

# **KERALA STATE REPORT**

## **Epidemiological Profiling using Data Triangulation (Draft)**

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## 1.0 Introduction

Kerala is a small state, tucked away in the south west corner of India. It represents only 1.18 percent of the total area of India but has 3.34 % of the total population of the country. It is separated from the rest of the peninsula by natural geographic boundaries.

Kerala may be divided into three geographical regions (1) high land (2) mid land (3) low land. The high lands slope down from the Western Ghats, which rise to an average height of 900m, with a number of peaks over 1,800 m in height. This is the area of major plantations like tea, coffee, rubber, cardamom and other species.



The mid land lies between the mountains and the low lands. It is made up of undulating hills and valleys. This is an area of intensive cultivation - cashew, coconut, areca nut, cassava, banana, rice, ginger, pepper, sugarcane and vegetables of different varieties are grown in this area.

The 'Western Ghats' with their rich primeval forests having a high degree of rainfall, form the eastern boundary and extend from the north to Kanyakumari in the south. The entire western border is caressed by the Arabian sea. Between these natural boundaries lies the narrow strip of land extending from Kasarkode in the north to Parasala in the south.

The south-west and north-east monsoons with their accompanying downpour keep the land soaked, for a period of five to six months in a year. The 'western Ghats', which form the eastern ramparts of the state rise from very low altitudes of a few hundred metres upto about 2,000 metre on an average. The 'Anamudi' peak in the high ranges of Kottayam district rises to a height of 3,000 metres and represents the highest point in India, south of Himalayas. 'Agastyakutam' the southern most peak in the Ghats, is 2,044 metres. 'Ezhimala' is a rugged

hill jutting into the sea in startling isolation on the Kannur coast. Ghats are served as an effective rampart. The range has many passes which have allowed a controlled interaction between Kerala, and the lands lying beyond the mountains. The 'Peranbadi Ghat' provides access to Coorg, the 'Periyar Ghat' to the Nilgiri district. The Palghat pass, 32 km broad, has played a bigger role in the alarms and excursions of history. In south, the Bodinaikannur pass connects Devikulam and Munnar in Kerala with the Madurai district of Tamil Nadu. Other passes linking Kerala with Tamil Nadu are Thevaram, the Kambam, the Kumili and the Aramboly

### 1.1 HEALTH INDICATORS OF KERALA

The Total Fertility Rate of the State is 1.7. The Infant Mortality Rate is 12 and Maternal Mortality Ratio is 95 (SRS 2004 - 2006) which are lower than the National average. The Sex Ratio in the State is 1058 (as compared to 933 for the country). Comparative figures of major health and demographic indicators are as follows:

#### Demographic, Socio-economic and Health profile of Kerala State as compared to India

S. No.	Item	Kerala	India
1	Total population (Census 2001) (in million)	31.84	1028.61
2	Decadal Growth (Census 2001) (%)	9.43	21.54
3	Crude Birth Rate (SRS 2008)	14.6	22.8
4	Crude Death Rate (SRS 2008)	6.6	7.4
5	Total Fertility Rate (SRS 2007)	1.7	2.7
6	Infant Mortality Rate (SRS 2008)	12	53
7	Maternal Mortality Ratio (SRS 2004 - 2006)	95	254
8	Sex Ratio (Census 2001)	1058	933
9	Population below Poverty line (%)	12.72	26.10
10	Schedule Caste population (in million)	3.12	166.64
11	Schedule Tribe population (in million)	0.36	84.33

12	Female Literacy Rate (Census 2001) (%)	87.8	53.7
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### Health Infrastructure of Kerala

Particulars	Required	In position	shortfall
Sub-centre	4761	5094	-
Primary Health Centre	791	909	-
Community Health Centre	197	107	90
Multipurpose worker (Female)/ANM at Sub Centres & PHCs	6003	5320	683
Health Worker (Male) MPW(M) at Sub Centres	5094	2654	2440
Health Assistant (Female)/LHV at PHCs	909	740	169
Health Assistant (Male) at PHCs	909	794	115
Doctor at PHCs	909	1732	-
Obstetricians & Gynaecologists at CHCs	107	28	79
Physicians at CHCs	107	31	76
Paediatricians at CHCs	107	38	69
Total specialists at CHCs	428	115	313
Radiographers	107	15	92
Pharmacist	1016	1017	-
Laboratory Technicians	1016	347	669
Nurse/Midwife	1658	3383	-

(Source: RHS Bulletin, March 2008, M/O Health & F.W., GOI)

**The other Health Institution in the State are detailed as under:**

Health Institution	Number
Medical College	18
District Hospitals	14
Referral Hospitals	

City Family Welfare Centre	
Rural Dispensaries	
Ayurvedic Hospitals	124
Ayurvedic Dispensaries	740
Unani Hospitals	-
Unani Dispensaries	1
Homeopathic Hospitals	33
Homeopathic Dispensary	580

<b>District</b>	<b>Projected population</b>	<b>Est no of pregnancies</b>
ALP	2199692	35327
EKM	3357787	53926
IDK	1171887	18821
KNR	2542608	40834
KSG	1321849	21229
KLM	2736713	43952
KTM	2060109	33085
KKD	3104827	49864
MLPM	4113185	66058
PKD	2822299	45326
PTA	1271825	20426
TVM	3484618	55963
TSR	3178450	51046
WYD	879891	14131
	<b>34245740</b>	<b>549987</b>

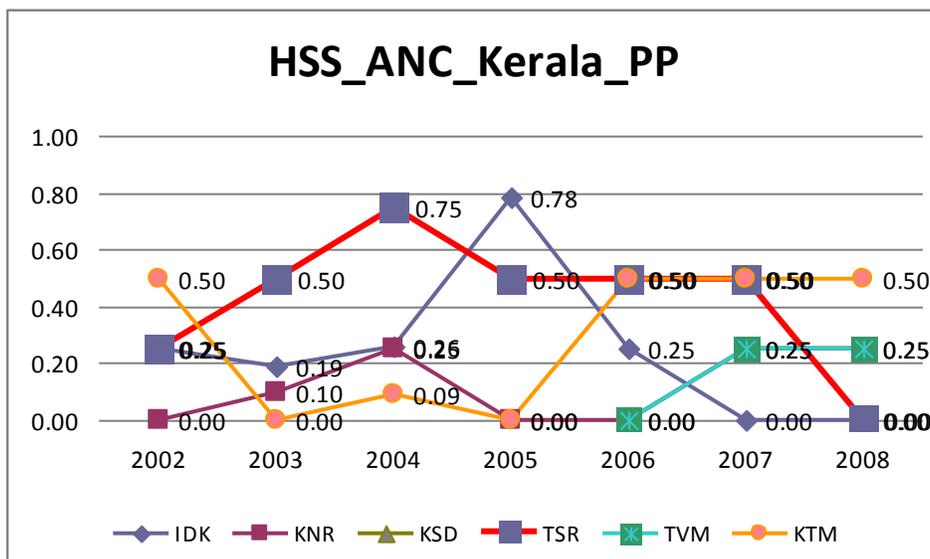
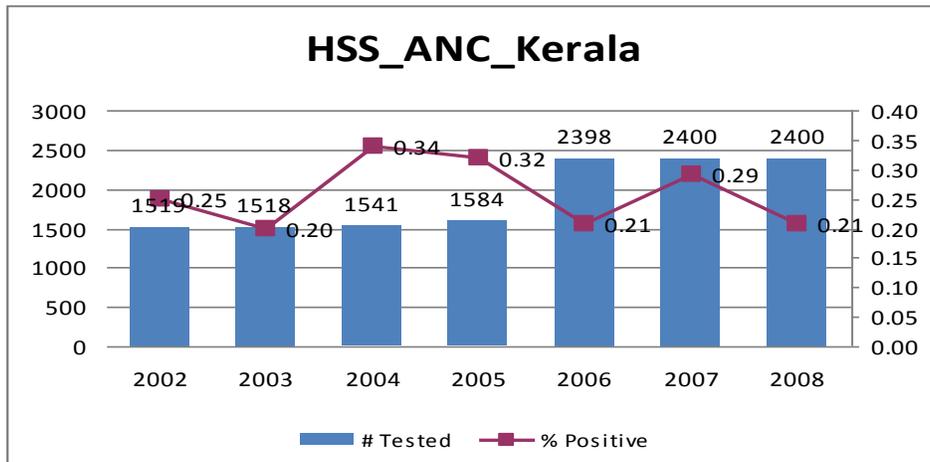
## 2.0 HIV/AIDS Estimates (Levels and Trends)

### 2.1 Positivity among the General Population

In order to understand the positivity among the general population, PPTCT, Blood Bank and HIV/AIDS sentinel surveillance- Antenatal were analysed.

#### 2.1.1 Positivity HSS-ANC

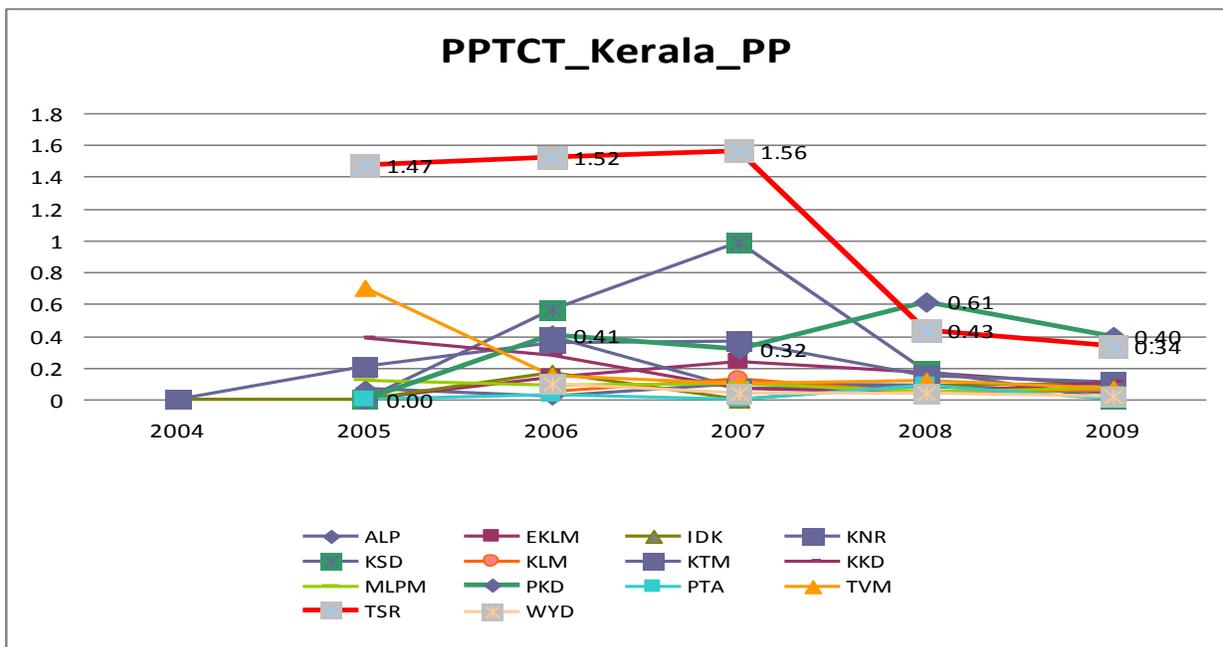
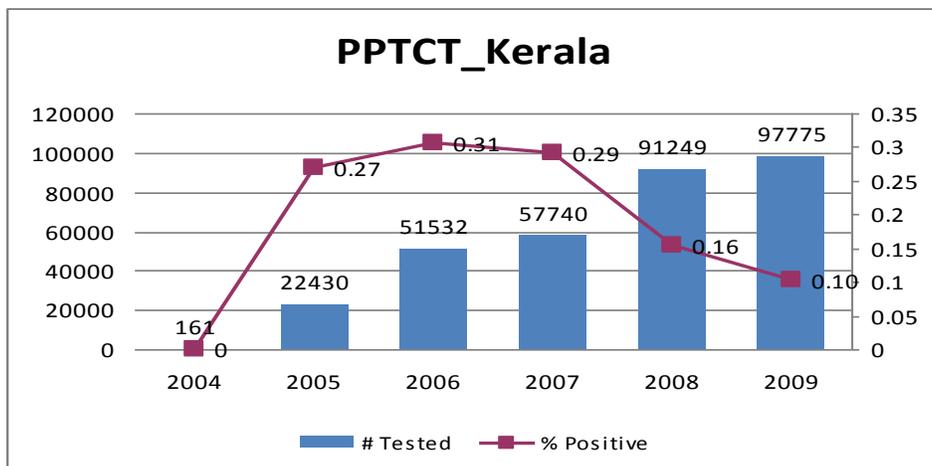
The weighted average of all the districts was taken to indicate the state level prevalence. This indicates a stable trend though there is a reduction in the prevalence in the year 2008.



Out of the 6 districts having ANC sites, Kottayam district is having the highest prevalence (0.50%) in 2008 followed by Trivandrum.

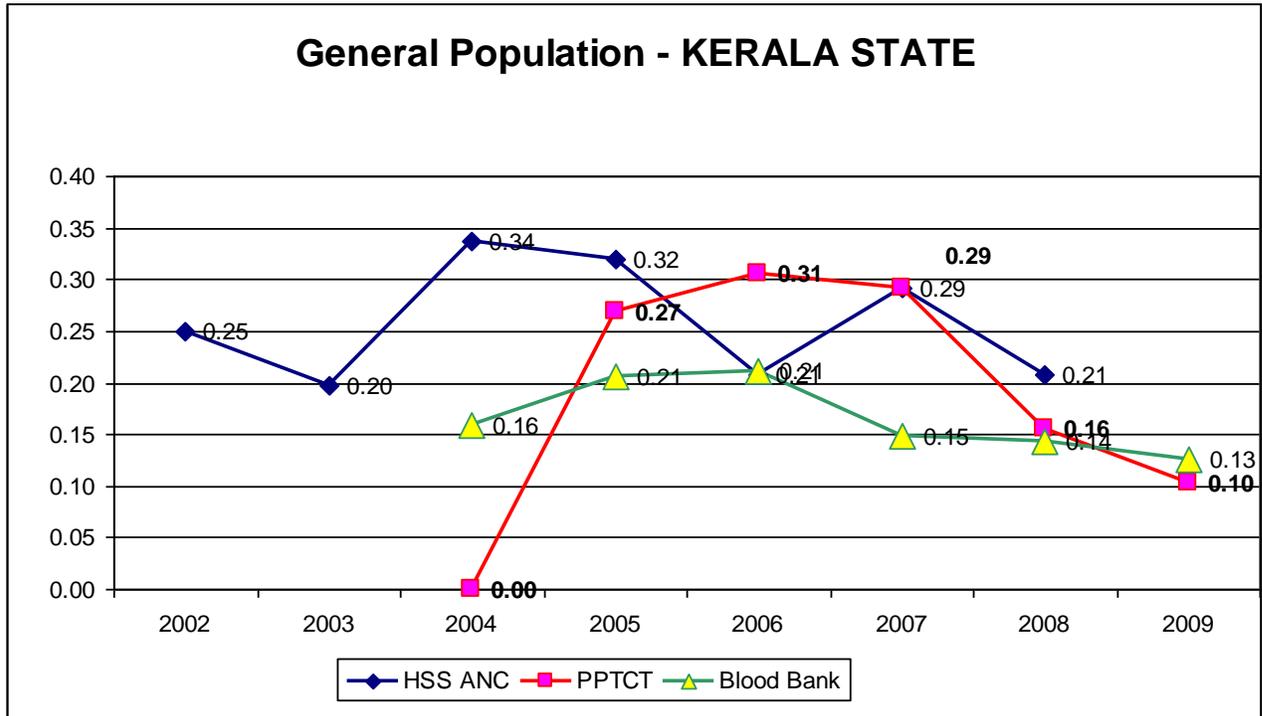
### 2.1.2 Positivity PPTCT

The positivity among the PPTCT clients indicates an decreasing trend from the year 2006 onwards. At the same time, there is an increasing trend in the number of tested in the PPTCT centres in Kerala as well. The level of positivity among the PPTCT clients in 2009 is 0.10 percent





Kottayam and Kasargode has the highest positivity in the year 2009 when all the districts in the state recorded a relatively lower positivity. Reduction in the positivity was recorded in all the districts except Kottayam and Kasargode which indicated a increasing trend.



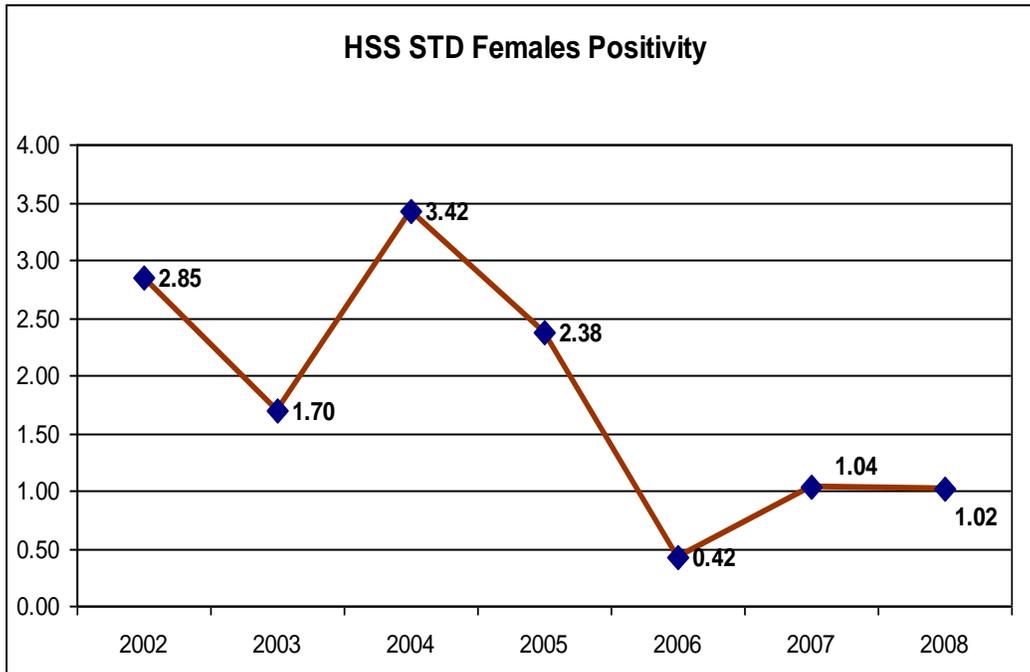
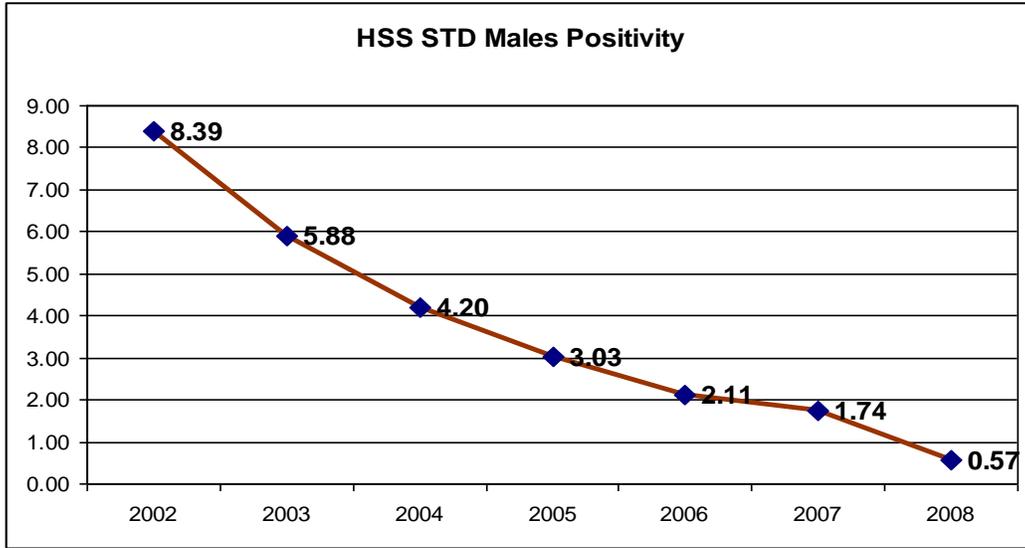
While considering all the data which are available to represent the general population, it is found that there is a decreasing trend in the positivity of HIV in all the levels.

## 2.2 Positivity among the high risk population

The positivity level and trend among the high risk population were analysed using the HIV/AIDS surveillance among the STD clients, FSWs, MSMs, IVDUs; ICTC positivity, STI positivity among the clinic attendees.

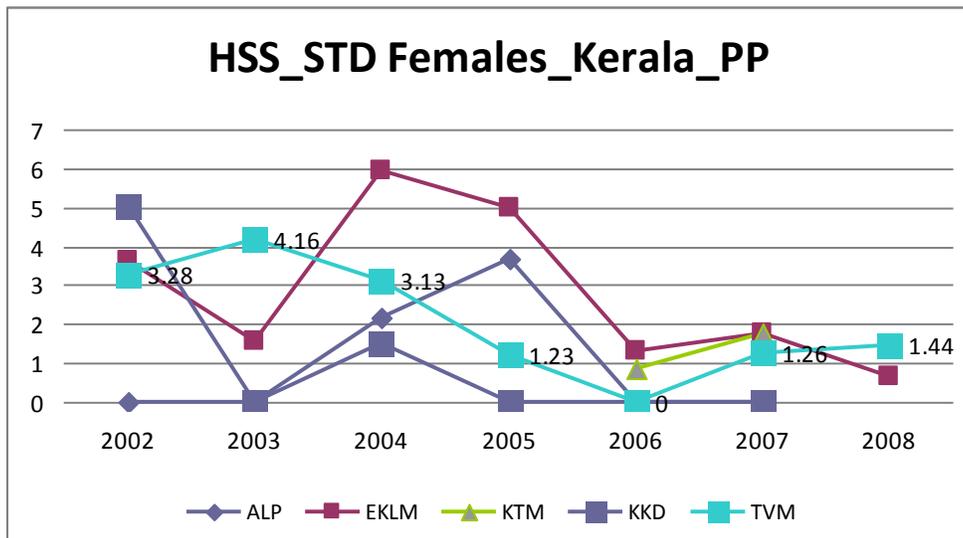
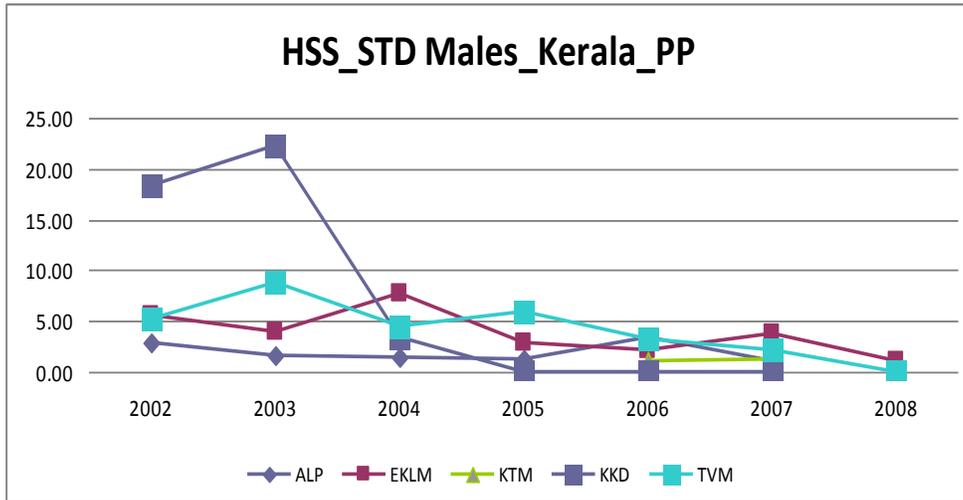
### 2.2.1 HSS-STD Positivity

The positivity rate of HSS-STD Male clients indicates a declining trend whereas the female STD clients indicated an increasing trend. The level in 2008 was 0.57% among males and among females it was 1.02 percent.



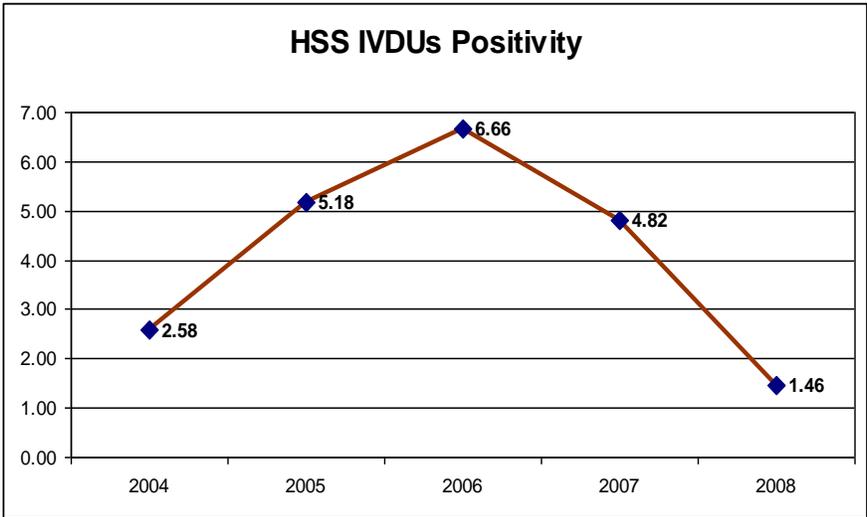
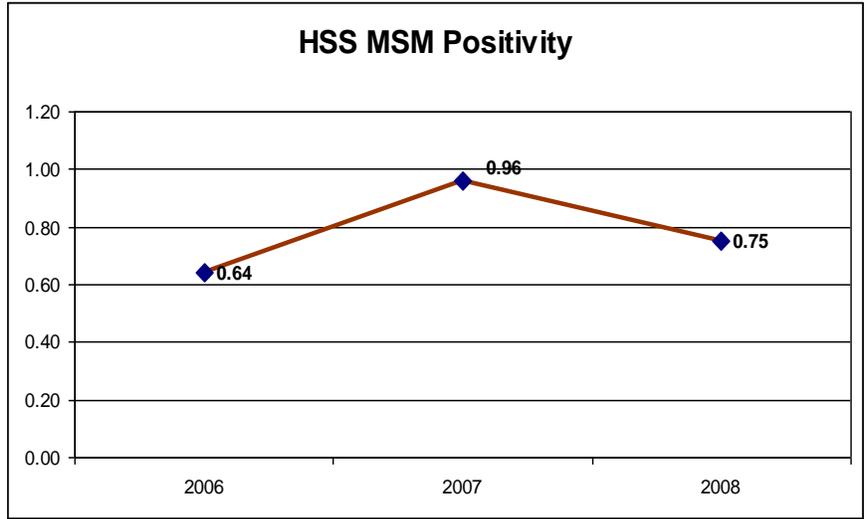
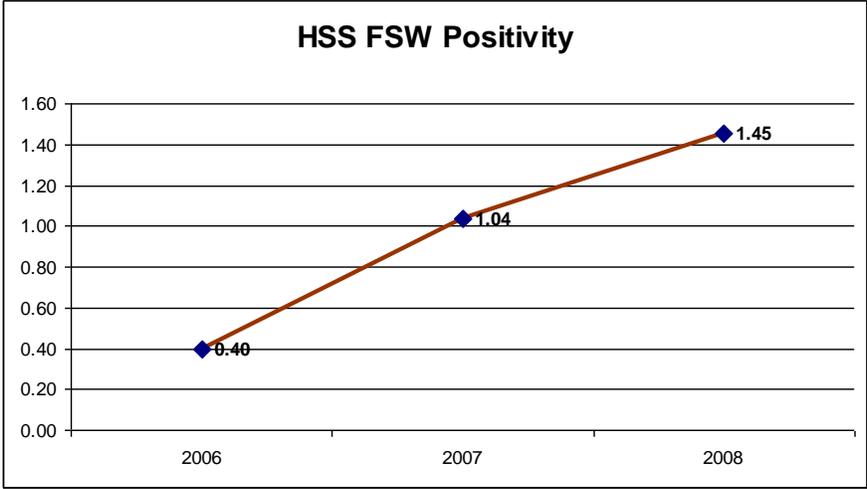
Almost all the districts are showing a declining trend in HSS STD Males and Trivandrum and Kottayam districts are indicating an increasing trend among STD females.

**HSS-STD Male and Females – Districts Positivity**



**2.2.2 HIV Positivity FSW, MSM and IVDUs - HSS**

The HSS Female sex workers indicate an increasing trend during the last three years. However there is a reduction among the MSM in 2008. However there is a significant reduction in the prevalence among the IVDUs during the last 3 years.

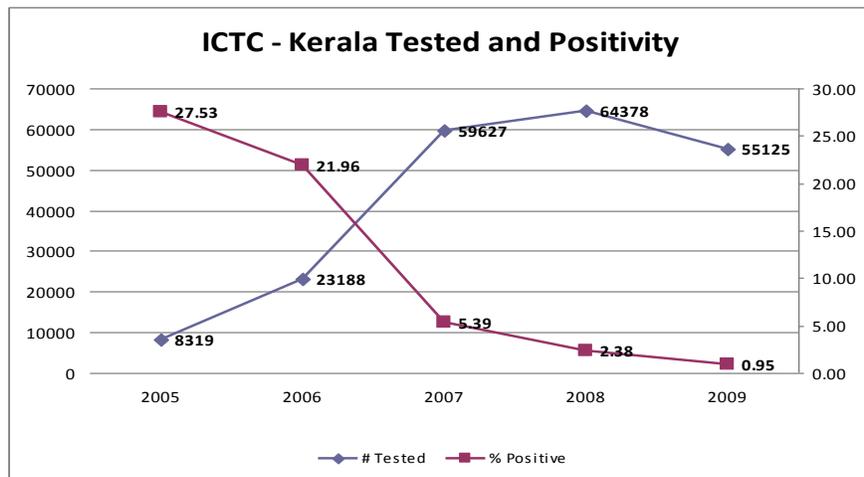


### 2.2.3 ICTC Positivity

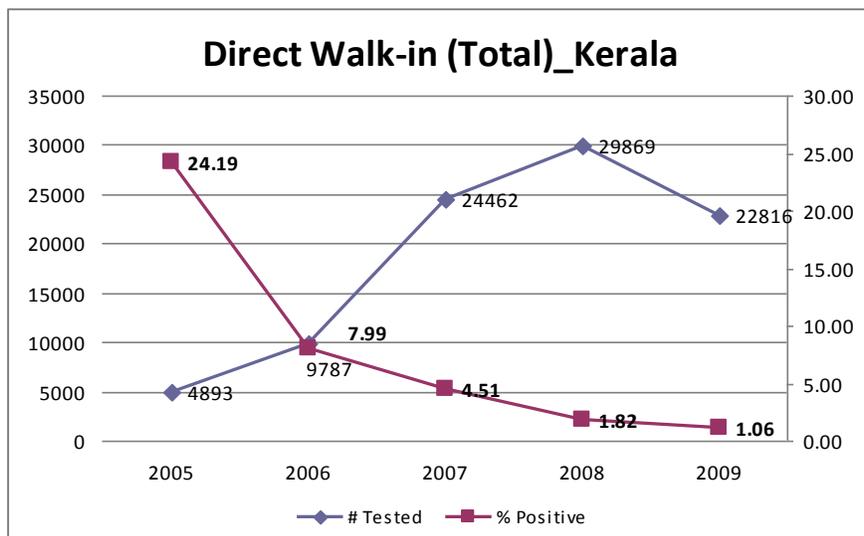
There is a significant reduction in the positivity among the ICTC clients from the year 2005 whereas the number of tested is also showing an increasing trend. However, there is a reduction in the number of tested in 2009.

The positivity among the direct walk-in clients was higher than the referred clients in the ICTC centres. Though there is an increasing trend in the number of clients, there is a reduction in the direct walk-in clients in the year 2009. In total, referred cases dominated the ICTC centres in Kerala throughout the years.

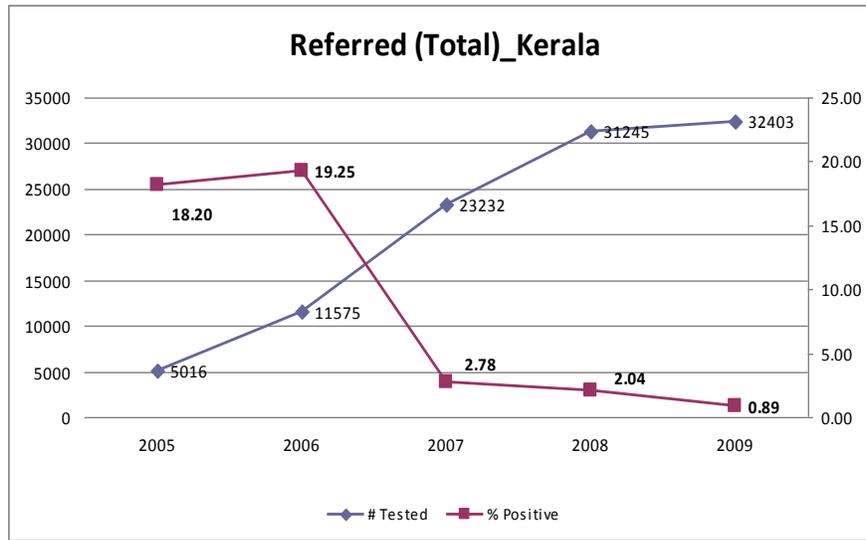
**ICTC Positivity in Kerala**



**ICTC Direct walk-in or client initiated tested and positive**

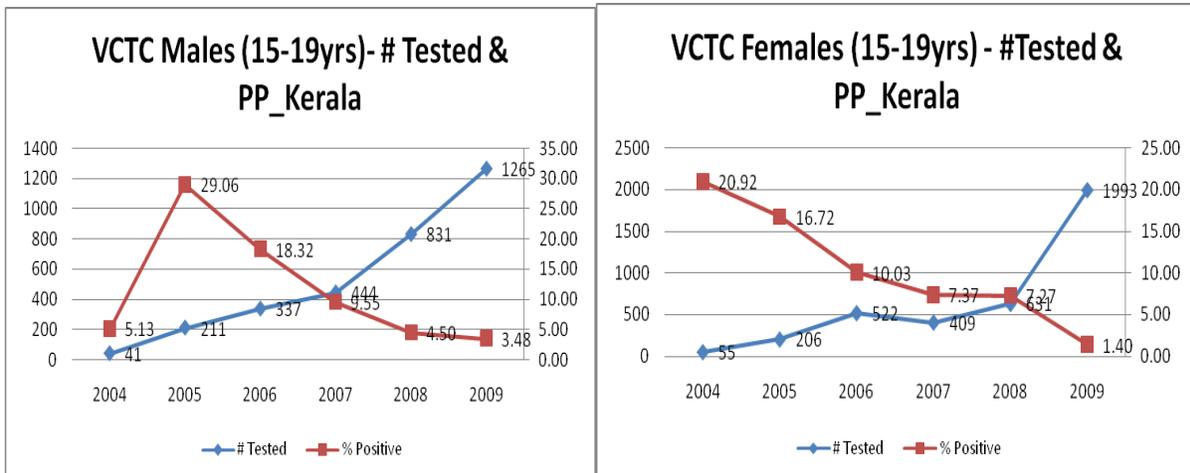


## ICTC Referred or Provider initiated tested and positive

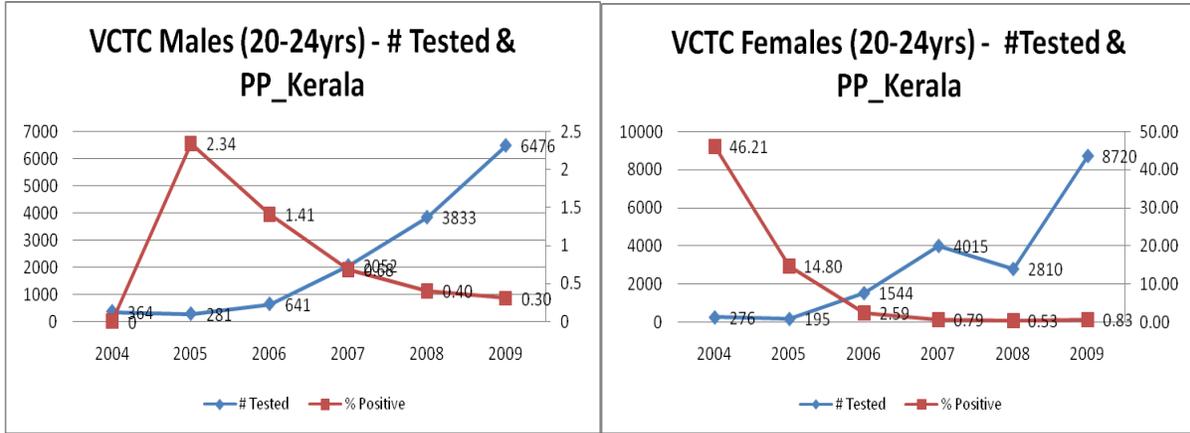


### 2.2.3.1 Age and Gender wise differentials (ICTC-General Clients-CMIS)

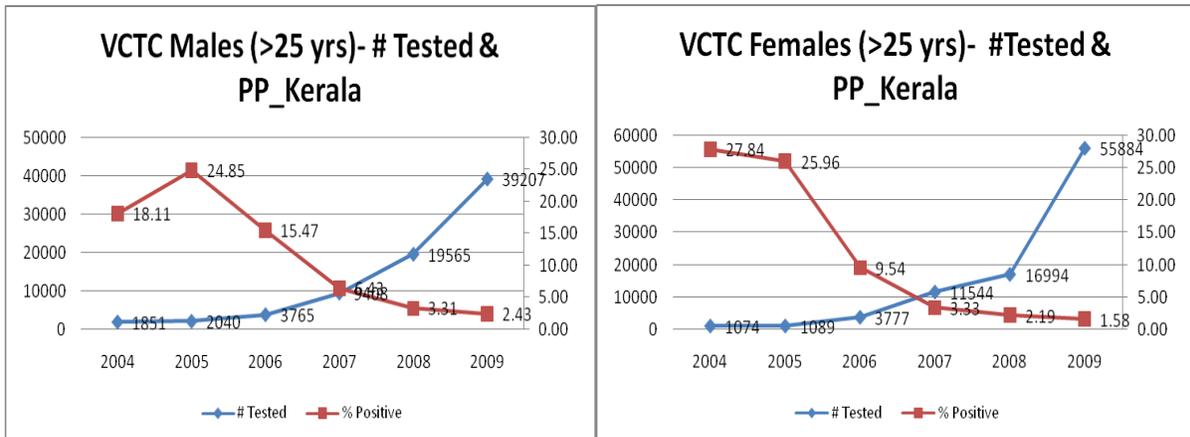
The age group 15 to 19 years is showing a declining trend and the number tested is indicating an increasing trend throughout the years. The positivity among the male (3.48%) in this age group is relatively higher than the females (1.40%).



The age group 20-24 yrs is also showing a declining trend but the positivity level is higher among female.

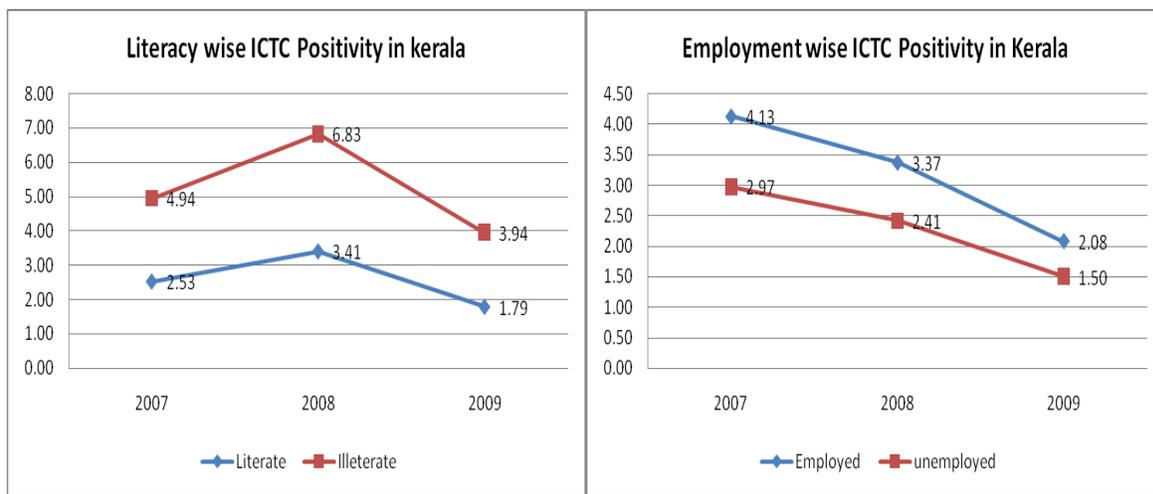
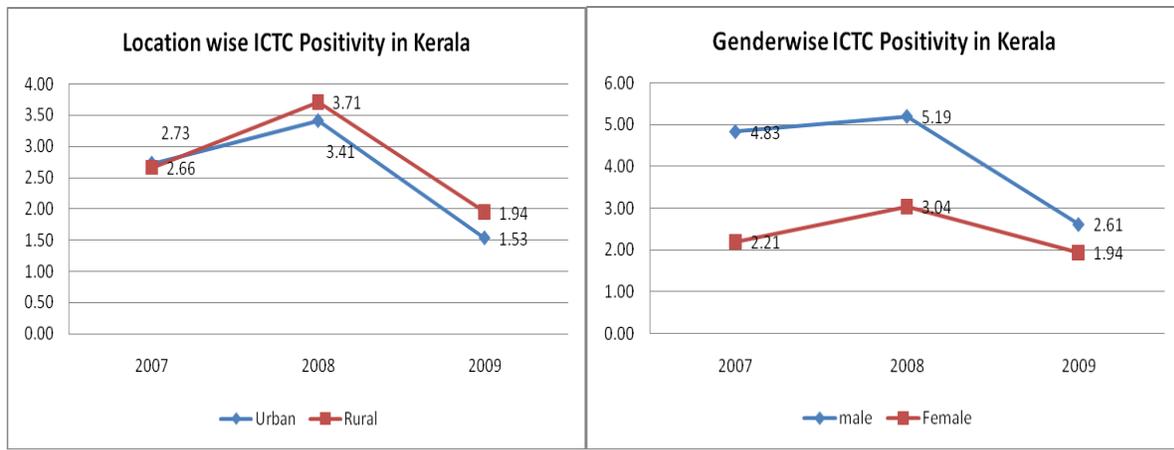


The age group above 25 years is also showing a declining trend but the positivity is higher among the male (2.43%) than the females (1.58%)



### 2.2.3.2 ICTC differentials among different sub groups

Rural population is indicating a relatively higher positivity than urban and the male population is indicating a higher positivity than the female. The illiterate ICTC clients and the unemployed indicated a higher positivity than the literate and the employed.



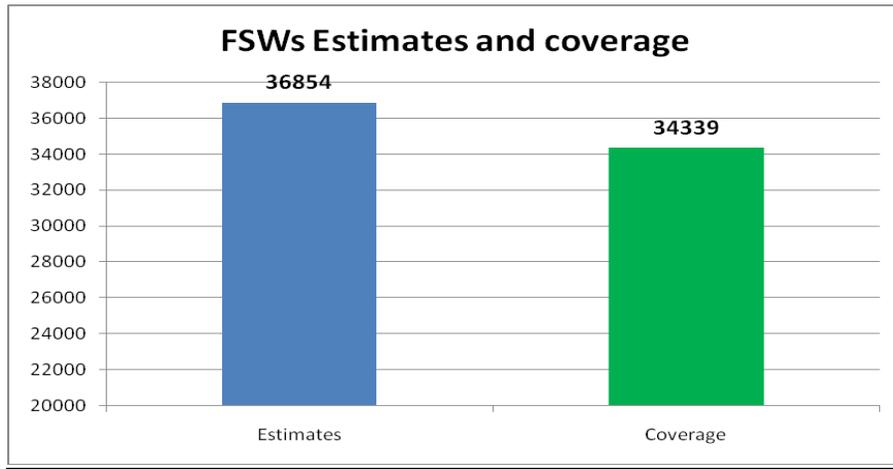
### **3.0 Size of the High Risk Groups and bridge population**

There are conventional high risk groups such as Female sex workers, MSMs, and IVDUs; bridge population such as Truckers, migrants existing in Kerala. In addition to this, there are evidences that there are un-conventional high risk groups such as manual labourers, agricultural workers, tourist, tribal population, etc present in the state.

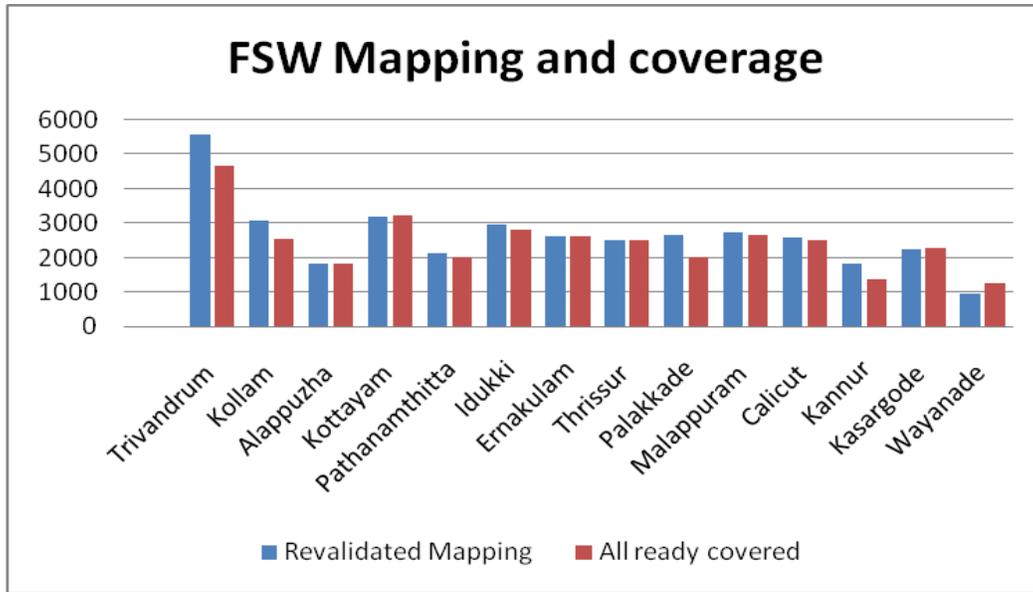
### 3.1 High risk Groups

#### 3.1.1 FSWs Estimate and coverage

According to the recent estimate in kerala it is estimated that there are around 36854 Female sex workers involved in sexual work. This state has achieved 93 percent coverage through the Targetted intervention targetting the Female sex workers. Except 4 districts almost all the districts have acheived the saturation of coverage

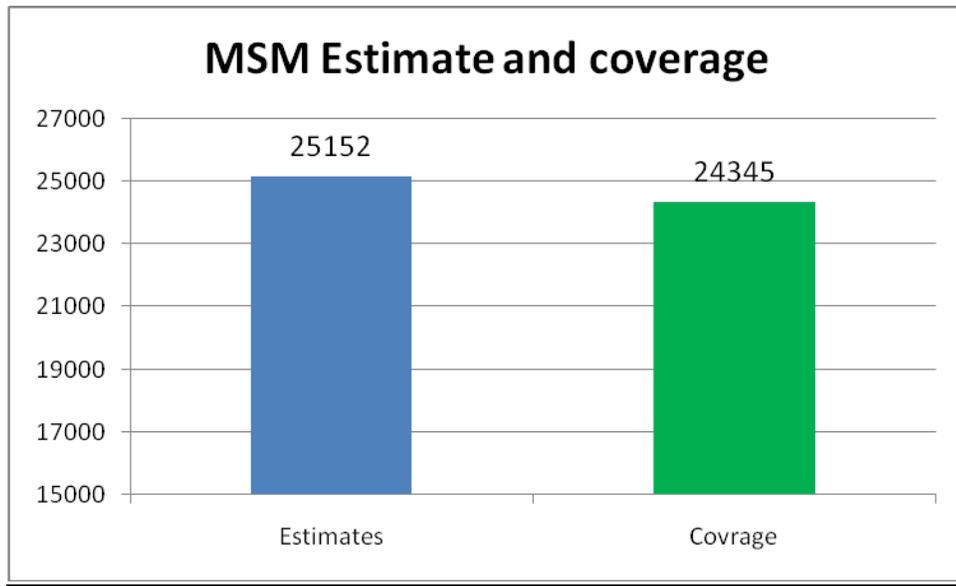


#### Districtwise FSW Mapping and Coverage

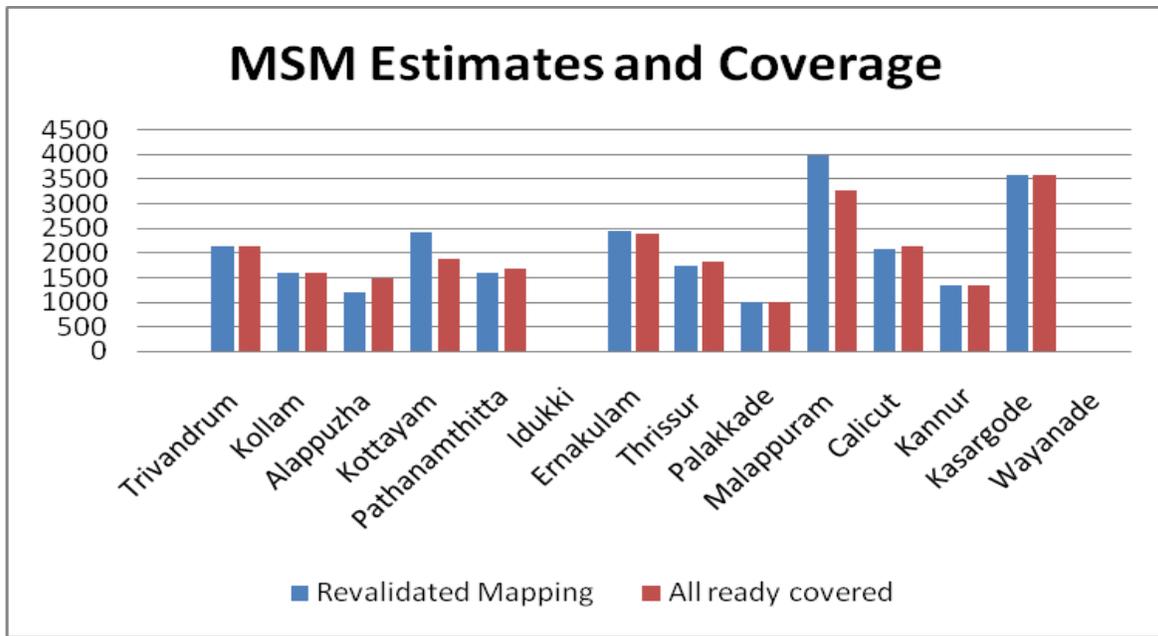


**3.1.2 MSM Estimates and coverage**

It is estimated that there are around 25,152 MSMs are existing in Kerala state. The state has achieved around 97 percent coverage through the targeted interventions. Except malappuram district all the other districts have achieved the saturation of coverage. Idukki district does not have estimate of MSM.

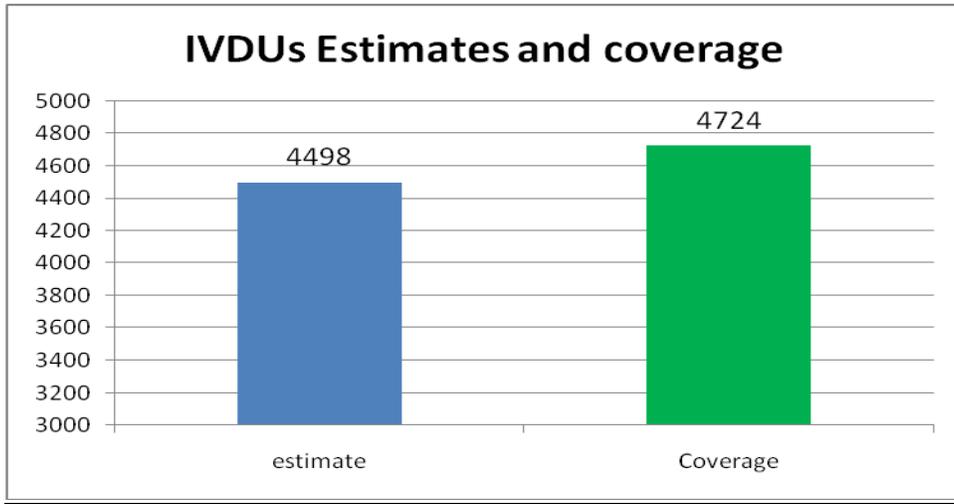


**District-wise MSM Mapping and coverage**

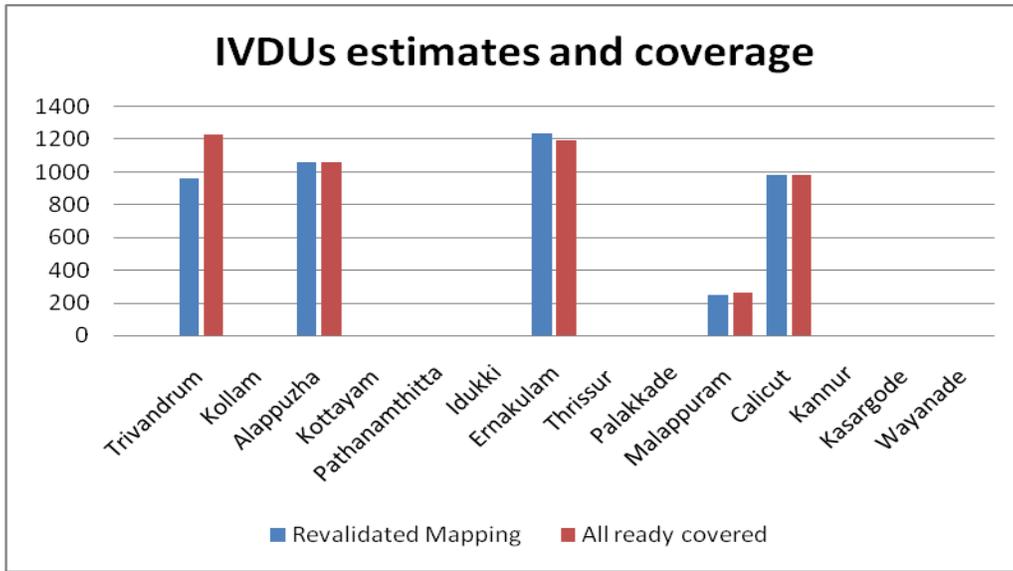


### 3.1.3 IVDUs estimates and coverage

Kerala has around 4498 IVDUs as per the estimates though there is non availability of estimates data in 9 districts. This state has achieved the saturation of coverage through the targeted interventions.



### **IVDUS Estimates and coverage by Targeted Interventions**



### **3.2 Bridge population**

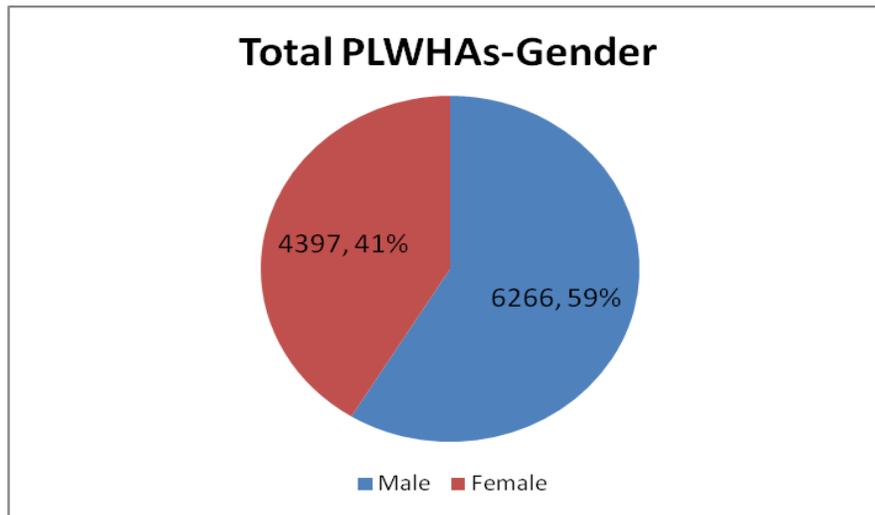
The two main bridge population existing kerala are truckers and migrants. Evidences say that migrants both in migrants and out-migrants are one of the important drivers of epidemic in the district. An unpublished study by Centre for development studies, Kerala indicates that there is a positive correlation between the number of migrants and the positivity.

### **4.0 Burden of HIV/AIDS**

In Total, Kerala has reported around 10663 PLWHAs till November 2009.

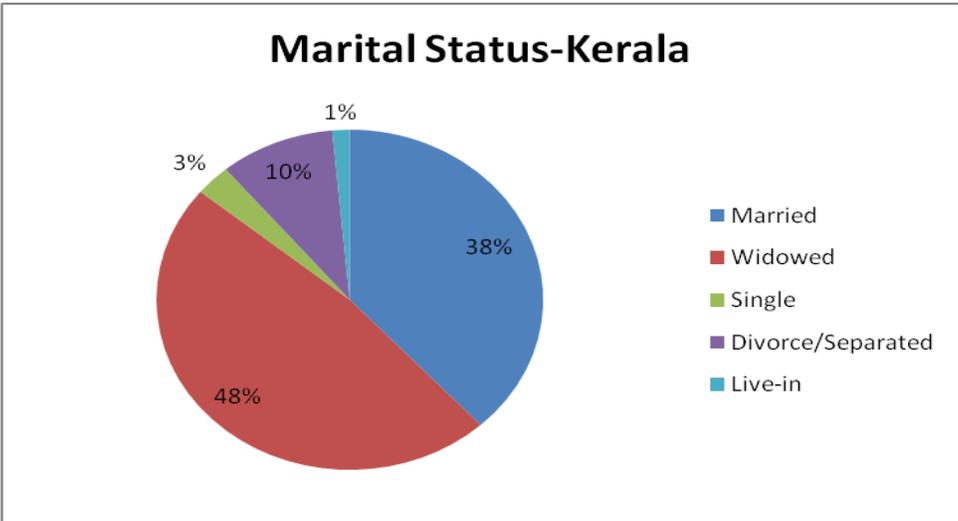
#### **Gender**

Majority (59%) of the PLWHAs are males and the remaining 41 percent are females.



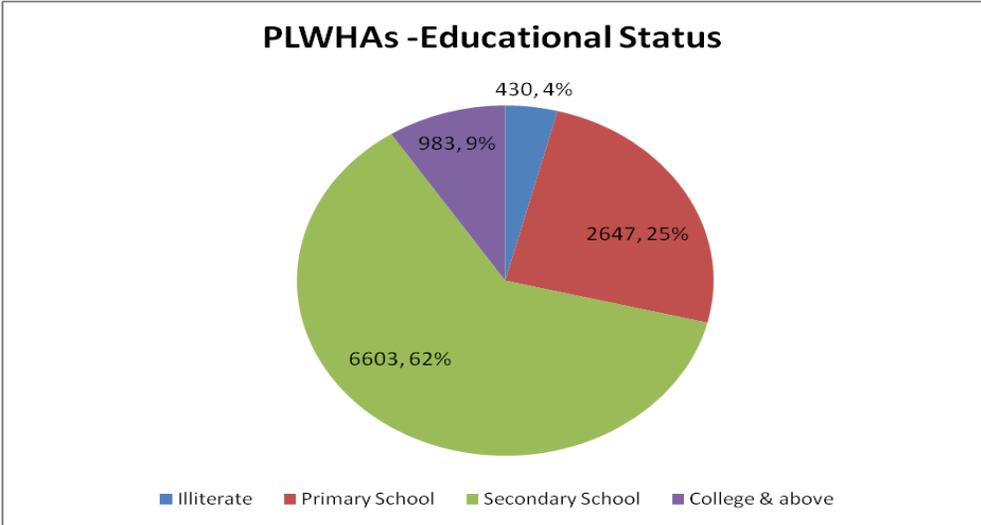
#### **Marital Status**

Majority (48%) of them are widowed or divorced. 38 percent of the PLWHAs are married and 10 percent of them are divorced or separated. 3 percent of them are single..



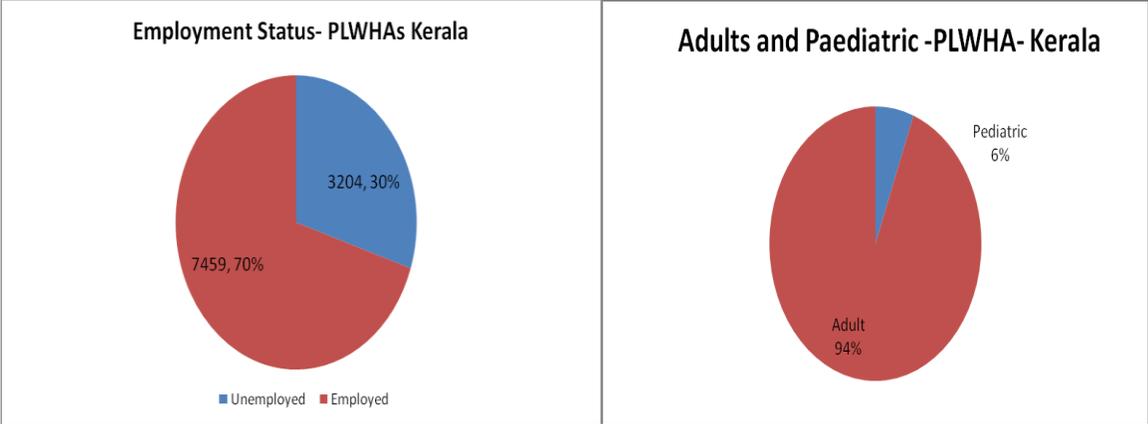
**Literacy**

Majority(62%) of the PLWHAs have completed the secondary education and around 25 percent of them completed primary schooling. A significant 9 percent had college education and only 8 percent were illiterates.



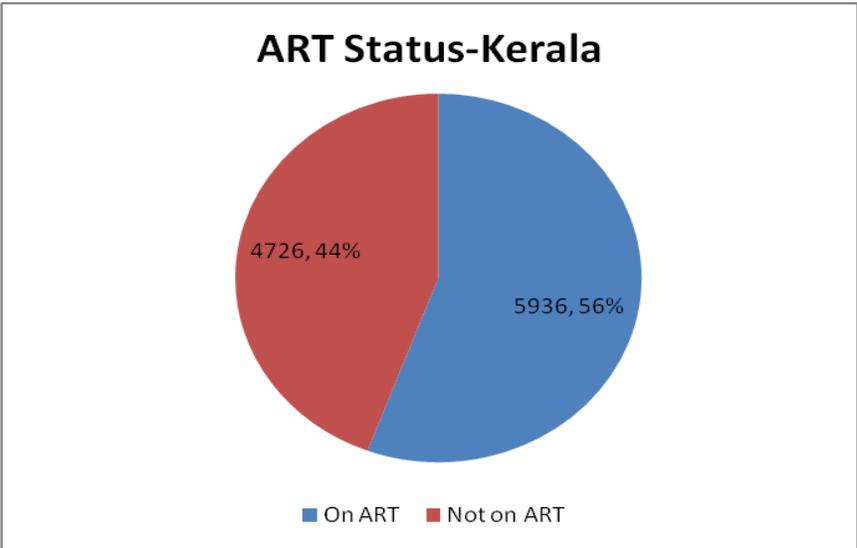
**Employment Status**

A significant 30 percent of the PLWHAs are unemployed and 70 percent are in some form of employment. 94 percent of the PLWHAs are adults and the remaining are children living with HIV/AIDS



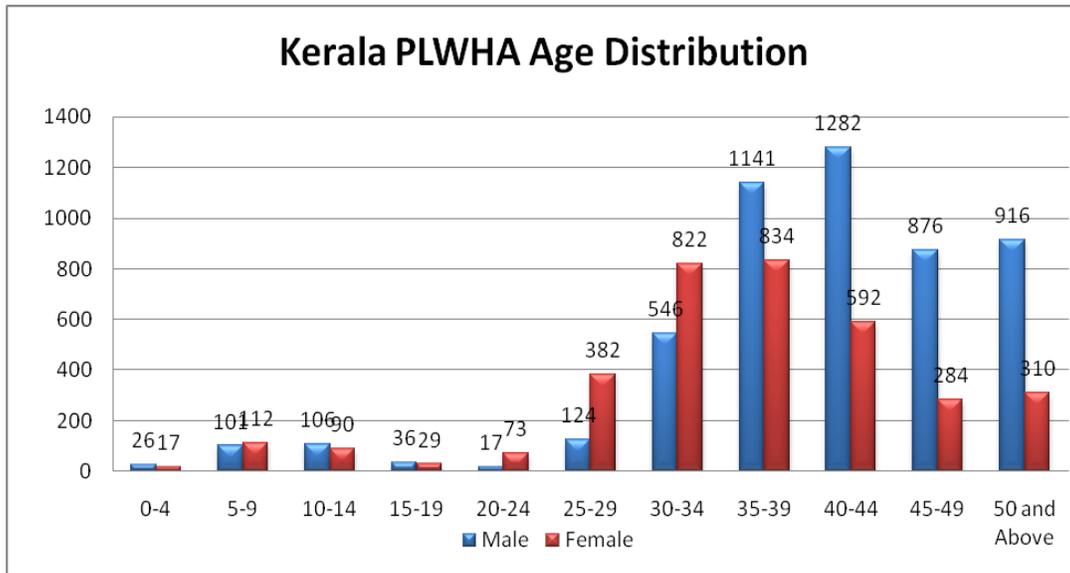
**ART Status**

56 percent of the PLWHAs are currently on ART and the remaining have registered themselves in the Pre ART clinic.



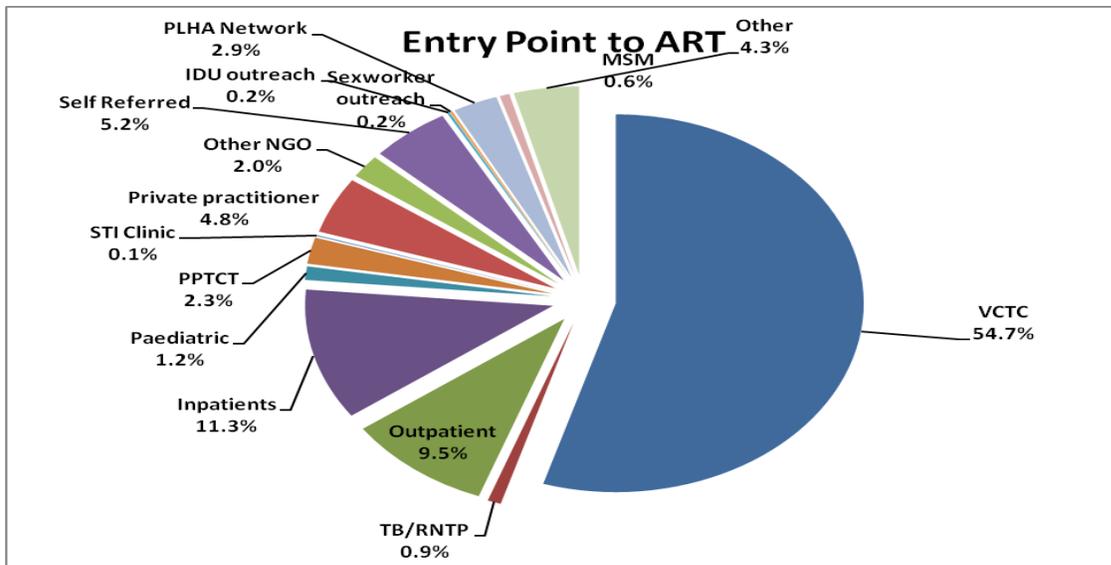
## Age Profile

Majority of the PLWHAs are in the age group of above 25 years. A significant proportion of the PLWHAs are in the age group of 50 years and above as well which is an indication for the effective ART treatment in kerala. Besides, the female PLWHAs are high in number till 34 years and after that the male PLWHAs are dominating



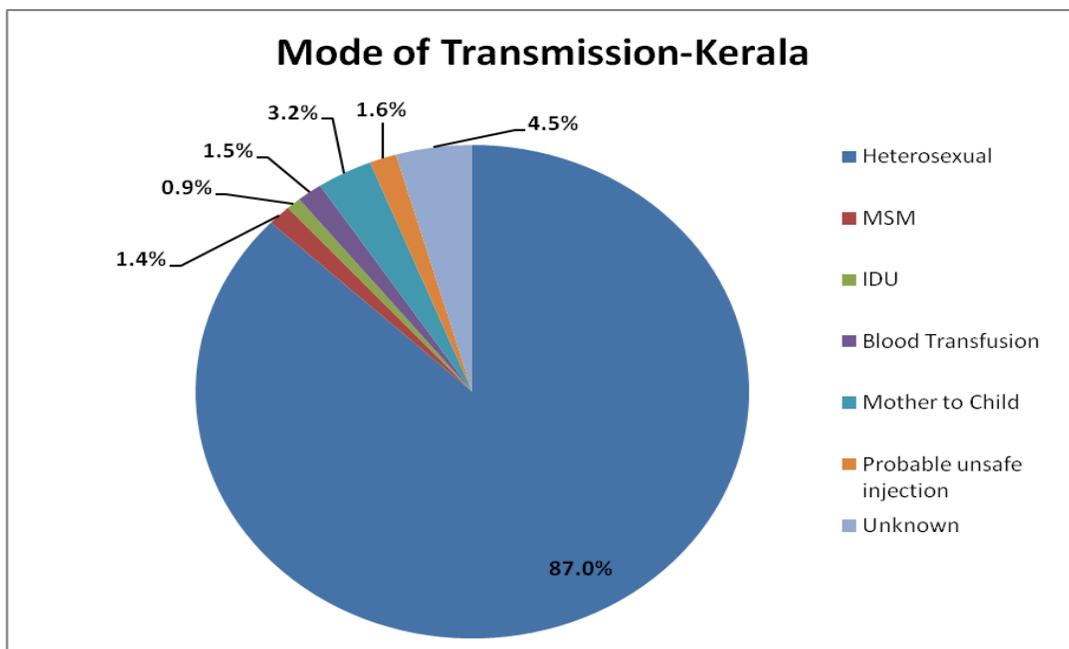
## Entry point to ART

For majority of the PLWHAs the first entry point to HIV/AIDS care was VCTC centres; 11.3 percent were identified when they were admitted as in patients and 9.5 percent of them entered through out patient visits. Besides, PPTCT, STI clinic, private practitioner, NGOs, PLWHA network, sex worker out-reach, IDU out-reach and self referral were the main entry points.



## Mode of Transmission

Hetero sexual activity was the main mode of transmission(87%), followed by mother to child transmission(3.2%), injection drug use(0.9%), blood transfusion(1.5%), MSM(1.4%) and 4.5% did not report any mode of transmission.



## **7.0 Conclusion**

The data which indicates the positivity among general population such HSS-ANC, PPTCT and Blood Bank indicated a declining trend. The number of ICTC clients especially the direct walk-in clients report an increase every year. The positivity among the ICTC clients also indicated a declining trend. The HSS-STD, MSM, IVDU recorded a decreasing trend however the HSS-FSW indicated an increasing trend.

## **References:**

- 1. Computerised Management Information System, Kerala AIDS Control Society, 2009.**
- 2. District Websites of Government of Kerala**
- 3. HIV Sentinel Surveillance Round 2008**
- 4. District Registers, Kerala AIDS Control Society, 2009.**
- 5. Mapping estimate and TI register, 2009**