 (s.d. 7.14) years is detected in patients who are full time employed followed by government support training and others 9.15 (s.d.3.78) years and the shortest duration 6.05(s.d. 4.49) years is found in the patients who are in 'not in paid employment for other reasons' and the shorter duration of 7.39 (s.d. 4.84) years is obtained in the patients who are part time employed. This variation in patients' survival time may be caused by economic conditions of their families. However, the variation is found statistically insignificant (P>0.05) without considering the joint effects of other socio-economic and health parameters included in the analysis. In previous findings, the employment status of patients spouse is noted to be non-trivial parameter influencing on the variation in survival duration of HIV/AIDS patients. The impact of spouse employment may be due to financial support in health care of patients. The mean survival time is distributed according to their spouse employment categories such as 'not applicable' (43.5%), 'no employed' (33%) and 'employed' (23.5%). The longest duration 8.9 (s.d. 4.94) years is found in 'not applicable' category followed by 7.88 (s.d. 4.94) years in 'no employed' and the shortest one 7.45 (s.d.5.13) years in 'employed spouse' in the study population.

In this analysis, the duration of patients' survival time vary insignificantly (P>0.05) with four categories of their family income namely 'below Rs. 1000 (31.5%)', 'Rs.1000-3000 (14%)', 'Rs. 3000-5000 (27%)' and 'Rs. 5000 and above (27.5%)'. The patients' life time is in curvilinear movements according to their families' income groups. Irrespective of joint effects of other factors included in the analysis, the longest survival duration of 8.5 (s.d.5.05) years is observed in

patients having their family income of ‘Rs. 3000-5000’ followed by 8.43 (s.d. 5.50) years in patients of lowest family income of ‘below Rs. 1000’. The variation pattern in the life span of the patients does not follow any econometrics rules in the classes of family income.

The variability of patients’ survival time is also analysed with respect to the level of their CD4 count with three groups – ‘below 200 (8%)’, ‘200-500 (44.5%)’ and ‘500+ (47.5%)’. The life span of the patients just after detection of disease is gradually progressing with increase of CD4 count. When their mean life span after detection is 8.22 (s.d. 5.00) years, the longest duration, 8.76 (s.d. 3.83) years is detected in highest CD4 count (500+) and the shortest survival time of 5.44(s.d.4.53) years is observed in the patients whose CD4 count is lowest (<200). From the present findings, it may be observed that the survival time of patients under observation is influenced by means of transmission of the disease. The life span of patients after confirmation of the disease is studied with five different means of transmission (unknown, sexual, IDU, blood, and vertical). The shortest survival duration in the distribution, 5.88 (s.d.3.09) years noted in patients having unknown transmission which is followed by 7.00 (s.d.4.82) years in patients with blood transmission of the disease. While the overall mean duration of survival is 8.22 years, the longest time ‘8.46 (s.d.4.39) years’ is found in patients having sexual transmission followed by 8.38 (s.d. 4.80) years in vertical transmission and by 8.16 (s.d. 5.15) years in IDU transmitted patients.

To detect the covariates influencing on the survival duration after detection of the disease, multiple regression analysis is performed. Under the assumption

that the survival time of the patient after detection of HIV/ HCV is functionally related with eleven variables namely sex of patient, age of patient, marital status of patient, family size, number of children in the patient's family, respondents employment, family income of the patient, type of patient, means/ mode of transmission of the disease, CD4 count and application of supplementary medicine a multiple regressive model is estimated. Only two variates out of these eleven ones are observed to have their statistically significant effects on patient's survival time after detection of the disease. The parameters are type of patients i.e. patients with HIV and patients with HIV+HCV ($P<0.01$); and CD4 count ($P<0.05$) after adjusted the joint effects of ten remaining variables included in the analysis.

In this regression analysis, the survival duration of the patients after detection of the disease may also be enhanced by 1.5 years if the patient is male than those of female and the survival time duration may be reduced by 0.7 years (eight and half months) in sexual transmission of the disease than those of IDU, blood, vertical, unknown transmission etc.

To identify the most influencing factors on the variation in survival duration of the patients after detection of the disease, stepwise regression models are again developed. In the last 7^{th}regression model, the life time is estimated to be at least six years keeping constant the joint effects of five covariates namely sex of patient, marital status of patients, family income, patient type and CD4 count. Here, the duration of survival of the male patient is extended to two years than that of female patient after adjusted the joint effect of other four factors namely marital status of patient, family size, type of patient and CD4 count. The findings reveal that the

patients' duration of survival time after detection of disease is significantly influenced by the sex of patient. When adjusted the joint effects of four variables say sex of patient, family size, type of patient and CD4 count, the survival duration of currently married patient may be reduced by one year and three months than those of others (widow, separated, divorced etc.). Keeping constant the joint effects of sex of patient, marital status, type of patient and CD4 count, the survival time is also significantly reduced by seven months while increasing family size by one member. In this model, the survival time of the patient with HIV is larger by three years compared with the patient with HIV+HCV when adjusted the joint effect of four other covariates (sex of patient, marital status of patient, family size and CD4 count). The survival duration of patients is seen to increase by two years five months to each increment of one level in CD4 count when adjusted the joint effects of four other variables viz., size of family, and type of patient, sex of patient and marital status of the patients in the study population.

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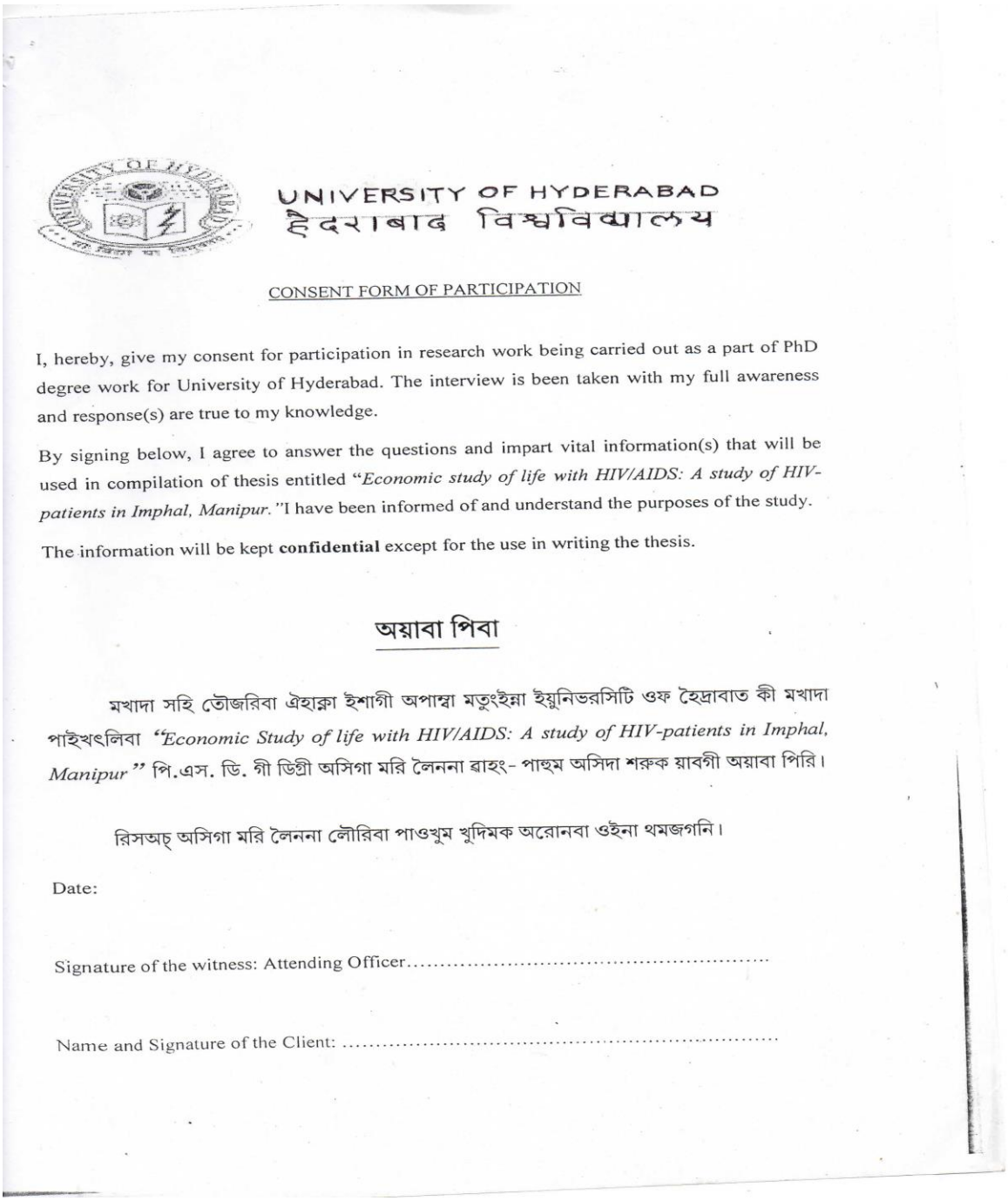
Annexure1: Consent form- in which each patient(s) attending ART centre and the attending medical officer gave signatures attesting their consent



UNIVERSITY OF HYDERABAD
হৈদরাবাদ বিশ্ববিদ্যালয়

CONSENT FORM OF PARTICIPATION

I, hereby, give my consent for participation in research work being carried out as a part of PhD degree work for University of Hyderabad. The interview is been taken with my full awareness and response(s) are true to my knowledge.

By signing below, I agree to answer the questions and impart vital information(s) that will be used in compilation of thesis entitled "*Economic study of life with HIV/AIDS: A study of HIV-patients in Imphal, Manipur.*"I have been informed of and understand the purposes of the study.

The information will be kept **confidential** except for the use in writing the thesis.

অয়াবা পিবা

মখাদা সহি তৌজরিবা ঐহাক্না ইশাগী অপাম্বা মতুংইন্না ইয়ুনিভরসিটি ওফ হৈদ্রাবাত কী মখাদা পাইখৎলিবা *"Economic Study of life with HIV/AIDS: A study of HIV-patients in Imphal, Manipur"* পি.এস. ডি. গী ডিগ্রী অসিগা মরি লৈননা ৱাহং- পাহুম অসিদা শরুক য়াবগী অয়াবা পিরি।

রিসঅচ্ অসিগা মরি লৈননা লৌরিবা পাওখুম খুদিমক অরোনবা ওইনা থমজগনি।

Date:

Signature of the witness: Attending Officer.....

Name and Signature of the Client: .....

Annexure 2: Questionnaire

ECONOMIC STUDY OF LIFE WITH HIV/AIDS: A STUDY OF HIV-PATIENTS IN IMPHAL, MANIPUR

A) Personal Profile

Name:.....

Age:..... Sex:..... Contact Number:.....

Residence:.....

Marital status: Single Married Separated Divorced

Widow(er)ed

Family size:..... Number of adults:..... Number of children: .....

B) Infection Status

1) When was the HIV test done: .....

2) Route of transmission: IDU Sexual Blood Transfusion

Vertical transmission Others (syringe accident) Unknown

3) Whether on ART: Yes No

4) Name of ART Centre: .....

5) Do you have any other co-infection: Yes No

5a. If yes, name of infection: .....

5b. CD4 count as on .....

6) Have you tested for Hepatitis-C infection: .....

C) Employment Status

7) Are you employed: Yes No NA

8) Is your spouse employed: Yes No NA

9) Details of type of employment

Employment Status	**Tick one category that best describes your employment now** (*please tick one box only)*
a. Employee, full time (more than 30 hours/week)	
b. Employee, part time (less than 30 hours/ week)	
c. Self-employed	
d. Government-supported training	
e. Other training or education	
f. Employee on sick leave	
g. Not in paid employment due to retirement	
h. Not in paid employment for other reasons	

10) If yes in for item 7, please state income per month

1,000-3,000 3,000-5,000 5,000-10,000 above 10,000

11) If you are in paid work please tell us the number of days you have been away from work due to treatment related purpose.

Number of days: .....

12) Please estimate the earnings lost on account of absence from work due to treatment related purpose during the past one year.

Rs. .....

D) Treatment cost

13) In a span of last one year, how many times did you visit the hospital?
.....
.....
.

14) In the last three months, how many times have you sought medical attention?.....

Type of medical care	Please tick here	Cost in INR (fees, registration charges)
Visiting a doctor privately		
Visit to a hospital, clinic or public dispensary		
Visit to a diagnostic centre		
Visit to a counsellor		
Domiciliary treatment		

15) From the time of contraction, have you ever been hospitalized overnight or for more than a day due to HIV related treatment:

- Yes
- No

16) If yes, please specify details and cost.....

.....

17) Apart from the ART, are you taking any other medicines

- Yes
- No

18) If yes, please fill in the details

Type of medicine	Name of medicines	Dosages per week	Amount spent
Prescription drugs			
Without prescription			
Supplementary or dietary medicines			

19) In case the patient have responded yes to item 6 (Hepatitis-C co-infection), details of the diagnosis so far,

a. When was the test done .....

b. Where was the investigation carried out.....

c. The amount you spent for test .....

d. Are you taking treatment Yes No

e. If yes, please give details: Cost of treatment.....

Funded by: .....

Dosages: .....

f. If no, please specify the reason(s):

- I find the high-cost of treatment deterring
- I lack the resources for affording the treatment
- I do not felt the need for taking treatment

g. Do you think that the government should support treatment of Hepatitis-C

- Fully subsidize
- Partially subsidize
- Not necessity

E) Cost of travel

20) How do you commute to the ART centre from your place of residence?

- Walking or by cycling
- Car/ Two-wheeler automobile
- Hired means of transport (Car/ Van/ ATV)
- Pooled/Public transport (Bus, auto-rickshaw, man-pulled rickshaw)

21) What is the estimated amount per trip (to-and-fro)? .....

22) What is the frequency of visit to the ART Centre? .....

23) Do you have an ART green card? Yes No

24) Do you have any accompanying person when you visit the centre?

- 0
- 1
- More than 1

25) Do you need to stay overnight when you visit the ART centre?

Yes Not applicable

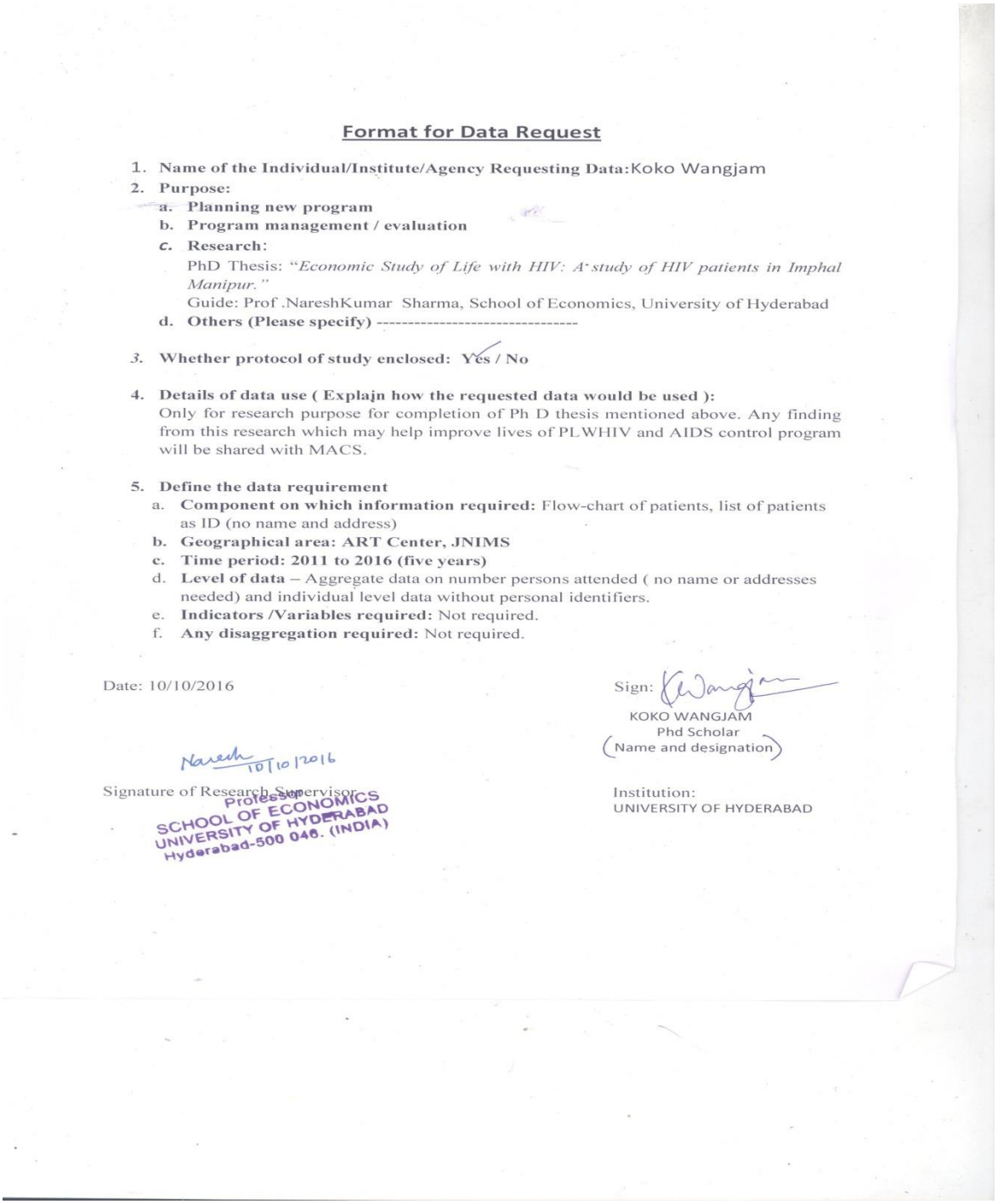
26) In case yes, (a) please tell us the mode of accommodation .....

.....

(b) amount spent per visit.....

Additional Notes:

Annexure3: Data request



Format for Data Request

1. **Name of the Individual/Institute/Agency Requesting Data:** Koko Wangjam
2. **Purpose:**
   a. **Planning new program**
   b. **Program management / evaluation**
   c. **Research:**
      PhD Thesis: "*Economic Study of Life with HIV: A study of HIV patients in Imphal Manipur.*"
      Guide: Prof .NareshKumar Sharma, School of Economics, University of Hyderabad
   d. **Others (Please specify)** ----------
3. **Whether protocol of study enclosed: Yes / No**
4. **Details of data use (Explain how the requested data would be used):**
   Only for research purpose for completion of Ph D thesis mentioned above. Any finding from this research which may help improve lives of PLWHIV and AIDS control program will be shared with MACS.
5. **Define the data requirement**
   a. **Component on which information required:** Flow-chart of patients, list of patients as ID (no name and address)
   b. **Geographical area: ART Center, JNIMS**
   c. **Time period: 2011 to 2016 (five years)**
   d. **Level of data** – Aggregate data on number persons attended (no name or addresses needed) and individual level data without personal identifiers.
   e. **Indicators /Variables required:** Not required.
   f. **Any disaggregation required:** Not required.

Date: 10/10/2016

Sign:
KOKO WANGJAM
Phd Scholar
(Name and designation)

Naresh 10/10/2016

Signature of Research Supervisor

Professor
SCHOOL OF ECONOMICS
UNIVERSITY OF HYDERABAD
Hyderabad-500 046. (INDIA)

Institution:
UNIVERSITY OF HYDERABAD

Annexure4: NACO Undertaking

UNDERTAKING

I/We, Koko Wangjam (Name), working as PhD scholar (Designation) in School of Economics, University of Hyderabad, Gachibowli, Hyderabad, Telangana-500046 (Complete Name and Address of Institute/Organisation), am/are involved in the study/analysis titled "*Economic Study of Life with HIV: A study of HIV patients in Imphal Manipur*" from July 2013 to 2018 (time period).

I hereby declare that the data that I am provided access to, under the above-mentioned study/analysis will be used only for the purpose of the work mentioned hereinabove and only in the manner that NACO/SACS authorizes and permits, I expressly acknowledge and agree that without prejudice to the all available legal remedies, I am also liable to administrative action in case the data is used for any purpose beyond the scope this study. I will not share the data with any one, or publish the research data without prior written consent/permission from NACO/SACS and shall maintain the confidentiality of all Confidential Information. I shall submit a copy of all the data files, analysis papers and reports generated as a part of this research to NACO/SACS in all the publications that come out of this study/analysis.

10/10/2016 (KOKO WANGJAM)

(Signature)

Date: 10/10/2016 Place: Hyderabad

Contact Details:
Mobile & Telephone: 7382452849 (Mob)
E-mail: kk_wangjam@yahoo.co.in

13/10/16

(Signature of Head of Institution/Organisation)

DEAN
SCHOOL OF ECONOMICS
UNIVERSITY OF HYDERABAD
Hyderabad-500 046. (INDIA)

Name of the Head of Institution/ Organisation: Prof. BANDI KAMAIAH, SCHOOL of ECONOMICS, UNIVERSITY OF HYDERABAD

Date: 13/10/2016 Place: Hyderabad (Official Seal:

Dean, School of Economics
University of Hyderabad

Professor
SCHOOL OF ECONOMICS
UNIVERSITY OF HYDERABAD
Hyderabad-500 046. (INDIA)

HIV+HCV

PatientID	Age	Sex	ContactNu	MaritalStat	FamilySize	Numberof	NumberofC	Detection	Transmissi	ARTStatus	Coinfection	Nameofthe	CD4Count	HepatitisC	HCVStatus
5246 IW	35	F	Shared	Widow(er)	3	1	2	2005	Sexual	On ART	Yes	None dete	500 and Ab	No	Not Applic
2177 IW	40	F	Not Share	Widow(er)	3	3	none	2008	Sexual	On ART	Yes	None dete	500 and Ab	Yes	Negetive
4228 IE	50	F	Shared	Widow(er)	3	2	1	2007	Sexual	On ART	Yes	None dete	200-500	Yes	Negetive
3651 IW	40	F	Shared	Widow(er)	3	1	2	2004	Sexual	On ART	Yes	None dete	200-500	No	Not Applic
231 IE	49	M	Shared	Married	2	3	none	2005	IDU	On ART	Yes	None dete	500 and ab	Yes	Negetive
4008 IE	37	F	Shared	Widow(er)	2	1	1	2011	Sexual	On ART	Yes	None dete	200-500	No	Not Applic
4932 IE	38	F	Shared	Widow(er)	2	1	1	2013	Sexual	On ART	No	lungs TB	200-501	Yes	Negetive
5230 IE	39	F	Not Share	Married	4	2	2	2015	IDU	On ART	Yes	None dete	200-502	Yes	Negetive
2645 IW	35	F	Shared	Married	3	2	1	2009	Sexual	On ART	Yes	None dete	200-503	No	Not Applic
3156 IW	45	M	Not Share	Widow(er)	4	3	1	2009	IDU	On ART	Yes	None dete	500 and ab	Yes	Negetive
1644 IW	49	F	Shared	Married	more than	3	4	2007	Sexual	On ART	Yes	None dete	500 and ab	Yes	Negetive
7669 IW	59	M	Not Share	Married	more than	4	4	2015	Sexual	On ART	Yes	None dete	>200	No	Not Applic
4612 IE	42	F	Not Share	Widow(er)	4	4	none	2008	Sexual	On ART	Yes	None dete	200-500	No	Not Applic
7902 IE	45	F	Not Share	Widow(er)	5	5	none	2003	Sexual	On ART	Yes	None dete	200-500	No	Not Applic
4462 IE	49	M	Not Share	Married	4	4	none	2012	Unknown	On ART	No	lungs TB	200-500	Yes	Negetive
5601 IW	43	M	Not Share	Married	more than	4	2	2011	Sexual	On ART	Yes	None dete	200-500	No	Not Applic
4811 IW	40	M	Shared	Single	3	3	none	1990	IDU	On ART	Yes	None dete	200-500	No	Not Applic
3459 IW	52	F	Not Share	Married	4	4	none	2015	Sexual	On ART	Yes	None dete	200-500	No	Not Applic
1779 IW	47	F	Shared	Widow(er)	5	4	1	2001	Sexual	On ART	No	lungs TB	200-500	Yes	Negetive
405 IE	42	F	Not Share	Widow(er)	3	3	none	1998	Sexual	On ART	Yes	None dete	500 and ab	No	Not Applic
1979 IE	45	M	Shared	Married	more than	4	2	2006	IDU	On ART	Yes	None dete	500 and ab	Yes	Negetive
2454 IE	53	M	Not Share	Married	4	4	none	2007	Sexual	On ART	Yes	None dete	500 and ab	No	Not Applic
4886 IW	43	M	Shared	Married	2	2	none	2013	Sexual	On ART	Yes	None dete	200 -500	Yes	Negetive
4534 IW	48	F	Not Share	Seperated	2	2	none	2014	Sexual	On ART	Yes	None dete	500 and ab	Yes	Negetive
7102 IW	30	F	Not Share	Married	5	2	3	2013	Sexual	On ART	Yes	None dete	500 and ab	Yes	Negetive
2380 IE	51	M	Not Share	Married	5	2	3	2007	IDU	On ART	No	lungs TB	>200	Yes	Negetive
5485 IW	57	F	Not Share	Widow(er)	more than	4	2	2016	Sexual	On ART	Yes	None dete	200-500	Yes	Negetive
1149 IW	42	M	Not Share	Single	3	3	none	2006	IDU	On ART	Yes	None dete	500 and ab	No	Not Applic
5775 IE	56	F	Not Share	Married	3	3	none	2011	Sexual	On ART	Yes	None dete	200-500	Yes	Negetive
5947 IE	34	F	Shared	Widow(er)	3	1	2	2010	Sexual	On ART	Yes	None dete	200-500	Yes	Negetive
3280 IE	56	F	Not Share	Married	more than	4	2	2010	Blood Tran	On ART	Yes	None dete	500 and ab	Yes	Negetive
1705 IW	43	M	Not Share	Married	4	2	2	2007	IDU	On ART	No	Brain TB	500 and ab	Yes	Negetive
2118 IE	48	F	Shared	Married	more than	4	2	2007	Sexual	On ART	Yes	None dete	500 and ab	Yes	Negetive
2329 IW	50	M	Not Share	Single	5	5	none	2008	IDU	On ART	Yes	None dete	200-500	No	Not Applic
3510 IW	40	F	Shared	Widow(er)	2	2	none	2010	Sexual	On ART	No	Skin infecti	500 and ab	No	Not Applic
623 IW	49	F	Not Share	Married	4	2	2	2008	Sexual	On ART	No	lungs TB	500 and ab	Yes	Negetive
1561 IE	37	F	Not Share	Married	4	2	5	2007	Sexual	On ART	Yes	None dete	200-500	Yes	Negetive

HIV+HCV

3059	IE	35	M	Not Share	Married	more than	2	4	2009	IDU	On ART	Yes	None dete	>200	Yes	Negetive
2041	IE	50	F	Not Share	Widow(er)	5	5	none	2005	Sexual	On ART	Yes	None dete	500 and ab	No	Not Applic
2532	IE	38	M	Not Share	Married	3	2	1	2008	Unknown	On ART	Yes	None dete	200-500	Yes	Negetive
4424	IE	49	F	Not Share	Widow(er)	4	4	none	2013	Sexual	On ART	Yes	None dete	500 and ab	Yes	Negetive
4629	IW	40	F	Not Share	Seperated	5	1	4	2007	Sexual	On ART	Yes	None dete	200-500	Yes	Negetive
1676	IW	45	F	Not Share	Widow(er)	3	1	2	2006	Sexual	On ART	No	lungs TB	500 and ab	Yes	Negetive
2128	IE	55	F	Not Share	Widow(er)	4	3	1	2006	Sexual	On ART	Yes	None dete	500 and ab	Yes	Negetive
1963	IW	40	F	Not Share	Widow(er)	2	2	none	2007	Sexual	On ART	Yes	None dete	500 and ab	Yes	Negetive
2916	IW	35	M	Shared	Single	5	5	none	2009	Sexual	On ART	Yes	None dete	500 and ab	No	Not Applic
4295	IW	56	M	Not Share	Seperated	more than	5	5	2012	Blood Tran	On ART	No	lungs TB	200-500	No	Not Applic
3153	IW	52	M	Not Share	Married	more than	2	4	1997	Sexual	On ART	Yes	None dete	200-500	Yes	Negetive
3911	IW	47	M	Shared	Married	2	2	none	2009	IDU	On ART	No	lungs TB	500 and ab	Yes	Negetive
605	IE	40	F	Not Share	Widow(er)	3	1	2	2005	Sexual	On ART	Yes	None dete	>200	Yes	Negetive
3845	IW	52	F	Shared	Widow(er)	3	3	none	2002	Sexual	On ART	Yes	None dete	200-500	No	Negetive
5183	IE	46	M	Not Share	Married	more than	1	4	2014	Sexual	On ART	Yes	None dete	500 and ab	Yes	Negetive
3174	IE	50	F	Not Share	Married	more than	5	none	2010	Sexual	On ART	Yes	lungs TB	200-500	Yes	Negetive
3771	IW	40	M	Shared	Married	more than	2	4	2010	IDU	On ART	Yes	lungs TB	>200	Yes	Negetive
1522	IW	46	M	Not Share	Married	3	2	1	1991	IDU	On ART	No	lungs TB	200-500	No	Not Applic
3616	IW	68	M	Shared	Married	2	2	none	2009	Sexual	On ART	Yes	None dete	500 and ab	Yes	Negetive
3190	IW	45	F	Not Share	Married	2	2	none	2010	Sexual	On ART	Yes	None dete	500 and ab	Yes	Negetive
3681	IW	40	M	Not Share	Married	5	4	1	2013	Sexual	On ART	Yes	None dete	200-500	Yes	Negetive
4042	IE	45	M	Shared	Married	2	2	none	2011	IDU	On ART	No	Grandular	200-500	No	Not Applic
4441	IE	45	F	Not Share	Widow(er)	3	1	2	2006	Sexual	On ART	No	lungs TB	200-500	No	Not Applic
3745	IW	45	F	Not Share	Married	4	1	2	2011	Sexual	On ART	Yes	Brain TB	500 and ab	No	Negetive
2897	IW	42	M	Not Share	Married	4	2	2	2010	Unknown	On ART	No	lungs TB	200-500	Yes	Negetive
2792	IE	48	M	Not Share	Married	4	2	2	2007	IDU	On ART	Yes	None dete	500 and ab	No	Negetive
5084	IW	37	F	Not Share	Widow(er)	more than	2	5	2014	Sexual	On ART	Yes	None dete	200-500	Yes	Negetive
3818	IE	45	M	Shared	Married	5	5	1	2011	Blood Tran	On ART	Yes	None dete	200-500	Yes	Negetive
3467	IW	57	F	Shared	Married	3	3	none	2004	IDU	On ART	Yes	None dete	500 and ab	Yes	Negetive
4769	IW	37	M	Not Share	Single	more than	5	4	2008	Unknown	On ART	Yes	None dete	200-500	Yes	Negetive
2892	IE	47	M	Shared	Married	4	1	2	2008	Sexual	On ART	No	lungs TB	500 and ab	Yes	Negetive
3539	IW	45	M	Not Share	Married	more than	2	4	2010	IDU	On ART	Yes	None dete	500 and ab	Yes	Negetive
2265	IE	38	F	Shared	Married	4	2	2	2008	Sexual	On ART	Yes	None dete	500 and ab	Yes	Negetive
787	IE	42	M	Shared	Seperated	2	2	none	2006	IDU	On ART	Yes	None dete	500 and ab	Yes	Negetive
1985	IE	49	M	Shared	Married	3	2	1	2007	IDU	On ART	Yes	None dete	500 and ab	No	Not Applic
0271	IE	49	F	Shared	Widow(er)	more than	5	1	2004	Sexual	On ART	No	lungs TB	500 and ab	Yes	Negetive
177	IW	51	F	Shared	Widow(er)	3	2	1	2003	Sexual	On ART	Yes	None dete	500 and ab	Yes	Negetive
2069	IW	41	M	Shared	Single	2	3	none	2007	IDU	On ART	No	Skin infecti	200-500	Yes	Negetive

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3215 IW	35	F	Shared	Widow(er)	3	2	1	2004	Sexual	On ART	Yes	None dete	500 and ab	Yes	Negetive
3763 IE	40	F	Shared	Married	5	3	2	2011	Sexual	On ART	Yes	None dete	200- 500	No	Not Applic
4797 IE	45	M	Shared	Married	more than	2	4	2013	Sexual	On ART	Yes	None dete	200-500	Yes	Negetive
2565 IW	38	M	Shared	Single	5	5	none	2005	Sexual	On ART	No	lungs TB	500 and ab	Yes	Negetive
5416 IW	45	M	Shared	Married	3	2	1	2001	IDU	On ART	No	lungs TB	>200	Yes	Negetive
0746 IE	45	F	Shared	Widow(er)	2	1	1	2004	Sexual	On ART	Yes	None dete	500 and ab	Yes	Negetive
306 IE	42	F	Not Share	Widow(er)	3	1	2	2004	Sexual	On ART	Yes	None dete	500 and ab	No	Not Applic
4624 IE	42	F	Not Share	Married	more than	4	3	2009	Sexual	On ART	Yes	None dete	500 and ab	Yes	Negetive
3087 IE	30	M	Shared	Married	4	2	2	2012	Sexual	On ART	Yes	None dete	500 and ab	Yes	Negetive
197 IE	46	F	Shared	Married	2	2	none	2005	Blood Tran	On ART	Yes	None dete	500 and ab	Yes	Negetive
5067 IE	41	F	Shared	Widow(er)	2	2	none	2004	Sexual	On ART	Yes	None dete	200-500	Yes	Negetive
4763 IW	41	M	Shared	Single	more than	5	1	2002	IDU	On ART	Yes	None dete	200-500	Yes	Negetive
3470 IE	51	F	Not Share	Widow(er)	5	4	1	2006	Sexual	On ART	Yes	None dete	500 and ab	Yes	Negetive
2838 IW	66	M	Shared	Married	5	4	1	2009	IDU	On ART	No	None dete	500 and ab	Yes	Negetive
4613 IE	35	F	Shared	Married	3	3	none	2012	Sexual	On ART	No	None dete	500 and ab	Yes	Negetive
780 IE	36	M	Shared	Married	more than	2	5	2002	Sexual	On ART	Yes	None dete	500 and ab	Yes	Negetive
4818 IE	38	M	Shared	Married	4	2	2	2013	Unknown	On ART	Yes	None dete	200-500	Yes	Negetive
2434 IE	57	F	Shared	Seperated	3	3	none	2008	Sexual	On ART	Yes	None dete	500 and ab	Yes	Negetive
1263 IE	45	M	Not Share	Married	more than	2	5	2006	Sexual	On ART	Yes	None dete	500 and ab	Yes	Negetive
1517 IW	37	M	Not Share	Married	3	2	1	1987	Vertical Tra	On ART	Yes	None dete	200-500	Yes	Negetive
189 IE	50	F	Not Share	Widow(er)	5	5	none	2004	Sexual	On ART	Yes	None dete	500 and ab	Yes	Negetive
1516 IW	36	F	Shared	Married	2	3	none	2006	Sexual	On ART	Yes	None dete	500 and ab	No	Not Applic
5062 IE	27	F	Shared	Married	3	2	1	2014	Sexual	On ART	Yes	None dete	500 and ab	Yes	Negetive
1404 IW	42	M	Shared	Married	3	3	none	2006	Sexual	On ART	Yes	None dete	500 and ab	No	Not Applic
0599 IE	50	M	Shared	Married	4	4	none	2005	IDU	On ART	Yes	None dete	500 and ab	Yes	Negetive

HIV+HCV

Responden	SpouseEm	Employme	Incomeper	Absentday	LossAmoun	Hospitalvis	Hospitalvis	Costofhosp	TypeofMed	Costofmed	Supplemen	Expenditur	HCVtest	HCVdiagno	Amountsp
Yes	Not Applic	Self-emplo	5000-1000	half-day	200	N.A	once every	0	Visit to a di	0	Yes	380	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	5000-1000	N.A	N.A	N.A	once every	0	Visit to a h	0	No	0	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	3000-5000	N.A	N.A	N.A	once every	0	Visit to a d	0	No	0	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	5000-1000	N.A	N.A	N.A	once every	0	Visit to a d	1040	Yes	720	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	3000-5000	N.A	N.A	N.A	once every	0	Visit to a d	0	No	0	N.A	N.A	N.A
Yes	Not Applic	full-time e	above 100	N.A	N.A	N.A	once every	0	Visit to a d	3050	Yes	1820	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	5000-1000	2-3 days	120	N.A	once every	0	Visit to a d	0	Yes	1200	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	3000-5000	N.A	0	N.A	once every	0	Visit to a d	0	No	0	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	1000-3000	N.A	0	N.A	once every	0	visit to a di	0	Yes	1082	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	3000-5000	2-3 days	180	N.A	once every	0	Visit to a d	1300	Yes	4310	N.A	N.A	N.A
Yes	Yes	Self-emplo	3000-5000	N.A	0	N.A	once every	0	Visit to a d	0	No	0	N.A	N.A	N.A
Yes	Yes	Self-emplo	5000-1000	N.A	0	N.A	once every	0	Visit to a d	1300	No	0	N.A	N.A	N.A
No	Yes	Not in paid	1000-3000	N.A	0	N.A	once every	7000	Visit to a d	0	No	0	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	3000-5000	N.A	0	N.A	once every	0	Visit to a di	1500	No	0	N.A	N.A	N.A
Yes	Yes	full-time e	above 100	N.A	0	N.A	once every	0	Visit to a d	3000	Yes	1900	N.A	N.A	N.A
No	Yes	Self-emplo	above 100	N.A	0	N.A	once every	0	Visit to a di	130	No	0	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	3000-5000	2-3 days	1000	N.A	once every	0	all of the a	0	Yes	500	N.A	N.A	N.A
Yes	Yes	Not in paid	3000-5000	N.A	0	N.A	once every	0	Visit to a h	0	No	0	N.A	N.A	N.A
No	Not Applic	part-time e	3000-5000	N.A	0	N.A	once every	400000	Visit to a h	0	No	0	N.A	N.A	N.A
No	Not Applic	Self-emplo	5000-1000	less than a	1000	Less than a	once every	5000	Visit to a d	0	Yes	200	N.A	N.A	N.A
Yes	No	Self-emplo	above 100	N.A	0	N.A	once every	0	Visit to a h	0	Yes	880	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	1000-3000	more than	500	N.A	once every	0	Visit to a d	300	Yes	2700	N.A	N.A	N.A
No	Yes	Not in paid	1000-3000	N.A	0	N.A	once every	0	Visit to a d	100	No	0	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	5000-1000	N.A	0	N.A	once every	0	Visit to a di	3800	Yes	240	N.A	N.A	N.A
Yes	Yes	Not in paid	above 100	N.A	0	N.A	once every	0	Visit to a d	200	Yes	120	N.A	N.A	N.A
Yes	No	full-time e	above 100	N.A	0	N.A	once every	0	Visit to a d	500	Yes	120	N.A	N.A	N.A
No	Not Applic	Not in paid	above 100	N.A	0	N.A	once every	0	visit to a do	240	Yes	2000	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	above 100	N.A	0	N.A	once every	0	all of the a	0	No	0	N.A	N.A	N.A
Yes	Yes	Self-emplo	above 100	N.A	0	N.A	once every	0	visit to a do	2100	Yes	800	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	1000-3000	N.A	0	1-2 days	once every	0	Visit to a d	0	Yes	300	N.A	N.A	N.A
Yes	Yes	Self-emplo	3000-5000	N.A	0	N.A	once every	0	visit to a do	0	Yes	400	N.A	N.A	N.A
Yes	No	Self-emplo	5000-1000	N.A	0	N.A	once every	70000	Visit to a d	650	Yes	120	N.A	N.A	N.A
No	Yes	Retired	5000-1000	N.A	0	N.A	once every	0	Visit to a d	3000	Yes	360	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	3000-5000	N.A	0	N.A	once every	12000	Visit to a d	1500	Yes	120	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	3000-5000	N.A	0	N.A	once every	0	Visit to a h	0	No	0	N.A	N.A	N.A
No	Yes	Not in paid	5000-1000	N.A	0	more than	once every	0	visit to a do	0	No	0	N.A	N.A	N.A
Yes	No	Self-emplo	3000-5000	N.A	0	Less than a	once every	2500	visit to a do	3740	Yes	105	N.A	N.A	N.A

No	Not Applic	part-time e	above 100	N.A	0	N.A	once every	0	Visit to a d	480	Yes	120	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	3000-5000	N.A	0	N.A	once every	8000	visit to a do	0	No	0	N.A	N.A	N.A
Yes	Yes	Self-emplo	above 100	N.A	0	N.A	once every	1500	Visit to a d	630	No	0	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	above 100	N.A	0	N.A	once every	0	visit to a do	300	Yes	120	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	3000-5000	N.A	0	N.A	once every	0	Visit to a d	0	Yes	200	N.A	N.A	N.A
No	Not Applic	part-time e	1000-3000	N.A	0	N.A	once every	0	Visit to a d	0	Yes	165	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	5000-1000	N.A	0	N.A	once every	2000	visit to a do	240	Yes	720	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	1000-3000	less than a	100	N.A	once every	0	visit to a do	240	No	0	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	above 100	N.A	0	N.A	once every	0	Visit to a d	200	No	0	N.A	N.A	N.A
No	Not Applic	Retired	above 100	N.A	0	N.A	once every	0	Visit to a d	0	Yes	600	N.A	N.A	N.A
Yes	No	full-time e	above 100	N.A	0	N.A	once every	0	Visit to a d	280	No	0	N.A	N.A	N.A
Yes	Yes	Retired	5000-1000	N.A	0	1-2 days	once every	9000	all of the a	1540	Yes	3450	N.A	N.A	N.A
Yes	Not Applic	Not in paid	above 100	N.A	0	N.A	once every	0	Visit to a d	420	Yes	1480	N.A	N.A	N.A
No	Not Applic	Self-emplo	3000-5000	N.A	0	N.A	once every	0	Visit to a d	1300	Yes	120	N.A	N.A	N.A
Yes	No	Self-emplo	5000-1000	N.A	0	N.A	once every	0	Visit to a d	0	Yes	120	N.A	N.A	N.A
Yes	Yes	Self-emplo	above 100	N.A	0	N.A	once every	0	Visit to a d	0	Yes	360	N.A	N.A	N.A
Yes	No	Self-emplo	5000-1000	2-3 days	200	N.A	once every	0	all of the a	1840	Yes	2160	N.A	N.A	N.A
Yes	No	Self-emplo	above 100	N.A	0	N.A	once every	0	visit to a do	0	Yes	1200	N.A	N.A	N.A
Yes	No	Self-emplo	above 100	N.A	0	N.A	once every	0	Visit to a d	0	No	0	N.A	N.A	N.A
No	Yes	Not in paid	5000-1000	N.A	0	N.A	once every	0	all of the a	0	No	0	N.A	N.A	N.A
Yes	No	part-time e	5000-1000	2-3 days	330	N.A	once every	0	Visit to a d	600	Yes	1000	N.A	N.A	N.A
Yes	No	Self-emplo	above 100	N.A	0	N.A	once every	0	Visit to a d	500	Yes	390	N.A	N.A	N.A
Yes	Not Applic	governmen	3000-5000	less than a	1200	N.A	once every	0	all of the a	0	Yes	0	N.A	N.A	N.A
Yes	Yes	Self-emplo	3000-5000	N.A	0	N.A	once every	0	Visit to a d	0	No	0	N.A	N.A	N.A
No	Yes	Retired	above 100	N.A	0	N.A	once every	0	Visit to a d	0	Yes	360	N.A	N.A	N.A
Yes	No	part-time e	5000-1000	2-3 days	240	N.A	once every	0	all of the a	50	Yes	450	N.A	N.A	N.A
No	Not Applic	Not in paid	3000-5000	2-3 days	200	N.A	once every	0	Visit to a d	0	Yes	475	N.A	N.A	N.A
Yes	No	Self-emplo	3000-5000	more than	3000	N.A	once every	5000	Visit to a d	800	Yes	210	N.A	N.A	N.A
Yes	Yes	governmen	5000-1000	N.A	0	N.A	once every	0	Visit to a d	0	Yes	2860	N.A	N.A	N.A
Yes	Not Applic	part-time e	5000-1000	N.A	0	N.A	once every	0	Visit to a d	1240	No	0	N.A	N.A	N.A
Yes	No	part-time e	above 100	N.A	0	N.A	once every	0	Visit to a d	1500	Yes	1680	N.A	N.A	N.A
Yes	Yes	Self-emplo	3000-5000	N.A	0	N.A	once every	0	None	0	No	0	N.A	N.A	N.A
Yes	Yes	Self-emplo	5000-1000	N.A	0	N.A	once every	0	Visit to a d	0	Yes	180	N.A	N.A	N.A
Yes	Not Applic	part-time e	5000-1000	half-day	350	N.A	once every	40,000	visit to a ho	100	Yes	2000	N.A	N.A	N.A
Yes	No	full-time e	above 100	N.A	0	N.A	once every	0	visit to a do	650	No	0	N.A	N.A	N.A
Yes	Not Applic	full-time e	above 100	N.A	0	N.A	once every	35,000	all of the a	100	Yes	3000	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	5000-1000	N.A	0	N.A	once every	0	Visit to a d	0	Yes	1800	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	1000-3000	2-3 days	0	N.A	once every	0	all of the a	450	Yes	5700	N.A	N.A	N.A

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Yes	Not Applic	governmen	3000-5000	N.A	0	N.A	once every	6000	all of the a	100	No	0	N.A	N.A	N.A
Yes	Yes	Self-emplo	3000-5000	N.A	0	N.A	once every	0	Visit to a d	0	No	0	N.A	N.A	N.A
Yes	No	Self-emplo	above 100	more than	500	N.A	once every	10,000	visit to a do	0	Yes	1200	N.A	N.A	N.A
Yes	Not Applic	governmen	1000-3000	N.A	0	N.A	once every	0	Visit to a d	820	Yes	1480	N.A	N.A	N.A
Yes	No	Self-emplo	5000-1000	N.A	0	Less than a	once every	25,000	Visit to a d	0	Yes	914	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	1000-3000	2-3 days	200	N.A	once every	0	Visit to a di	1200	Yes	200	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	1000-3000	less than a	150	N.A	once every	10,000	Visit to a d	550	Yes	390	N.A	N.A	N.A
No	Yes	Not in paid	above 100	N.A	0	N.A	once every	8000	visit to a di	150	No	0	N.A	N.A	N.A
Yes	Yes	part-time e	above 100	N.A	0	N.A	once every	0	Visit to a d	0	No	0	N.A	N.A	N.A
Yes	Yes	governmen	1000-3000	N.A	0	N.A	once every	0	visit to a di	0	Yes	4440	N.A	N.A	N.A
No	Not Applic	Retired	3000-5000	N.A	0	N.A	once every	0	Visit to a d	1500	Yes	4400	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	above 100	N.A	0	N.A	once every	0	Visit to a d	0	Yes	360	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	1000-3000	less than a	200	N.A	once every	0	visit to a di	460	No	0	N.A	N.A	N.A
Yes	No	Other train	3000-5000	N.A	0	N.A	once every	0	Visit to a d	1500	Yes	1200	N.A	N.A	N.A
Yes	Yes	Self-emplo	5000-1000	less than a	600	N.A	once every	0	Visit to a d	0	No	0	N.A	N.A	N.A
Yes	No	part-time e	3000-5000	2-3 days	170	N.A	once every	0	Visit to a d	0	No	0	N.A	N.A	N.A
Yes	No	Self-emplo	5000-1000	one day	250	N.A	once every	0	Visit to a d	0	No	0	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	1000-3000	N.A	0	N.A	once every	30,000	Visit to a di	150	No	0	N.A	N.A	N.A
Yes	No	part-time e	above 100	2-3 days	500	N.A	once every	35,000	Visit to a di	150	No	0	N.A	N.A	N.A
Yes	Yes	full-time e	above 100	N.A	0	N.A	once every	0	Domiciliary	0	Yes	3199	N.A	N.A	N.A
Yes	Not Applic	Self-emplo	5000-1000	N.A	0	N.A	once every	0	visit to a ho	0	Yes	270	N.A	N.A	N.A
Yes	No	Self-emplo	5000-1000	2-3 days	200	N.A	once every	0	Visit to a d	350	No	0	N.A	N.A	N.A
No	Yes	Not in paid	5000-1000	N.A	0	N.A	once every	0	Visit to a di	0	No	0	N.A	N.A	N.A
Yes	No	self-emplo	5000-1000	N.A	0	N.A	once every	0	Visit to a d	2700	No	0	N.A	N.A	N.A
Yes	No	part-time e	above 100	2-3 days	450	N.A	once every	0	Visit to a d	300	No	0	N.A	N.A	N.A

HIV+HCV

HCVTreatm	CostofHCV	Treatmentf	Dosagefor	HCVnontre	Opinionon	Meansoftr	Costoftran	Frequency	ARTgreenc	Numberofa	Overnights	Modeofacc	Amountspentpervisit
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	20	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Walking or	0	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Walking or	0	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	180	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	one person	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Walking or	0	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	160	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	30	once	Yes	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	90	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	Yes	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	Yes	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	80	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	80	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Walking or	0	once	Yes	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	70	once	Yes	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	200	once	Yes	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	Yes	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	140	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	Yes	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	140	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Walking or	0	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	20	once	No	one person	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	80	once	No	one person	n.a	N.A	0

N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	20	once	No	one person	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	150	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	60	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	twice	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Walking or	0	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Walking or	0	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Walking or	0	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	30	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	60	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	200	twice	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	100	once	No	one person	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	one person	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	80	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	100	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Walking or	0	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	100	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	60	once	No	one person	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	80	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	120	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	80	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	Yes	none	n.a	N.A	0

HIV+HCV

N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	60	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	20	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Walking or	0	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	100	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Walking or	0	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	60	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	40	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	Pooled Tra	20	once	Yes	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	No	none	n.a	N.A	0
N.A	0	N.A	N.A	N.A	N.A	car/two-w	65	once	Yes	none	n.a	N.A	0

HIV- only

PatientID	Age	Sex	ContactNum	MaritalSta	FamilySi	Number	Number of	Detectio	Transmissi	ARTStatus	Coinfect	Nameoft
2134 IW	45	M	Shared	Married	4	2	2	2000	IDU	On ART	Yes	HCV
6466 IE	29	M	Shared	Single	more than	5	1	2010	IDU	On ART	Yes	HCV+ T
4023 IE	43	M	Not Shared	Married	5	2	3	2006	IDU	On ART	Yes	HCV
0080IW	45	M	Not Shared	Single	3	3	none	1992	IDU	On ART	Yes	HCV+ T
3913 IE	45	M	Not Shared	Single	5	5	none	2011	IDU	On ART	Yes	HCV
4988 IE	40	M	Shared	Single	1	1	none	2013	IDU	On ART	Yes	HCV
2367 IW	45	M	Not Shared	Married	5	2	3	1997	IDU	On ART	Yes	HCV+T
6101 IE	46	M	Not Shared	Single	5	5	none	2009	IDU	On ART	Yes	HCV+ O
2073 IW	47	M	Shared	Married	5	2	3	2007	IDU	On ART	Yes	HCV
4527 IW	40	F	Not Shared	Divorced	more than	5	2	1976	Vertical Tr	On ART	Yes	HCV
1458 IE	48	M	Shared	Married	5	5	none	2006	IDU	On ART	Yes	HCV
3407 IE	40	M	Shared	Married	more than	5	4	2010	IDU	On ART	Yes	HCV
1879 IW	37	M	Shared	Married	4	2	2	2006	IDU	On ART	Yes	HCV
2603 IW	38	M	Not Shared	Married	4	2	2	2008	IDU	On ART	Yes	HCV
1609 IW	64	M	Shared	Married	2	2	none	2005	IDU	On ART	Yes	HCV
3470 IE	45	M	Not Shared	Married	5	2	3	2007	IDU	On ART	Yes	HCV+T
3056 IW	44	M	Not Shared	Married	1	1	none	2009	IDU	On ART	Yes	HCV
2084 IW	49	M	Not Shared	Single	3	2	1	2007	Blood Tra	On ART	Yes	HCV
2423 IE	40	M	Not Shared	Single	5	2	3	2008	IDU	On ART	Yes	HCV
093 IE	47	M	Shared	Single	4	4	none	2003	IDU	On ART	Yes	HCV
1279 IE	42	F	Not Shared	Widow(er)	more than	5	4	2004	Sexual	On ART	Yes	HCV
1760 IW	53	M	Not Shared	Single	3	2	1	2009	IDU	On ART	Yes	HCV+T
808 IW	42	M	Not Shared	Single	4	2	2	2005	IDU	On ART	Yes	HCV+T
3054 IW	50	M	Not Shared	Single	4	4	none	2000	Blood Tra	On ART	Yes	HCV
4244 IW	42	F	Shared	Widow(er)	1	1	none	2006	Sexual	On ART	Yes	HCV+T
4511 IE	35	F	Shared	Married	5	2	3	2012	Sexual	On ART	Yes	HCV
2871 IE	40	M	Not Shared	Married	2	2	none	2009	IDU	On ART	Yes	HCV+T
2236 IE	43	M	Not Shared	Married	4	2	2	2008	IDU	On ART	Yes	HCV
1681 IW	42	M	Shared	Married	4	4	none	1988	IDU	On ART	Yes	HCV
7264 IE	54	M	Not Shared	Married	2	2	none	2013	Sexual	On ART	Yes	HCV
407 IW	50	M	Shared	Married	more than	5	2	2003	IDU	On ART	Yes	HCV+T
4943 IW	40	M	Shared	Married	5	3	1	2012	IDU	On ART	Yes	HCV

HIV- only

4922	IE	38	M	Shared	Single	5	5	none	2013	Sexual	On ART	Yes	HCV
3247	IE	57	M	Not Shared	Married	4	2	2	2010	IDU	On ART	Yes	HCV+T
4211	IW	52	M	Shared	Single	more than	2	4	2004	IDU	On ART	Yes	HCV
1155	IW	44	M	Not Shared	Married	5	4	1	2005	IDU	On ART	Yes	HCV
2322	IE	43	M	Shared	Married	4	2	2	2004	IDU	On ART	Yes	HCV
3661	IE	40	M	Not Shared	Single	2	2	none	2010	IDU	On ART	Yes	HCV
4308	IE	40	M	Not Shared	Married	more than	5	3	2012	IDU	On ART	Yes	HCV
5285	IE	37	M	Not Shared	Single	4	4	none	2015	IDU	On ART	Yes	HCV
2356	IW	46	M	Shared	Married	5	2	3	2008	Unknown	On ART	Yes	HCV
3194	IE	51	M	Not Shared	Married	more than	5	none	2010	Unknown	On ART	Yes	HCV
2813	IW	48	F	Not Shared	Widow(er)	3	3	none	2009	Sexual	On ART	Yes	HCV
381	IW	45	M	Not Shared	Single	4	4	none	2000	IDU	On ART	Yes	HCV+T
5818	IW	46	M	Not Shared	Married	3	2	1	2011	Sexual	On ART	Yes	HCV+T
7783	IW	43	M	Not Shared	Single	more than	5	4	2015	IDU	On ART	Yes	HCV
2296	IE	47	M	Not Shared	Single	3	3	none	2008	IDU	On ART	Yes	HCV
5106	IE	46	M	Not Shared	Married	2	2	none	1998	IDU	On ART	Yes	HCV
4974	IW	28	F	Shared	Widow(er)	more than	5	1	2013	Sexual	On ART	Yes	HCV
3499	IE	40	F	Not Shared	Married	5	2	3	2008	Sexual	On ART	Yes	HCV+T
5090	IE	42	M	Not Shared	Married	5	2	3	2007	Unknown	On ART	Yes	HCV
4524	IW	46	M	Not Shared	Married	4	4	none	2012	IDU	On ART	Yes	HCV
572	IE	38	M	Shared	Married	more than	5	2	2005	IDU	On ART	Yes	HCV
9876	IW	47	M	Shared	Married	4	2	2	2010	IDU	On ART	Yes	HCV
0656	IW	42	M	Shared	Widow(er)	more than	5	2	2005	IDU	On ART	Yes	HCV+T
3019	IW	57	M	Not Shared	Married	4	3	1	2007	IDU	On ART	Yes	HCV
2524	IW	48	M	Not Shared	Single	more than	5	2	2008	IDU	On ART	Yes	HCV
4852	IE	41	M	Not Shared	Married	5	5	none	1998	IDU	On ART	Yes	HCV
4245	IE	44	M	Shared	Single	more than	5	4	2011	IDU	On ART	Yes	HCV+T
0809	IW	47	M	Shared	Married	4	2	2	2006	IDU	On ART	Yes	HCV
4988	IE	40	M	Not Shared	Single	more than	5	none	2003	IDU	On ART	Yes	HCV
2330	IW	44	M	Shared	Married	4	2	2	2005	Sexual	On ART	Yes	HCV
5219	IW	46	M	Shared	Married	5	3	2	2015	IDU	On ART	Yes	HCV+T
3180	IE	48	M	Shared	Married	3	2	1	2008	IDU	On ART	Yes	HCV
550	IE	39	M	Shared	Married	5	4	1	2005	Blood Tra	On ART	Yes	HCV
491	IW	42	M	Not Shared	Married	3	2	1	2005	IDU	On ART	Yes	HCV+T
5925	IE	35	M	Shared	Single	5	5	none	2011	IDU	On ART	Yes	HCV

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2842	IW	32	F	Shared	Widow(er)	3	1		2	2009	Sexual	On ART	Yes	HCV+T
5329	IE	44	F	Not Shared	Married	4	2		1	2011	Blood Tra	On ART	Yes	HCV+T
2931	IW	48	M	Not Shared	Married	more than	4		2	1997	IDU	On ART	Yes	HCV+T
5301	IE	32	M	Not Shared	Married	4	3		1	2012	IDU	On ART	Yes	HCV
1232	IW	45	M	Shared	Widow(er)	5	3		2	2007	IDU	On ART	Yes	HCV+T
1816	IW	47	M	Shared	Married	3	2		1	2007	IDU	On ART	Yes	HCV
784	IW	40	M	Shared	Married	3	2		1	2006	IDU	On ART	Yes	HCV+ S
475	IW	50	M	Not Shared	Married	4	2		2	2005	Sexual	On ART	Yes	HCV
5349	IW	47	M	Shared	Married	5	5	none		2006	IDU	On ART	Yes	HCV+T
2533	IW	48	F	Shared	Widow(er)	4	3		1	1997	IDU	On ART	Yes	HCV+T
564	IW	41	M	Shared	Single	3	3	none		2005	IDU	On ART	Yes	HCV+T
102	IE	42	M	Not Shared	Single	4	4	none		2004	IDU	On ART	Yes	HCV+O
2348	IE	36	F	Shared	Widow(er)	2	2	none		2008	Sexual	On ART	Yes	HCV
971	IE	41	M	Not Shared	Seperated	3	3	none		2006	IDU	On ART	Yes	HCV
128	IE	41	M	Shared	Married	5	3		2	2004	Blood Tra	On ART	Yes	HCV
5243	IE	36	M	Shared	Married	4	4	none		2003	IDU	On ART	Yes	HCV+T
0418	IE	46	M	Not Shared	Married	more than	5		1	2002	IDU	On ART	Yes	HCV
2332	IW	54	M	Shared	Married	5	2		3	2008	IDU	On ART	Yes	HCV
671	IE	54	M	Shared	Married	4	4	none		1997	IDU	On ART	Yes	HCV+O
1695	IW	45	M	Shared	Married	4	3		1	2007	IDU	On ART	Yes	HCV
0332	IW	45	M	Not Shared	Single	4	4	none		2006	IDU	On ART	Yes	HCV
3565	IE	42	M	Not Shared	Married	5	2		3	2010	IDU	On ART	Yes	HCV
2262	IW	47	M	Not Shared	Married	4	2		2	2006	IDU	On ART	Yes	HCV
1106	IE	54	F	Not Shared	Widow(er)	4	4	none		2006	Sexual	On ART	Yes	HCV
3356	IW	40	M	Shared	Single	more than	4		3	2009	IDU	On ART	Yes	HCV+T
0852	IE	50	M	Shared	Married	3	3	none		2005	IDU	On ART	Yes	HCV+S
4568	IW	41	M	Not Shared	Single	4	4	none		1997	Sexual	On ART	Yes	HCV
1146	IE	47	M	Shared	Married	4	2		2	2006	IDU	On ART	Yes	HCV
4897	IW	41	M	Shared	Single	3	3	none		2006	IDU	On ART	Yes	HCV
1622	IE	48	M	Shared	Married	5	5	none		2007	IDU	On ART	Yes	HCV+O
3660	IE	49	M	Not Shared	Married	5	3		2	2010	IDU	On ART	Yes	HCV
1370	IE	35	M	Shared	Single	more than	3		2	2006	Sexual	On ART	Yes	HCV
3753	IW	34	F	Shared	widow(er)	2	2	none		2010	Sexual	On ART	Yes	HCV+T

HIV- only

CD4Cou	Hepatitis	HCVSta	Respond	SpouseEmploy	EmploymentStatus	Incomepermo	Absentd	LossAm	Hospitalv	Hospitalvisitfor	Costofho
200-500	Yes	Positive	Yes	Yes	Government supported trai	above 10000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	No	Not Applicable	Not in paid employment du	1000-3000	N.A	0	N.A	once for ART	0
>200	Yes	Positive	Yes	No	part-time employee	3000-5000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	Not Applicable	self-emlpoyed	5000-10000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	Not Applicable	part-time employee	1000-3000	2-3 days	400	N.A	once for ART	0
200-500	Yes	Positive	Yes	Not Applicable	self-emlpoyed	1000-3000	half-day	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	Yes	self-emlpoyed	5000-10000	2-3days	0	N.A	once for ART	50,000
200-500	Yes	Positive	Yes	Not Applicable	self-emlpoyed	above 10000	N.A	0	N.A	once for ART	0
>200	Yes	Positive	Yes	No	self-emlpoyed	above 10000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	No	Not Applicable	Not in paid employment du	5000-10000	N.A	0	N.A	once for ART	30,000
500 and	Yes	Positive	No	Not Applicable	Retired	above 10000	N.A	0	Less than	once for ART	4000
500 and	Yes	Positive	Yes	No	self-emlpoyed	1000-3000	2-3 days	300	N.A	once for ART	0
200-500	Yes	Positive	Yes	No	part-time employee	above 10000	one day	100	N.A	once for ART	0
200-500	Yes	Positive	Yes	No	part-time employee	3000-5000	2-3 days	300	N.A	once for ART	0
200-500	Yes	Positive	Yes	No	full-time employee	above 10000	N.A	0	N.A	once for ART	0
>200	Yes	Positive	Yes	Yes	part-time employee	above 10000	less than	2500	N.A	once for ART	0
>200	Yes	Positive	Yes	Not Applicable	self-emlpoyed	5000-10000	2-3 days	0	more than	once for ART	10,000
500 and	Yes	Positive	Yes	No	self-emlpoyed	above 10000	N.A	0	N.A	once for ART	0
500 and	Yes	Positive	Yes	No	self-emlpoyed	above 10000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	No	part-time employee	3000-5000	N.A	0	Less than	once for ART	37,000
200-500	Yes	Positive	Yes	Not Applicable	self-emlpoyed	3000-5000	less than	2000	N.A	once for ART	0
500 and	Yes	Positive	Yes	No	self-emlpoyed	above 10000	2-3 days	1000	N.A	once for ART	0
500 and	Yes	Positive	Yes	No	part-time employee	3000-5000	2-3 days	300	N.A	once for ART	0
200-500	Yes	Positive	No	Yes	Retired	above 10000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	Not Applicable	self-emlpoyed	3000-5000	N.A	0	N.A	once for ART	0
500 and	Yes	Positive	Yes	No	self-emlpoyed	1000-3000	N.A	0	N.A	once for ART	0
500 and	Yes	Positive	Yes	No	self-emlpoyed	5000-10000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	No	full-time employee	above 10000	N.A	0	N.A	once for ART	0
500 and	Yes	Positive	Yes	Not Applicable	part-time employee	3000-5000	N.A	0	Less than	once for ART	0
200-500	Yes	Positive	Yes	No	part-time employee	above 10000	2-3 days	1000	N.A	once for ART	0
200-500	Yes	Positive	Yes	No	full-time employee	5000-10000	less than	200	N.A	once for ART	0
200-500	Yes	Positive	Yes	No	self-emlpoyed	3000-5000	N.A	0	N.A	once for ART	0

HIV- only

>200	Yes	Positive	Yes	Not Applicable	part-time employee	3000-5000	less than	480	N.A	once for ART	0
200-500	Yes	Positive	Yes	No	self-emlpoyed	3000-5000	less than	200	more than	once for ART	40,000
500 and	Yes	Positive	No	Not Applicable	Not in paid employment du	above 10000	N.A	0	N.A	once for ART	0
500 and	Yes	Positive	Yes	No	self-emlpoyed	5000-10000	N.A	0	N.A	once for ART	0
500 and	Yes	Positive	Yes	No	self-emlpoyed	3000-5000	less than	200	more than	once for ART	25000
500 and	Yes	Positive	Yes	Not Applicable	self-emlpoyed	5000-10000	N.A	0	Less than	once for ART	18,000
500 and	Yes	Positive	Yes	Yes	Other training or education	above 10000	N.A	0	N.A	once for ART	0
500 and	Yes	Positive	Yes	Not Applicable	part-time employee	3000-10000	N.A	0	N.A	once for ART	0
500 and	Yes	Positive	Yes	No	self-emlpoyed	above 10000	N.A	0	N.A	once for ART	0
>200	Yes	Positive	Yes	Yes	self-emlpoyed	above 10000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	Not Applicable	self-emlpoyed	3000-5000	N.A	0	N.A	once for ART	0
500 and	Yes	Positive	Yes	Not Applicable	self-emlpoyed	5000-10000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	No	self-emlpoyed	5000-10000	N.A	0	more than	once for ART	50,000
200-500	Yes	Positive	Yes	Not Applicable	full-time employee	above 10000	less than	3000	N.A	once for ART	0
200-500	Yes	Positive	Yes	Not Applicable	part-time employee	1000-3000	more tha	200	N.A	once for ART	0
500 and	Yes	Positive	Yes	No	self-emlpoyed	3000-5000	N.A	0	N.A	once for ART	1380
500 and	Yes	Positive	No	Not Applicable	Retired	1000-3000	N.A	0	more than	once for ART	9000
200-500	Yes	Positive	No	No	Not in paid employment du	1000-3000	N.A	0	1-2 days	once for ART	0
200-500	Yes	Positive	Yes	No	Government supported trai	3000-5000	N.A	0	more than	once for ART	3000
500 and	Yes	Positive	Yes	No	part-time employee	5000-10000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	No	full-time employee	above 10000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	Yes	self-emlpoyed	3000-5000	N.A	0	N.A	once for ART	0
500 and	Yes	Positive	Yes	Not Applicable	self-emlpoyed	5000-10000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	Yes	self-emlpoyed	5000-10000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	Not Applicable	self-emlpoyed	5000-10000	2-3 days	700	N.A	once for ART	0
200-500	Yes	Positive	Yes	No	self-emlpoyed	5000-10000	N.A	0	N.A	once for ART	0
500 and	Yes	Positive	Yes	Not Applicable	part-time employee	5000-10000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	Yes	Government supported trai	above 10000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	Not Applicable	self-emlpoyed	3000-5000	N.A	0	N.A	once for ART	0
500 and	Yes	Positive	Yes	No	self-emlpoyed	5000-10000	N.A	0	Less than	once for ART	50,000
200-500	Yes	Positive	Yes	Yes	self-emlpoyed	above 10000	N.A	0	more than	once for ART	20,000
500 and	Yes	Positive	Yes	No	full-time employee	above 10000	N.A	0	N.A	once for ART	0
500 and	Yes	Positive	Yes	No	self-emlpoyed	5000-10000	N.A	0	N.A	once for ART	0
>200	Yes	Positive	No	Yes	Not in paid employment du	3000-5000	N.A	0	Less than	once for ART	44,000
500 and	Yes	Positive	Yes	Not Applicable	self-emlpoyed	5000-10000	N.A	0	Less than	once for ART	30,000

HIV- only

>200	Yes	Positive	Yes	Not Applicable	self-emlpoyed	3000-5000	2-3 days	50	N.A	once for ART	0
>200	Yes	Positive	No	Yes	Not in paid employment du	above 10000	N.A	0	more than	once for ART	50,000
500 and	Yes	Positive	No	No	Not in paid employment du	above 10000	N.A	0	Less than	once for ART	70,000
200-500	Yes	Positive	Yes	Yes	self-emlpoyed	5000-10000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	Not Applicable	part-time employee	3000-5000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	Yes	self-emlpoyed	5000-1000	N.A	0	N.A	once for ART	18,000
500 and	Yes	Positive	Yes	Yes	self-emlpoyed	above 10000	N.A	0	N.A	once for ART	3500
500 and	Yes	Positive	Yes	No	full-time employee	above 10000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	Yes	self-emlpoyed	above 10000	N.A	0	N.A	once for ART	50,000
500 and	Yes	Positive	Yes	Not Applicable	Not in paid employment du	above 10000	N.A	0	N.A	once for ART	23,000
500 and	Yes	Positive	No	Not Applicable	Retired	5000-10000	N.A	0	N.A	once for ART	0
500 and	Yes	Positive	Yes	Not Applicable	part-time employee	3000-5000	less than	500	N.A	once for ART	0
500 and	Yes	Positive	No	Not Applicable	Not in paid employment du	1000-3000	N.A	0	N.A	once for ART	0
500 and	Yes	Positive	No	Not Applicable	Retired	5000-10000	N.A	0	N.A	once for ART	30,000
500 and	Yes	Positive	Yes	No	Other training or education	3000-5000	2-3 days	210	N.A	once for ART	0
200-500	Yes	Positive	No	No	Retired	above 10000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	No	full-time employee	5000-10000	N.A	0	N.A	once for ART	0
500 and	Yes	Positive	Yes	Yes	self-emlpoyed	3000-5000	half-day	0	more than	once for ART	30,000
500 and	Yes	Positive	No	No	Retired	5000-10000	N.A	0	N.A	once for ART	0
500 and	Yes	Positive	Yes	No	self-emlpoyed	3000-5000	N.A	0	N.A	once for ART	0
500 and	Yes	Positive	Yes	Not Applicable	part-time employee	3000-5000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	No	Retired	1000-3000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	No	self-emlpoyed	1000-3000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	Not Applicable	full-time employee	above 10000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	Not Applicable	self-emlpoyed	5000-10000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	No	self-emlpoyed	3000-5000	2-3 days	400	N.A	once for ART	2000
200-500	Yes	Positive	No	Not Applicable	Not in paid employment du	1000-3000	less than	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	No	self-emlpoyed	5000-10000	N.A	0	N.A	once for ART	0
200-500	Yes	Positive	Yes	Not Applicable	self-emlpoyed	3000-5000	N.A	0	N.A	once for ART	0
500 and	Yes	Positive	Yes	Yes	part-time employee	3000-5000	N.A	0	N.A	once for ART	80,000
200-500	Yes	Positive	Yes	Yes	Government supported trai	above 10000	2-3 days	500	N.A	once for ART	30,000
>200	Yes	Positive	Yes	Not Applicable	part-time employee	5000-10000	half-day	250	N.A	once for ART	0
500 and	Yes	Positive	Yes	Not Applicable	full-time employee	5000-10000	N.A	0	N.A	once for ART	0

HIV- only

TypeofMedicalCare	Costofm	Supplem	Expendi	HCVtest	HCVdiagnosiscentre
Visiting a doctor privately+ visit to a hospital, clinic or public dispensary	300	Yes	390	2001	Government hospital
visiting a doctor privately+ visit to a hospital, clinic or public dispensary+diagno	3700	Yes	1600	2010	Private diagnostic centre
visiting a doctor privately+ a counsellor	300	Yes	900	2016	Government hospital
visiting a doctor+ a counsellor+ diagnostic centre	2000	Yes	2000	1998	Private diagnostic centre
visiting a doctor privately+ visiting a diagnostic centre	1700	Yes	0	2015	Private diagnostic centre
Visiting a hospital, clinic or public dispensary	0	No	0	2015	Government hospital
Visiting a hospital, clinic or public dispensary	0	No	0	2016	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	0	Yes	390	2009	Government hospital
Visit to a doctor privately+ a hospital+ a diagnostic centre+ domiciliary treatme	200	Yes	3500	2015	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	1240	Yes	820	2015	Government hospital
visit to a doctor privately+ a diagnostic centre+ a counsellor	1000	Yes	720	2011	Private diagnostic centre
visit to a doctor privately+ a diagnostic centre+ a counsellor	0	Yes	660	2010	Government hospital
Visit to a diagnostic centre+visit to a counsellor	0	No	0	2006	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	840	Yes	2725	2008	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	7600	Yes	1450	2010	Private diagnostic centre
Visit to a diagnostic centre+visit to a counsellor	0	Yes	120	2015	Private diagnostic centre
visiting a doctor+ a counsellor+ diagnostic centre	0	Yes	600	2009	Government hospital
Visiting a doctor privately+ a hospital+a counsellor	200	Yes	80	2007	Private diagnostic centre
Visit to a diagnostic centre	0	No	0	2008	Government hospital
visiting a hospital+ domiciliary treatment	100	Yes	0	2016	Government hospital
visiting a hospital, clinic or public dispensary+ diagnostic centre	980	Yes	0	2014	Private diagnostic centre
visiting a hospital, clinic or public dispensary+ diagnostic centre	0	Yes	130	2016	Government hospital
visiting a doctor+ a counsellor+ diagnostic centre	0	Yes	430	2007	Private diagnostic centre
visit to a hospital+ a counsellor+ domiciliary treatment	0	Yes	1000	2001	Private diagnostic centre
Visit to a diagnostic centre+visit to a counsellor+domiciliary treatment	890	Yes	500	2008	Government hospital
visiting a doctor+ a counsellor+ diagnostic centre	0	No	0	2012	Government hospital
visiting a doctor privately+ visiting a diagnostic centre	1140	No	0	2015	Government hospital
visiting a doctor+ a counsellor+ diagnostic centre	22,000	Yes	1540	2014	Government hospital
visit to a hospital+ a diagnostic centre	1500	No	0	1999	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	300	No	0	2013	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	940	Yes	1050	2005	Government hospital
visiting a doctor+ a counsellor+ diagnostic centre	9000	Yes	420	2015	Private diagnostic centre

visit to a doctor privately+ visit to a hospital + a counsellor	800	Yes	1080	2014	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	0	Yes	100	2016	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	7000	Yes	300	2007	Private diagnostic centre
Visit to doctor privately+ a diagnostic clinic+a counsellor+ domiciliary treamen	1500	Yes	2940	2005	Private diagnostic centre
visit to a doctor privately+ a diagnostic centre+ a counsellor	3400	Yes	20,000	2004	Government hospital
all of the above (visit to a doctor+a hospital +adiagnostic centre+counsellor+do	200	Yes	300	2010	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	1740	Yes	600	2010	Government hospital
visit to a doctor privately+ a diagnostic centre+ a counsellor	0	No	0	2015	Government hospital
visit to a doctor privately+ a diagnostic centre+ a counsellor	900	Yes	350	2008	Private diagnostic centre
visit to a doctor privately+ a diagnostic centre+ a counsellor	1040	Yes	1530	2016	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	3080	Yes	880	2009	Government hospital
visiting a doctor+ a counsellor+ diagnostic centre	1500	Yes	8600	2004	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	700	Yes	1380	2014	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	3150	Yes	8100	2015	Private diagnostic centre
all of the above (visit to a doctor+a hospital +adiagnostic centre+counsellor+do	950	No	0	2015	Government hospital
all of the above (visit to a doctor+a hospital +adiagnostic centre+counsellor+do	2410	Yes	1000	2008	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	0	No	0	2015	Government hospital
visit to a doctor privately+visit to a hospital+ a counsellor	0	Yes	180	2015	Government hospital
visit to a doctor+ visit to a counsellor	200	Yes	3000	2014	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	1440	Yes	1740	2016	Private diagnostic centre
visit to a doctor privately+ a diagnostic centre+ a counsellor	1500	Yes	2000	2012	Government hospital
visit to a doctor privately+ a diagnostic centre+ a counsellor	0	Yes	500	2009	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	200	Yes	5220	2016	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	240	Yes	60	2016	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	400	Yes	500	2008	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	1000	No	0	2007	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	2700	Yes	1000	2011	Government hospital
visit to a counsellor	0	No	0	2004	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	290	No	0	2016	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	1050	No	0	2007	Government hospital
visiting a doctor+ a counsellor+ diagnostic centre	9300	Yes	6010	2014	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	200	Yes	600	2008	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	2000	Yes	1500	2015	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	2250	Yes	4495	2015	Government hospital
all of the above (visit to a doctor+a hospital +adiagnostic centre+counsellor+do	1000	Yes	910	2011	Government hospital

visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	100	Yes	985	2009	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	400	Yes	1470	2014	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	0	Yes	5850	2015	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	710	Yes	1653	2003	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	2050	Yes	5900	2007	Private diagnostic centre
all of the above (visit to a doctor+a hospital +adiagnostic centre+counsellor+do	1720	Yes	730	2009	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	0	Yes	900	2006	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	0	No	0	2005	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	300	Yes	7800	2015	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	1480	Yes	7800	2008	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	430	Yes	660	2005	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	200	Yes	1050	2014	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	0	No	0	2008	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	800	Yes	600	2006	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	0	Yes	1200	2015	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	800	Yes	155	2007	Government hospital
visiting a doctor privately+ visiting a diagnostic centre	0	Yes	5886	2002	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	0	Yes	230	2008	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	1600	Yes	5610	2005	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	1040	No	0	2007	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	0	No	0	2006	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	950	No	0	2010	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	0	No	0	2016	Government hospital
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	1200	Yes	3230	2009	Government hospital
all of the above (visit to a doctor+a hospital +adiagnostic centre+counsellor+do	1100	Yes	960	2010	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	50	Yes	4980	2006	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	0	No	0	1998	Private diagnostic centre
visiting a doctor privately+ visiting a hospital+visiting a diagnostic centre+coun	220	No	0	2006	Private diagnostic centre
Visit to a diagnostic centre+visit to a counsellor	1000	Yes	215	2006	Government hospital
Visiti to a doctor and visit to a counsellor	0	Yes	900	2007	Government hospital
visiting a doctor privately+ visiting a diagnostic centre	0	Yes	2225	2010	Government hospital
Visit to a hospital,clinic or public dispensary+ a diagnostic centre+ a counsellor	0	Yes	2000	2015	Government hospital
Visiting a doctor privately	0	Yes	228	2016	Government hospital

HIV- only

Amount	HCVTre	CostofH	Treatme	Dosagef	HCVnon	Opinion	Meansoftransport	Costoftr	Frequen	ARTgre	Number	Overnig	Modeofa	Amounts
70,000	Yes	70,000	Self	Both Va	N.A	fully sub	pooled/public transpor	20	once	No	one pers	n.a	N.A	0
1500	No	0	N.A	N.A	High cos	fully sub	pooled/public transpor	150	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	Do not f	fully sub	pooled/public transpor	20	once	Yes	none	n.a	N.A	0
100000	Yes	100000	Self	Capsules	N.A	fully sub	car/two-wheeler	65	once	No	none	n.a	N.A	0
1700	No	0	N.A	N.A	Lack of	fully sub	pooled/public transpor	20	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	Do not f	partially	car/two-wheeler	65	once	No	none	n.a	N.A	0
7000	No	0	N.A	N.A	Do not f	Not nece	pooled/public transpor	20	once	No	none	n.a	N.A	0
7000	No	0	N.A	N.A	Do not f	partially	walking/bybicycle	0	once	No	none	n.a	N.A	0
5000	No	0	N.A	N.A	high cos	partially	pooled/public transpor	20	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	Lack of	partially	pooled/public transpor	40	once	Yes	none	n.a	N.A	0
450	No	0	N.A	N.A	High cos	partially	car/two-wheeler	65	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	High cos	fully sub	pooled/public transpor	40	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	High cos	fully sub	pooled/public transpor	180	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	Lack of	fully sub	pooled/public transpor	80	once	No	one pers	n.a	N.A	0
450	No	0	N.A	N.A	Do not f	partially	pooled/public transpor	40	once	No	none	n.a	N.A	0
0	Yes	0	Self	Both vac	N.A	fully sub	walking/bybicycle	0	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	Do not f	Not nece	pooled/public transpor	60	once	Yes	none	n.a	N.A	
500	No	0	N.A	N.A	High cos	partially	pooled/public transpor	40	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	Do not f	partially	car/two-wheeler	65	once	No	one pers	yes	Hotel	500
0	No	0	N.A	N.A	Do not f	fully sub	car/two-wheeler	65	twice	Yes	none	n.a	N.A	0
0	No	0	N.A	N.A	high cos	fully sub	pooled/public transpor	40	twice	No	none	n.a	N.A	0
300	No	0	N.A	N.A	Do not f	fully sub	car/two-wheeler	65	once	Yes	none	n.a	N.A	0
3800	No	0	N.A	N.A	high cos	partially	car/two-wheeler	65	once	No	none	n.a	N.A	0
9000	No	0	N.A	N.A	high cos	partially	pooled/public transpor	20	once	Yes	none	n.a	N.A	0
0	No	0	N.A	N.A	High cos	fully sub	pooled/public transpor	40	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	Do not f	Not nece	pooled/public transpor	150	once	No	none	n.a	N.A	0
200	No	0	N.A	N.A	Do not f	partially	car/two-wheeler	65	once	Yes	none	n.a	N.A	0
0	No	0	N.A	N.A	High cos	partially	car/two-wheeler	65	once	Yes	none	n.a	N.A	0
10,000	No	0	N.A	N.A	Do not f	Not nece	car/two-wheeler	65	once	No	one pers	n.a	N.A	0
0	No	0	N.A	N.A	Lack of	fully sub	walking/bybicycle	0	once	Yes	none	n.a	N.A	0
0	No	0	N.A	N.A	High cos	partially	walking/bybicycle	0	once	No	none	n.a	N.A	0
4000	No	0	N.A	N.A	High cos	fully sub	pooled/public transpor	220	once	Yes	none	n.a	N.A	0

HIV- only

0	No	0	N.A	N.A	High cos	fully sub	pooled/public transpor	60	once	Yes	none	n.a	N.A	0
0	No	0	N.A	N.A	High cos	fully sub	walking/bybicycle	0	once	Yes	none	n.a	N.A	0
250	No	0	N.A	N.A	High cos	fully sub	car/two-wheeler	65	once	Yes	none	n.a	N.A	0
0	No	0	N.A	N.A	High cos	partially	car/two-wheeler	65	once	Yes	none	n.a	N.A	0
0	Yes	25,0)0	Self+ ‹G	N.A	High cos	fully sub	pooled/public transpor	200	once	No	none	n.a	N.A	0
300	No	0	N.A	N.A	High cos	fully sub	pooled/public transpor	20	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	Do not f	partially	car/two-wheeler	65	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	high cos	partially	pooled/public transpor	40	once	No	none	n.a	N.A	0
900	No	0	N.A	N.A	lack of r	fully sub	car/two-wheeler	65	once	No	none	n.a	N.A	0
800	No	0	N.A	N.A	High cos	fully sub	car/two-wheeler	65	once	No	one pers	n.a	N.A	0
0	No	0	N.A	N.A	high cos	partially	pooled/public transpor	40	once	No	none	n.a	N.A	0
10000	Yes	1,20,000	Self	Vaccine	N.A	fully sub	pooled/public transpor	20	once	No	none	n.a	N.A	0
350	No	0	N.A	N.A	High cos	partially	car/two-wheeler	65	once	No	none	n.a	N.A	0
350	Yes	50,000	Self	Capsules	N.A	fully sub	pooled/public transpor	40	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	lack of r	fully sub	walking/bybicycle	0	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	High cos	partially	pooled/public transpor	60	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	Do not f	fully sub	pooled/public transpor	180	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	Do not f	fully sub	pooled/public transpor	120	twice	No	none	n.a	N.A	0
0	No	10,000	Self+NG	Capsules	N.A	fully sub	car/two-wheeler	65	once	No	one pers	n.a	N.A	0
350	No	0	N.A	N.A	Do not f	fully sub	pooled/public transpor	20	once	No	none	n.a	N.A	0
0	Yes	0	NGO fu	Capsules	N.A	fully sub	pooled/public transpor	20	twice	No	none	n.a	N.A	0
0	No	0	N.A	N.A	Do not f	fully sub	walking/bybicycle	0	more tha	No	one pers	n.a	N.A	0
0	Yes	52,000	Self	Capsules	N.A	fully sub	car/two-wheeler	65	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	High cos	partially	pooled/public transpor	40	more tha	No	none	n.a	N.A	0
350	No	0	N.A	N.A	High cos	fully sub	pooled/public transpor	50	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	Do not f	Not nece	car/two-wheeler	65	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	High cos	Not nece	car/two-wheeler	65	once	No	none	n.a	N.A	0
10,000	Yes	60,000	Self	Both vac	N.A	fully sub	car/two-wheeler	65	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	Do not f	fully sub	car/two-wheeler	65	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	Do not f	partially	pooled/public transpor	180	once	No	none	n.a	N.A	0
350	No	0	N.A	N.A	high cos	fully sub	pooled/public transpor	200	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	Do not f	fully sub	pooled/public transpor	200	once	No	one pers	n.a	N.A	0
6000	No	0	N.A	N.A	high cos	fully sub	pooled/public transpor	20	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	High cos	partially	pooled/public transpor	40	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	high cos	partially	pooled/public transpor	20	once	No	none	n.a	N.A	0

0	No	0	N.A	N.A	High cos	fully sub	pooled/public transpor	20	once	No	one pers	n.a	N.A	0
0	No	0	N.A	N.A	High cos	fully sub	pooled/public transpor	140	twice	No	more tha	n.a	personal	0
350	No	0	N.A	N.A	High cos	fully sub	car/two-wheeler	65	once	No	none	n.a	N.A	0
180	No	0	N.A	N.A	High cos	fully sub	pooled/public transpor	40	once	No	one pers	n.a	N.A	0
3000	No	0	N.A	N.A	Do not f	partially	pooled/public transpor	120	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	High cos	partially	pooled/public transpor	100	once	No	one pers	n.a	N.A	0
0	No	0	N.A	N.A	Do not f	partially	car/two-wheeler	65	twice	No	none	n.a	N.A	0
4000	No	0	N.A	N.A	high cos	fully sub	car/two-wheeler	65	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	Do not f	Not nece	car/two-wheeler	65	once	No	one pers	n.a	N.A	0
0	No	0	N.A	N.A	Do not f	Not nece	pooled/public transpor	80	once	Yes	none	n.a	N.A	0
0	No	0	N.A	N.A	High cos	fully sub	car/two-wheeler	65	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	High cos	fully sub	pooled/public transpor	20	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	High cos	fully sub	pooled/public transpor	120	once	No	none	n.a	N.A	0
15,000	No	0	N.A	N.A	High cos	partially	pooled/public transpor	40	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	Do not f	Not nece	car/two-wheeler	65	twice	No	none	n.a	N.A	0
0	Yes	0	Governm	Vaccine	N.A	Not nece	pooled/public transpor	100	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	High cos	fully sub	car/two-wheeler	65	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	Do not f	fully sub	pooled/public transpor	80	once	No	none	n.a	N.A	0
7000	No	0	N.A	N.A	Do not f	Not nece	car/two-wheeler	65	once	No	none	n.a	N.A	0
7000	No	0	N.A	N.A	High cos	partially	car/two-wheeler	65	once	No	one pers	n.a	N.A	0
0	No	0	N.A	N.A	High cos	fully sub	walking/bybicycle	0	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	high cos	fully sub	pooled/public transpor	160	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	High cos	partially	pooled/public transpor	200	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	Do not f	Not nece	car/two-wheeler	65	once	No	one pers	n.a	N.A	0
350	No	0	N.A	N.A	Do not f	fully sub	pooled/public transpor	40	once	No	none	n.a	N.A	0
1900	No	0	N.A	N.A	High cos	fully sub	pooled/public transpor	40	once	Yes	none	n.a	N.A	0
6000	No	0	N.A	N.A	Do not f	Not nece	car/two-wheeler	65	once	No	none	n.a	N.A	0
3000	No	0	N.A	N.A	Do not f	fully sub	car/two-wheeler	65	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	High cos	fully sub	pooled/public transpor	40	once	No	none	n.a	N.A	0
50	No	0	N.A	N.A	high cos	Not nece	pooled/public transpor	50	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	High cos	partially	pooled/public transpor	40	once	No	none	n.a	N.A	0
0	No	0	N.A	N.A	High cos	fully sub	pooled/public transpor	40	once	No	one pers	n.a	N.A	0
0	No	0	N.A	N.A	Do not f	Not nece	pooled/public transpor	60	once	No	none	n.a	N.A	0

Economic study of HIV-patients in Imphal, Manipur

by Koko Wangjam

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