HIV

SENTINEL SURVEILLANCE (ANC)
Tamil Nadu State Report

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Foreword

HIV Sentinel surveillance among ANC attendees is one of the most important national level activities, as it helps the programme managers in framing health policies towards controlling HIV infection in the state and the country as well. The objectives of HIV sentinel surveillance are to understand the trends, assess spread and distribution of HIV infection among geographical areas across the state. In order to have uniform geographical coverage, the number of sentinel sites in the state has been increased over a period of years by keeping at least one site in each district.

The National Institute of Epidemiology, Chennai, one of the Regional Institutes for 8 southern states, is involved in the HIV surveillance activities since 2006. This report is prepared based on the data collected during the 15th round of surveillance, in conjunction with the past years data to analyze the trend and to have an insight of epidemiological factors. I hope this report will serve as a very useful tool for the policy makers, scholars, researchers and other stakeholders in formulating guidelines in controlling HIV and enhancing their knowledge of HIV in their state.

I take this opportunity to thank Dr. S. Venkatesh, Deputy Director General, NACO and Dr. Pradeep Kumar, Consultant (surveillance) & his team for entrusting this activity to NIE and also for providing technical support in implementing the surveillance. I also wish to thank the Project Director and nodal officer of State AIDS Control Society for their help in completing the surveillance activities in a timely manner. I express my gratitude to all the State Referral Laboratories, National Referral Laboratories, State Surveillance Team members, Sentinel sites personnel and other National and International partners who helped us in completing the surveillance successfully.

Dr. Manoj V Murhekar

WHO Collaborating Centre for Leprosy Research and Epidemiology

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CHAPTER 1.

INTRODUCTION

Acquired immune deficiency syndrome or acquired immunodeficiency syndrome (AIDS) is a disease of the human immune system caused by the human immunodeficiency virus (HIV).This condition progressively reduces the effectiveness of the immune system and leaves individuals susceptible to opportunistic infections and tumours. The first HIV infection was reported in the year 1981 in the United States of America. Afterwards the epidemic spread rapidly throughout the globe.

In India it was in 1986, the first HIV infection reported from Chennai, Tamil Nadu. In the last two decades the awful disease spread throughout the country.

Surveillance is a vital component of any disease control programme. The purpose of surveillance is to actually look for evidence of disease risk, to predict the pattern and to plan appropriate action for control and prevention. Providing meaningful insights for action at policy, strategy, planning, or implementation levels at the appropriate time is the key objective of surveillance. The HIV epidemic in India is concentrated, with high prevalence among high-risk groups, moderate prevalence among bridge populations, and low prevalence among general population. Unprotected sex with female sex workers (FSW), injecting drug users (IDU), and unprotected anal sex between men are the three primary routes of HIV transmission in India. HIV sentinel surveillance measures the prevalence of HIV in a specific risk group in a specific region at a specific point of time. The HIV sentinel surveillance system in India is based on the HIV transmission dynamics mentioned above and monitors the HIV epidemic patterns among the following groups:

1. High-risk groups

a.   Female sex workers
b.   Men who have sex with men (MSM)
c.   Injecting drug users
d.   People who are TG (transgender)/eunuchs

2. Bridge populations

a.   Single male migrants
b.   Long-distance Truckers (LDTs)
c.   People attending STI or gynaecology clinics (currently discontinued)

3. General population

a. Pregnant women attending the ANC clinics in urban and rural areas, and the ANC clinic attendees were considered proxy for general population. STI patients were considered proxy for people with high-risk behaviour (high-risk and bridge populations and their partners).

1.1. Objectives and Application of HIV Sentinel Surveillance

The key objectives of HIV sentinel surveillance in India are to:

1. Monitor trends in HIV prevalence over time.
2. Monitor the distribution and spread of HIV in different subgroups and geographical areas.
3. Identify emerging pockets of HIV epidemic in the country.
4. Applications of HIV sentinel surveillance data.
5. Estimate and project burden of HIV at state and national levels.
6. Support programme prioritization and resource allocation.
7. Assist evaluation of programme impact.
8. Provide evidence to advocacy efforts.

1.2. Evolution of HIV Sentinel Surveillance in India

HIV surveillance in India began in 1985 when the Indian Council of Medical Research (ICMR) initiated a surveillance activity among blood donors and patients with STIs. After the National AIDS Control Organization (NACO) was established in 1992, sentinel surveillance for HIV in India was initiated in 1993-94 with 52 sentinel sites in selected cities. In 1998, NACO formalized annual sentinel surveillance for HIV infection in the country with 180 sentinel sites, of which 176 were valid.

The first major expansion of the surveillance network was in 2003. More than 200 rural antenatal care (ANC) sentinel sites were established at the community health centre (CHC) level in most of the districts in high-prevalence states as well as some districts in low-prevalence states in North India. However, half of these ANC rural sites, especially those in low prevalence states of North India, were discontinued in the next round because they could not achieve the required target sample size due to poor utilization rates. Another significant expansion in 2003 was the addition of 30 FSW sites. Overall, 354 districts had at least one HSS site in 2003. From 2003 and until 2005, the same sentinel sites continued with expansion to 83 FSW and 30 injecting drug user (IDU) sites.

The year 2006 could be considered the watershed year for HSS development in India. The goal was to have at least one sentinel site in every district of India and new sentinel sites were added for all risk groups in that year. Key developments in 2006 included:
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. Major expansion of STI and ANC urban sentinel sites in low-prevalence states of North India.
. Addition of rural ANC sites in high-prevalence states.
. Initiation of special ANC sites for 15-24-year-old pregnant women to monitor new infection.
. Expansion of sentinel sites among FSW, MSM and IDU.
. Initiation of sentinel sites among long-distance truckers (LDTs), single male migrants, and people who are transgender (TG).
. Introduction of composite sites in HSS that facilitated establishment of sentinel sites in places where it had been difficult to do so, such as rural areas and places with fewer HRGs.

In year 2006, the scale of surveillance operations increased from 703 sites in high prevalence states in 2005 to 1,122 sites to cover the entire country. The surveillance was also expanded from being only clinic-based to also include Targeted Intervention (TIs)

Five leading regional public health institutions in the country were involved to expand and strengthen the surveillance network and implementation activities and follow up programmes. These regional institutes (RI) provided technical support, guidance, monitoring, and supervision for implementing HSS. Two more RIs were created in 2008. Supervisory structures were further strengthened with constitution of central and state surveillance teams, comprised of public health experts, epidemiologists, and microbiologists from several medical colleges and research institutions.

During the subsequent three rounds of HSS (2007, 2008-09, and 2010-11), the focus was on expansion of surveillance among high-risk and bridge populations.

Key strategic HSS implementation improvements in these rounds included:

1. Technical validation of new sentinel sites by regional institutes before inclusion in surveillance and dropping poorly performing sites.
2. Introduced the dried blood spot (DBS) method of sample collection from high-risk groups (HRGs) to overcome logistic problems at HRG sites.
3. Introduced informed consent at high-risk group sites to address ethical concerns.
4. Initiated random sampling methods of recruitment at HRG sites, taking advantage of the availability of updated line lists of HRGs at the TI projects.
5. Standardized training protocols across states with uniform session plans and materials, and adoption of a two-tier training plan with training-of-trainers (TOT) followed by training of site personnel.
6. Developed a four-tier supervisory structure: national-level central team; regional institutes; state surveillance teams; and State AIDS Control Society (SACS) teams.
7. Strengthened focus on supportive supervision and action-oriented monitoring.
8. Increased focus on quality of planning, training, implementation, supervision and feedback.
9. Decreased number of testing laboratories for ANC and STD samples, limiting them to high-performing laboratories with enzyme-linked immunosorbent assay (ELISA) facilities to ensure high-quality testing and close supervision.
10. Developed a new web-based data management system to enhance data quality and ensure realtime monitoring of surveillance activities.
11. Initiated epidemiological investigation into unusual findings (sudden rise or decline in prevalence) to understand reasons and correct.
12. Conducted pre-surveillance sentinel site evaluation to assess preparedness of site for HSS and to obtain profile-related information.

Between 2008 and 2009, the annual frequency of HSS was shifted to biennial (once in two years). STI sites weregradually being discontinued in 2008-09 and 2010-11.The 13th round of HSS was implemented at 763 sentinelsites (750 ANC and 13 STI sites). Most of the STI sitesfrom the 12th round of HSS were phased out during HSS 2014-15. For high-risk and bridge populations, NationalIntegrated Biological and Behavioral Surveillance (IBBS)was conducted to strengthen surveillance among thesegroups so HSS 2014-15 did not include high-risk groups.Table 1 presents the scale up of sentinel sites inIndia since 1998.

Table : Scale up of No. of Sentinel Sites in Tamil Nadu, 2003 -2017									
Site Type	2003	2004	2005	2006	2007	2008-09	2010-11	2012-13	2014-15	2016-17
ANC	52	63	63	63	63	63	72	72	72	72
FSW	1	1	-	11	10	28	27	-	-	24
MSM	2	2	-	2	2	17	17	-	-	15
IDU	1	1	-	2	2	2	2	-	-	0
Truckers	-	-	-	-	-	-	2	-	-	2
Migrants	-	-	-	-	-	-	3	-	-	2
Transgender	-	-	-	-	-	-	2	-	-	1
STD	11	11	-	11	11	-	-	-	-	0
Tuberculosis				1						

CHAPTER 2

METHODOLOGY AND IMPLEMENTATION

This chapter describes HSS methodology and the implementation mechanisms adopted during HSS 2014-15.

2.1. Methodology of HIV Sentinel Surveillance at ANC Sentinel Sites

HIV sentinel surveillance is defined as a system of monitoring the HIV epidemic among the specified population groups by collecting information on HIV from designated sites (sentinel sites) over years, through a uniform and consistent methodology that allows comparison of findings across place and time, to guide programme response. A sentinel site is a designated service point/facility where blood specimens and relevant information are collected from a fixed number of eligible individuals from a specified population group over a fixed period of time, periodically, for the purpose of monitoring the HIV epidemic. Under HIV sentinel surveillance (HSS), recruitment of respondents is conducted for three months at selected ANC sentinel sites. Because of the low HIV prevalence in India, the classical survey method of sample size calculation that gives a large sample size cannot feasibly be collected through facility-based surveillance on an annual basis. Hence, a sample size of 400 for surveillance among ANC attendees was approved by a consensus of experts. Eligible respondents are enrolled until the sample size of 400 is reached or until the end of the surveillance period, whichever is earlier.

The eligibility criteria for recruiting respondents at an ANC sentinel sites were:

1. Age 15-49 years

2. Pregnant woman attending the antenatal clinic for the first time during the current round of surveillance period. **"Sampling method"** refers to the approach adopted at the sentinel sites for recruiting eligible individuals into HSS. Consecutive sampling method is adopted in HSS in India for ANC clinic attendees. After the start of surveillance, all individuals attending the ANC sentinel site facility who are eligible for inclusion are recruited in the order they attend the clinic. This sampling method removes all chances of selection or exclusion based on individual preferences or other reasons, and hence reduces the selection bias. It is convenient, feasible, and easy to follow.

"Testing strategy" refers to the approach adopted for collecting and testing blood specimens and handling the test results in HSS. In India, the unlinked anonymous testing strategy is used. Testing is conducted on a portion of blood specimen collected for routine diagnostic purposes (such as syphilis) after removing all personal identifiers. Neither the information collected in the data form nor the HIV test result from the blood specimen is ever linked to the individual from whom the information/ specimen is collected. Neither the personnel collecting the specimen nor the personnel testing the specimen are able to track the results back to the individual.

Hence, the personal identifiers such as name, address, outpatient registration number, etc. were not mentioned anywhere in the data form, blood specimen, or data form transportation or sample transportation sheets. Similarly, the HSS sample number or any mark indicating inclusion in HSS is not mentioned in the ANC register or patient/OPD card. The portion of the blood specimen with identifiers is used for reporting the results of the routine test for which it has been collected. The portion of the blood specimen without identifiers is sent for HIV testing under HSS.

"Testing protocol" refers to the number of HIV tests conducted on the blood specimen collected during HSS. A two-test protocol is adopted in HSS. The first test is of high sensitivity and second of high specificity and is confirmatory in nature. The second test is conducted only if the first is found to be positive. HIV testing under surveillance is for the purpose of ascertaining HIV levels and trends in a community and not for case diagnosis, which is why the two-test protocol is the global standard for surveillance.

The methodology of HSS at ANC sentinel sites is summarized in Table 1 below:

Table 2: Methodology of HIV Sentinel Surveillance at ANC Sentinel Sites	
Sentinel site	Antenatal clinic
Sample size	400
Duration	3 months
Frequency	Once in 2 years (biennial)
Sampling method	Consecutive sampling
Eligibility	Pregnant women ages 15-49 years attending ANC clinic for the first time during the current round
Testing strategy	Linked anonymous testing
Blood specimen	Serum collected through venous blood specimen
Testing protocol	Two-test

2.2. Information Collected under HSS at ANC Sentinel Sites

HSS provides information on two bio-markers- HIV and syphilis. All blood specimens collected under HSS are tested for these two infections. When recruiting an individual in HSS, information is collected on basic demographic parameters such as age, education, occupation, spouse's occupation, and order of pregnancy. Collected information is kept minimal and restricted to those who might be asked under routine clinic procedures. During the recent rounds, a few questions were added to identify potential biases in the sample (e.g., source of referral) or to further profile the respondents with respect to their vulnerability(migration status of spouse) so that HIV prevalence estimates can be better explained and interpreted. HSS 2016-17 collects information on the following nine key demographic variables from every respondent.

1. Age: The age of the respondent is recorded in number of completed years. Since age is a part of eligibility criteria, improper recording or non-recording of age makes a sample invalid. Information on age helps identify the age groups with high HIV prevalence. In the absence of data on HIV incidence, high prevalence among younger age groups is considered a proxy for recent infections.

2. Literacy status: The literacy status of an individual has a direct bearing on the awareness levels with respect to risks of acquiring HIV and means of protecting oneself. Knowing the literacy status of the pregnant woman, helps in understanding the differentials in HIV prevalence and informs demographics about the women who are accessing services at ANC clinics. This information may also be helpful to compare and standardize the demographic profiles of two independent samples under HSS, while investigating any unusual increase or decrease in trends. Under HSS 2014-15, the literacy status of respondents was classified into five categories as defined below.

(a). Illiterate: People with no formal or non-formaleducation. **(b). Literate and till 5th standard:** People with non-formaleducation or those who joined school but did not study beyond 5thstandard. **(c). 6thto 10thstandard:** Those who studied beyond5thstandard but not beyond 10th standard. **(d).11thto graduation:** Those who studied beyond10thstandard but not beyond graduation. Includes those with technical education/diplomas,. **(e). Post-graduation:** Those who studied beyond graduation.

3. Order of current pregnancy: The order of pregnancy denotes the number of times a woman has been pregnant. It includes the number of live births, still births, and abortions. It is also referred to as gravidity. Women who are pregnant for the first time are referred to as primi-gravida. In the context of HIV, order of pregnancy indicates the duration of exposure to sexual risks. Since primi-gravida are likely to be exposed to sexual risks only recently, HIV prevalence among them is considered a proxy for new HIV infections and helps in understanding the HIV incidence in that region. The order of pregnancy is recorded as first, second, third, fourth, or more.

4. Duration of pregnancy: Duration of pregnancy is usually measured in terms of three trimesters; each of them of about three month's duration. (a) First trimester: The first trimester of pregnancy is from conception to 12th week of pregnancy. (b) Second trimester: The second trimester of pregnancy is from 13th to 27th week of pregnancy. (3) Third trimester: The third trimester of pregnancy spans from week 28 to birth.

5. Prior receipt of antenatal care services during current pregnancy : This refers to any prior receipt of antenatal care services from a health care facility (PHC/CHC/District hospitals / Maternity hospitals/Private health care facilities/NGO Health care facilities) by the pregnant women during her current pregnancy.

6. Source of referral to the ANC clinic: Under HSS, ANC clinic attendees are asked who referred them to the clinic for antenatal check-up. This variable was added to the data collection form to understand the various sources of referral, especially to assess if there is any specific bias in the sample because of specific referrals of HIV-positive cases from any source. Published literature indicates that there is disproportionate referral of HIV-positive cases from private sector to government hospitals. Similarly, if there are higher numbers of referrals from ICTC/ ART centres in the sample, it may bias the HIV prevalence, as those respondents are likely to be people who have been exposed to HIV risk, to have HIV risk perception or w ho are known to be HIV-positive. This variable helps assess any such phenomenon. The response categories listed in the HSS data form include: *(a). Self-referral (b). Family/ relatives/ neighbours/ friends (c). NGO (d). Private hospital (doctors/ nurses) (e). Government hospital (including ANM/ ASHA) (f). ICTC/ ART centre.*

7. Current place of residence: HSS 2014-15 records the reported current residence of the respondent as 'Urban' or 'Rural'. If the current place of residence of the respondent i.e., the place she is living with her husband falls under Municipal Corporation, municipal council, or cantonment area, it is classified as 'urban'. Otherwise, it is recorded as 'rural'. Place of residence helps in studying the epidemic patterns in urban and rural areas separately and provides programmatic insight for implementing interventions. In the context of formerly high-prevalence states, urban rural differentials of HIV prevalence is important because HIV is known to have spread to rural areas, sometimes with higher prevalence in these states. In low-prevalence states with rising HIV trends, migration from rural areas to high prevalence destinations is likely to play a role. Therefore, studying rural epidemics is important to characterise the epidemic appropriately.

8. Current occupation of respondent: Certain occupations are associated with higher exposure and risk to HIV. It is important to understand the profile of respondents and differentials of HIV with respect to their occupation. For this purpose, HSS has categorized occupations into 13 categories ensuring that all the possible occupations are covered and the categories are relevant to the epidemiological analysis of HIV prevalence data. The occupation categories and their definitions were as follows: (a). Agricultural labourer (b). Non-agricultural labourer: includes workers at construction sites, quarries, stone crushers, road or canal works, brick-kilns. (c). Domestic servant (d). Skilled/semi-skilled worker: includes workers in small-scale or cottage industries; industrial/ factory workers; technicians such as electricians, masons, plumbers, carpenters, goldsmiths, iron-smiths, and those involved in automobile repair; artisans such as weavers, potters, painters, cobblers, shoe-makers, tailors. (e). Petty business/small shop: includes vendors selling vegetables, fruits, milk, and newspapers; pan shop operators. (f). Large business/self-employed: includes professionals and business people. (g). Service (govt/pvt): those working on salary basis in government, private, or institutional sector; excludes drivers and hotel staff. (h). Student (i). Truck drivers/helpers (j). Local transport workers (auto/ taxi drivers, handcart pullers, rickshaw pullers, etc.) (k). Hotel staff (l). Agricultural cultivators/ landholders (m). Housewife (in order to be consistent with the occupation codes for spouse of respondent, housewife is Code 14).

9. Current occupation of spouse: Occupation of spouse is an important epidemiological variable that may help identify population groups that are at higher risk of acquiring HIV. HSS used the same occupational categories as those used for the respondent. The two differences are that the category 'unemployed' (Code13) is used in the place of 'housewife' and there is an additional category: 'Not applicable (never married/widow/divorced/separated)' (Code 99).

10. Migration status of spouse: Analyses of drivers of the emerging epidemic in some low-prevalence states points to migration from these states to high-prevalence destinations (NACO Annual Report 2013-14, Chapter 2. Current Epidemiological Scenario of HIV/AIDS, pg.12). In order to assess the effects of migration status of spouse on HIV prevalence among ANC clinic attendees, respondents in HSS were asked whether spouse resides alone in another place/town away from wife for work for longer than 6 months. This question is not applicable to respondents who were never married/widowed/ divorced/separated.

11. HIV Testing History: This refers to the HIV testing history of pregnant women.

12. Time of last HIV Testing: This question aims to understand the timing of last HIV testing of respondents in reference to current pregnancy.

13. Result of last HIV test: This refers to the result of the last HIV test of the ANC respondent.

14. Management of HIV infections: This refers to the enrolment of HIV positive respondents in HIV care, either for pre-ART or ART services, at the time of surveillance.

15. ART Uptake: This refers to the current uptake of 'Antiretroviral therapy' by HIV positive respondents.

2.3. Implementation Structure of HIV Sentinel Surveillance in India

HIV sentinel surveillance has a robust structure for planning, implementation, and review at national, regional, and state levels. The structure and key functions of involved agencies are shown in Figure 1.

National level: The National AIDS Control Organisation (NACO) is the nodal agency for strategy formulation and commissioning for each round of HSS. The Technical Resource Group on Surveillance and Estimation, comprised of experts from the fields of epidemiology, demography, surveillance, biostatistics, and laboratory services, advises NACO on the broad strategy and
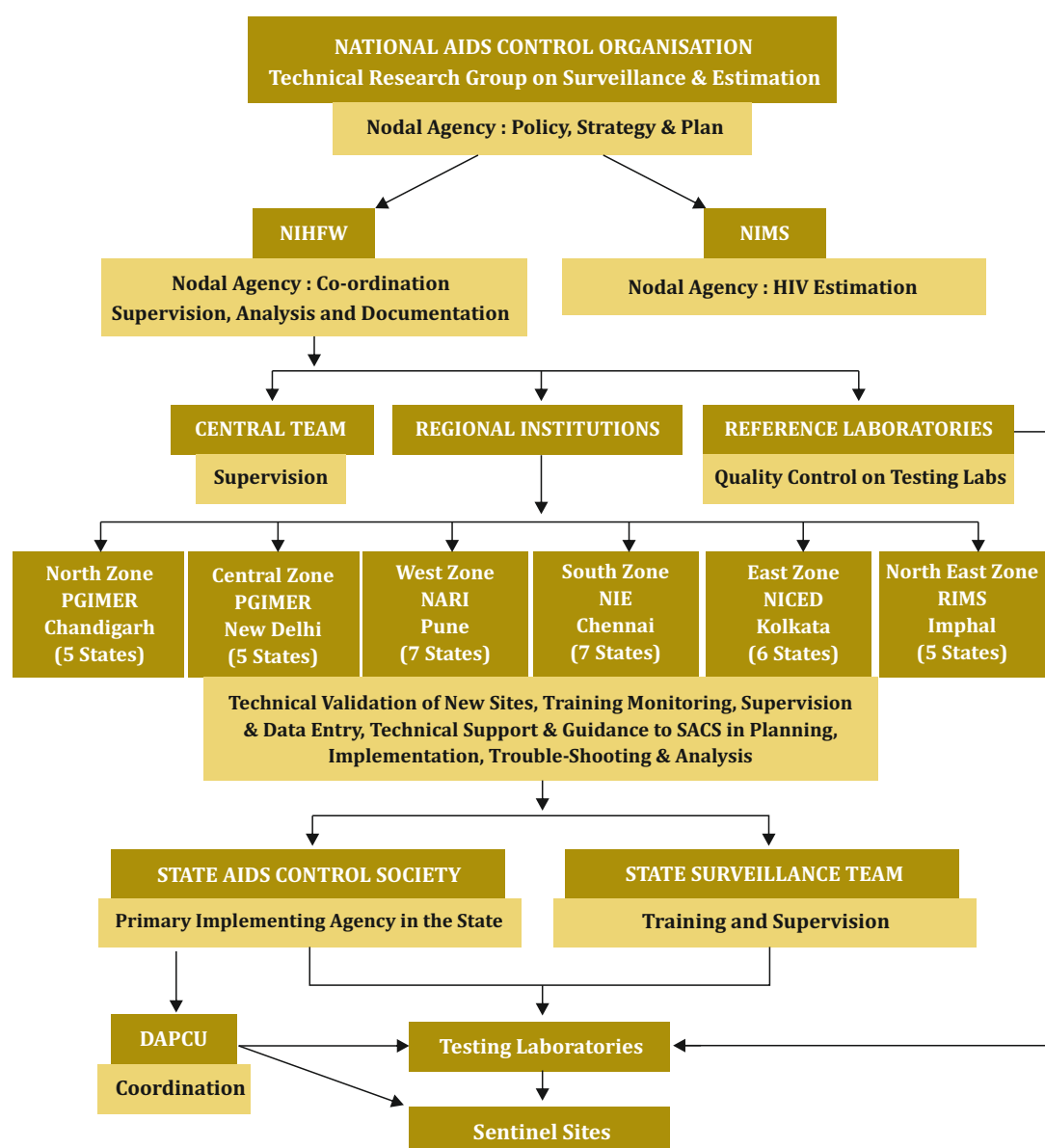
Figure 1: Implementing Structure of HIV Sentinel Surveillance in India

The main goal of implementing structure of HSS is for performing the assessment of the implementation plans of HSS and reviews the outcomes of each round. Two national institutes—National Institute of Health and Family Welfare (NIHFW) and ICMR- National Institute of Medical Statistics (ICMR- NIMS)—supports national level activity planning and coordination. In addition, the central team, which is coordinated by NIHFW, New Delhi and is comprised of experts from the Centres for Disease Control and Prevention (CDC), World Health Organisation (WHO),The Joint United Nations Programme on HIV and AIDS (UNAIDS), medical colleges, and other national and international agencies, provide support in training and supervision.

Regional level: Since 2006, NIE has been identified as regional institutes (RIs) for HSS to provide technical support to the State AIDS Control Societies (SACS) for all HSS activities in southern zone, starting with identification of new sites, training, monitoring and supervision, and improving quality of the data collection and their analysis. Data entry is another function performed by RIs. The team at each RI is comprised of two epidemiologists/public health experts and one micro-biologist, which are supported by one project coordinator, two research officers, one computer Assistant/data manager, and between four and ten data entry operators, depending on the volume of data entry. The names of the six regional institutes and the distribution of states among them are in Table3.

State level: SACS is the primary agency responsible for implementation of HSS and NACO has appointed state epidemiologists at the SACS to support the activities and promote data analysis. In addition to these, every state has a surveillance team comprised of public health experts and microbiologists who support SACS in thetraining, supervision, and monitoring of the personnel involved in sentinel surveillance. State surveillance teams (SSTs) are formed by RIs in consultation with SACS. All activities are coordinated by RIs.

District level: In districts with functional district AIDS Prevention and Control Units (DAPCUs), theDAPCU staffs are involved in the coordination of HSS activities at the sentinel sites and the associated testing labs. Laboratory network Laboratory support is provided by a network of testing and reference labs. There are 117 state reference laboratories (SRLs) that conduct primary testing of blood specimens collected under HSS. Thirteen national reference laboratories (NRLs) provide external quality assurance to the SRLs through repeat testing of all HIV-positive blood specimens and 5 % of HIV negative specimens.

Table 3: Regional Institutes for HIV Sentinel Surveillance and their State Allocation	
Name of regional institution	**Responsible states**
Central Zone: All India Institute of Medical Science, New Delhi	Uttar Pradesh, Bihar, Jharkhand, Uttaranchal, and Delhi.
North Zone: Post graduate Institute of Medical Education and Research, Chandigarh	Haryana, Himachal Pradesh, Jammu & Kashmir, Punjab,and Chandigarh.
West Zone: National AIDS Research Institute, Pune	Maharashtra, Gujarat, Goa, Madhya Pradesh, Rajasthan,Daman & Diu, and Dadra Nagar Haveli.
South Zone: National Institute of Epidemiology, ICMR,Chennai	Andhra Pradesh, Tamil Nadu, Karnataka, Kerala, Odisha, Puducherry, and Lakshadweep and Telangana.
East Zone: National Institute of Cholera and EntericDiseases, Kolkata	West Bengal, Chattisgarh, Sikkim, Andaman & Nicobar Islands, Meghalaya, and Nagaland.
Northeast Zone: Regional Institute of Medical Sciences,Imphal	Manipur, Mizoram, Tripura, Assam, and ArunachalPradesh.

2.4. Key Initiatives during HIV Sentinel Surveillance 2016-17:

In response to key issues identified in theimplementationof HSS during the previous rounds and to improve the quality and timeliness of the surveillance process in the 15thround, several new initiatives were implemented as part of continuous quality improvement.

SACS checklist for preparatory activities:

This was developed to monitor the planning process for HSS in each state (Annex 3). All the preparatory activities were broken into specific tasks with clear time lines and SACS were required to submit the completion status for each task. A team of officers from NACO coordinated with state nodal persons to ensure that preparatory activities in all states adhered to the time lines.

Pre-surveillance sentinel site evaluation (SSE):

A pre- surveillance evaluation of ANC and STD sentinel sites was conducted to identify and correct human resources and infrastructure-related issues at the sentinel sites before initiation of surveillance. The evaluation also provided site information such as type of facility, average OPD attendance, availability of HIV and AIDS services, and distance of facilities from HSS labs (Annex 4), which may have implications on adherence to methodology.

Standard operational manuals, wall charts, and bilingual data forms:

These were developed to simplify the HSS methodology for site-level personnel and to ensure uniform implementation of the guidelines in all the sentinel sites. These were printed centrally and distributed across the country.

Training during HSS 2016-17:

Steps to improve quality of training:

1. A well-structured training programme was adopted to ensure that all the personnel involved in HSS at different levels were adequately and uniformly trained in the respective areas of responsibility.
2. The training agenda, curriculum, and planning and reporting formats were standardized and used in all the states. Standard slide sets and training manuals for training of sentinel site personnel were developed centrally to ensure uniformity.
3. Trainings included group work and a "know yoursentinel site" exercise, which helped participants identify the routine practices that could affect the implementation of surveillance at their sites andrecommended actions to address the same.
4. Pre and post-test assessments were given to each participant at the site-level trainings. Analysis of these scores helped state teams to identify the priority site sfor supervisory visits.
5. Training reports for each batch were submitted in standard formats at the end of the each training.

Details of trainings :

1. Trainings started with two batches of national pre-surveillancemeetings with about 90 personnel from regional institutes and SACS to discuss the critical aspects of planning for HSS 2014-15 and to clearly under stand the system for supportive supervision through the online Strategic Information Management System(SIMS) application.

2. This was followed by 2-day regional TOTs organised by the RIs for SACS officers and state surveillance teams, comprised of public health experts and microbiologists, to create state-level master trainers and to plan for the site-level trainings.

3. Site-level trainings (2 days per batch @ 8-10sites per batch) were conducted in all the states. Representatives from the regional institutes and NACO observed the trainings to ensure that trainings were provided as per the protocol and that all the sessions were covered as per the session plan.

4. Separate trainings on surveillance testing protocols and lab reporting mechanisms through the SIMS application for HSS were organised form icro biologists and lab technicians from 117 ANC/STD testing labs and 13 NRLs.

5. Overall, 40 central team members; 30 officers from six RIs; 95 SACS officers including in-chargesurveillance, Epidemiologists, and M&E officers;280 state surveillance team members; 260laboratory personnel including microbiologists and lab technicians from the designated test inglabs; and more than 3,000 sentinel site personnel including medical officers, nurse/counsellors, and lab technicians were trained under HSS 2016-17.

Laboratory system: For HSS 2016-17, the laboratory system was strengthened by limiting the testing of specimens to designated SRLs. Real-time monitoring of the quality of blood specimens and laboratory processes was achieved through introduction of web based reporting through the SIMS application for HSS. Efforts were made to standardize quality assurance aspects of sample testing under HSS and to streamline responses in case of discordant test results between testing lab and reference lab through the SIMS application.

Supervisory mechanisms for HSS 2016-17: Supervision of all HSS activities was prioritized to ensure smooth implementation and high-quality data collection. Extensive mechanisms were developed to set up a comprehensive supervisory system for HSS and to ensure that 100 % of HSS sites were visited in the first 15 days of the start of sample collection. The principles adopted included action-orientedsupervision, real-time monitoring and feedback, accountability for providing feedback and taking action, and an integrated web-based system to enhance the reach and effectiveness of supervision.

SIMS modules for web-based supervision.

Specific modules were developed and made operational in the web-based SIMS for HSS to facilitate real-time monitoring of HSS 2016-17.

1. Field supervision was conducted by trained supervisors who visited the sentinel sites to monitor the quality of recruitment of respondents and other site-level procedures. Real-time reporting of field supervision used the SIMS supervisor module via the field supervisory quick feedback and action taken report sub-modules. The module was used extensively by all the supervisors and helped in quick identification and resolution of challenges in the field.

2. Data were supervised by data managers at RIsto monitor the quality of data collection and transportation using the SIMS module.

3. Laboratory supervision was conducted by SRLs and NRLs to monitor the quality of blood specimens, progress in laboratory processing, and external quality assurance, using the SIMS lab module.

Overall, 80 % of supervisors reported on the SIMS field supervisor quick feedback format, and 52 % of action taken report formats were submitted by HSS focal persons from SACS and RIs. Laboratory reporting through the lab module was completed by 87% of SRLs.

Integrated monitoring and supervision plan

1. An integrated supervision plan for each state was developed by RIs, SACS, and NIHFW to avoid duplication in monitoring coverage, there by facilitating maximum coverage of surveillance sites.

2. The first round of visits was conducted by RI, SACS, and SST members. Central team members (CTM) visited the top priority sites identified in feedback from the first round of visits. Subsequent visits were based on priority with a goal of making at least three visits to each identified site which require supervision.

SMS-based daily reporting from sentinel sites

This was piloted in last round and implemented in this round as an approach of daily reporting of the number of samples collected a teach sentinel site through a group SMS from a registered mobile number to a central server. The system automatically compiled and displayed site-wise data on an Excel format on a real-time basis. Access to this web-based application was given to SACS, RIs, and DAC and facilitated identification of sites with poor performance and enabled initiation of corrective action at sites that initiated HSS late; where sample collection was too slow or too fast; and where there were large gaps in sample collection.

CHAPTER 3

PROFILE OF RESPONDENTS

Data was collected from each respondent on key fourteen socio-demographic variables. Analysis of these variables is important because they help programme managers and policy makers understand the background characteristics of clinic attendees. Also they help in the identification of particular characteristics which make respondents more prone to acquiring HIV infection.

Table 4: Profile of Respondents at State Level, HSS 2016-17

Age (N -28400)	Tested	Percent
15-24	16618	58.5
25-34	11300	39.8
35-44	482	1.7
45-49	0	0.0
literacy Status (N-28394)		
Illiterate	699	2.5
Literate and till 5th standard	1652	5.8
6th to 10th standard	12045	42.4
11th to Graduation	12120	42.7
Post Graduation	1878	6.6
Order of current pregnancy (N-28381)		
First	12791	45.1
Second	11567	40.8
Third	3187	11.2
Fourth or more	836	2.9
Duration of current pregnancy (N -28378)		
First trimester	4564	16.1
Second trimester	9515	33.5
Third trimester	14299	50.4
Received ANC service during current pregnancy (N -28371)		
Yes	23891	84.2
NO	4480	15.8
Source of referral to the ANC clinic (N-28391)		
Self Referral	7392	26.0
Family/ Relatives/ Neighbors/ Friends	3431	12.1
NGO	37	0.1
Private (Doctor/ Nurses)	382	1.3
Govt (including, ASHA/ ANM)	17048	60.0
ICTC / ART Centre	101	0.4
Current place of residence (N-28357)		
Urban	9897	34.9
Rural	18460	65.1
Current occupation of the respondent (N-28398)		

Truck driver/Helper	1	0.0
Local transport Worker (auto/taxi driver, hand cart pullers, rickshaw pullers etc)	2	0.0
Large Business/Self employed	12	0.0
Hotel staff	17	0.1
Domestic Servant	27	0.1
Petty business / small shop	46	0.2
Agricultural cultivator/	90	0.3
Skilled / Semiskilled worker	193	0.7
Student	231	0.8
Agricultural Labourer	497	1.8
Non-Agricultural Labourer	501	1.8
Service (Govt./Pvt.)	839	3.0
Housewife	25942	91.4
Current occupation of the spouse (N-28390)		
Student	14	0.0
Not Applicable	29	0.1
Unemployed	57	0.2
Domestic Servant	119	0.4
Large Business/Self employed	537	1.9
Agricultural cultivator/	541	1.9
Hotel staff	799	2.8
Truck driver/Helper	951	3.3
Petty business / small shop	1542	5.4
Local transport worker (auto/taxi driver, hand cart pullers, rickshaw pullers etc)	2900	10.2
Agricultural Labourer	3012	10.6
Service (Govt./Pvt.)	5171	18.2
Non-Agricultural Labourer	5412	19.1
Skilled / Semiskilled worker	7306	25.7
Spouse migration (N-28396)*		
Yes	1524	5.4
No	26843	94.5
Not Applicable	29	0.1
Ever Been tested for HIV (N -28399)		
Yes	24226	85.3
No	4173	14.7

If ever tested HIV, When was the last tested (N-28367)		
Tested during current pregnancy	19081	67.3
Tested before current pregnancy	5113	18.0
NA (For never tested)	4173	14.7
Result of respondent's last HIV test result (N-28368)		
Positive	67	0.2
Negative	23957	84.5
Did not collect the last result	164	0.6
No response	8	0.0
NA (For never tested)	4172	14.7
If previous HIV test positive, taking ART medications (N-28395)		
Yes	65	0.2
No	2	0.0
NA (never tested or Not positive when last tested)	28328	99.8
HIV (N-28400)		
Negative	28323	99.73
Positive	77	0.27
Syphilis (N-28400)		
Negative	28376	99.9
Positive	24	0.1
* Spouse resides alone in another place/town from wife for work for longer than 6 months		

3.1. Age

Age in completed years is recorded for every respondent at the time of recruitment into HSS. The majority (58.5%) belonged to the age group of 15-24 years and a little more than a third (39.8%) were in the age group of 25-34 years. Only 1.7% of respondents belonged to the age group of 35-44 years and no one has registered in the 45-49 years age group.

Figure 2: Percentage (%) Distribution of respondents by age group
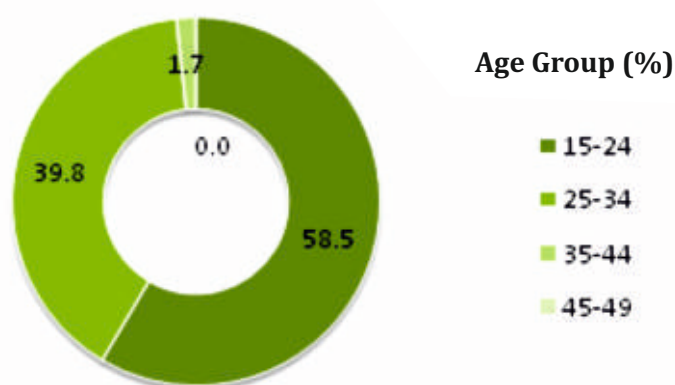
Table 5: Percentage (%) Distribution of respondents by age group and district, HSS 2016-17

Table 5: Percentage (%) Distribution of respondents by age group and district, HSS 2016-17					
District/Age Group	15-24	25-34	34-44	45-49	N
Tamil Nadu	58.5	39.8	1.7	0.0	28400
Ariyalur	60.9	38.0	1.1	0.0	800
Chennai	52.4	44.9	2.8	0.0	800
Coimbatore	62.6	35.4	1.9	0.0	1600
Cuddalore	46.3	52.8	1.0	0.0	800
Dharmapuri	75.7	23.2	1.2	0.0	1200
Dindigul	56.4	41.9	1.8	0.0	800
Erode	62.4	35.1	2.5	0.0	800
Kancheepuram	54.8	43.5	1.8	0.0	800
Kanniyakumari	38.0	57.8	4.3	0.0	1200
Karur	52.8	45.6	1.6	0.0	800
Krishnagiri	64.9	34.1	1.0	0.0	800
Madurai	63.5	35.3	1.3	0.0	800
Nagapattinam	57.4	41.4	1.3	0.0	800
Namakkal	65.6	33.1	1.3	0.0	800
Perambalur	60.6	38.0	1.4	0.0	800
Pudukkottai	50.0	48.9	1.1	0.0	800

Ramanathapuram	54.6	43.4	2.0	0.0	800
Salem	61.3	37.0	1.8	0.0	800
Sivaganga	51.5	46.5	2.0	0.0	800
Thanjavur	49.0	49.5	1.5	0.0	800
The Nilgiris	62.8	34.9	2.4	0.0	800
Theni	66.3	32.8	1.0	0.0	800
Thiruvallur	62.3	36.6	1.1	0.0	800
Thiruvarur	45.5	52.6	1.9	0.0	800
Thoothukudi	55.3	43.4	1.4	0.0	800
Tiruchirappalli	61.1	37.3	1.6	0.0	1600
Tirunelveli	66.9	31.2	1.9	0.0	1200
Tiruppur	68.4	30.4	1.3	0.0	800
Tiruvannamalai	58.5	39.6	1.9	0.0	800
Vellore	60.1	38.9	1.0	0.0	800
Viluppuram	54.4	43.6	2.0	0.0	800
Virudhunagar	61.4	37.3	1.4	0.0	800

3.2. Literacy Status

Under HSS 2016-17, respondent literacy status was classified into five categories:

1. Illiterate: people with no formal or non-formal education.
2. Literate and till 5th standard: people with non-formal education or those who joined school but had not studied beyond 5th standard.
3. 6th to 10thstandard: people who studied beyond 5th standard but not beyond 10th standard.
4. 11th to graduation: people who studied beyond 10th standard but not beyond graduation. Includes those with technical education/diplomas.
5. Post-graduation: people who studied beyond graduation.

More than 2% of respondents at the state level had no formal education. Around 5.8% of respondents studied up to fifth standard and the highest proportion of respondents (42.4%) were studied between sixth and tenth standards. Around 42.7% of the respondents reported to have studied beyond 10th standard and up to graduation, while another about 6.6% had studied beyond graduation.

Figure 3: Percent Distribution of respondents by educational status
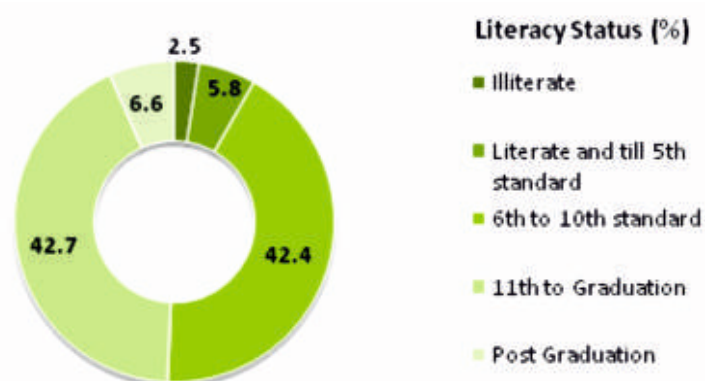
Table 6: Percent Distribution of respondents by education and districts in Tamil Nadu, HSS 2016-17

Districts	1. Illiterate	2. Literate and till 5th standard	3. 6th to 10th standard	4. 11th to Graduation	5. Post Graduation	N
Tamil Nadu	2.5	5.8	42.4	42.7	6.6	28394
Ariyalur	3.3	4.1	40.9	43.9	7.8	799
Chennai	1.6	5.5	44.3	38.6	10.0	800
Coimbatore	2.4	4.3	39.4	39.5	14.5	1600
Cuddalore	2.4	6.0	40.0	43.6	8.0	800
Dharmapuri	2.5	4.2	38.1	49.4	5.8	1200
Dindigul	2.6	7.5	43.9	42.1	3.9	800
Erode	5.1	8.1	44.1	39.4	3.3	800
Kancheepuram	1.0	4.5	44.6	42.7	7.3	799
Kanniyakumari	0.3	2.5	25.7	61.8	9.8	1200
Karur	0.5	9.8	43.4	39.8	6.6	800
Krishnagiri	4.8	4.8	46.2	37.5	6.8	799
Madurai	1.6	7.3	44.0	43.3	3.9	800
Nagapattinam	1.1	2.9	45.6	46.4	4.0	800
Namakkal	3.4	8.9	38.9	40.9	8.0	800
Perambalur	0.4	6.1	38.6	47.8	7.1	800
Pudukkottai	1.6	2.9	45.8	42.9	6.9	800
Ramanathapuram	0.8	8.4	39.3	44.9	6.8	800
Salem	8.6	4.6	43.9	38.4	4.4	799
Sivaganga	2.6	4.6	37.1	49.4	6.3	800
Thanjavur	0.9	5.1	46.4	41.0	6.6	800
The Nilgiris	1.3	4.3	35.8	55.0	3.8	800
Theni	1.3	4.1	41.1	47.5	6.0	800
Thiruvallur	2.5	5.3	43.4	44.4	4.5	800
Thiruvarur	0.5	3.3	47.8	41.8	6.8	800
Thoothukudi	0.9	8.5	45.5	41.4	3.8	800
Tiruchirappalli	4.3	5.9	39.5	42.0	8.4	1600
Tirunelveli	1.3	4.4	51.8	39.9	2.7	1200
Tiruppur	2.0	7.8	52.5	28.1	9.6	800
Tiruvannamalai	3.1	5.3	49.6	37.1	4.9	800
Vellore	3.8	8.6	49.2	30.3	8.0	798
Viluppuram	7.4	11.3	42.5	35.3	3.6	800
Virudhunagar	3.3	10.4	40.8	42.4	3.3	800

3.3. Order of Pregnancy

The order of pregnancy denotes the number of times a woman has become pregnant. It includes the number of live births, still births and abortions. It is also referred to as 'gravida'. As noted earlier in the context of HIV, order of pregnancy indicates the duration of exposure to sexual risks, so HIV prevalence among primi-gravida is considered as a proxy for new HIV infections and is an indicator of state HIV incidence.

At the state level, around 45.1% of the respondents reported being pregnant for the first time, while close to 40.8% of the respondents was pregnant for the second time and 11.2% of respondents reported that it was their third pregnancy. Only 2.9% of respondents were pregnant for the fourth or more time.

Figure 4: Percent Distribution of respondents by order of pregnancy in Tamil Nadu, HSS 2016-17
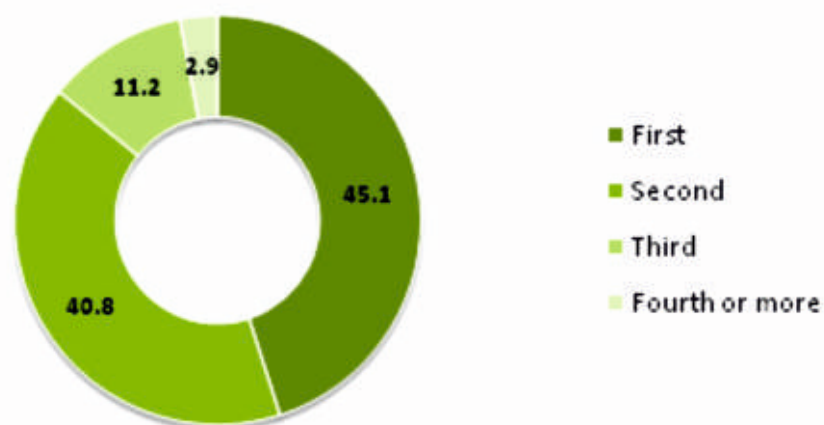
Table 7: District-wise % Distribution of respondents by Order of Pregnancy in Tamil Nadu, HSS 2016-17

Districts	1. First	2. Second	3. Third	4. Fourth or more	Grand Total
Tamil Nadu	45.07	40.76	11.23	2.95	28381
Ariyalur	46.4	37.7	13.3	2.6	798
Chennai	46.4	35.9	13.5	4.1	799
Coimbatore	49.0	38.5	9.8	2.8	1599
Cuddalore	38.6	42.9	15.4	3.1	800
Dharmapuri	45.8	40.2	11.1	2.9	1200
Dindigul	42.6	45.6	9.9	1.9	800
Erode	44.4	43.8	9.9	1.9	799
Kancheepuram	46.8	38.5	11.6	3.1	800
Kanniyakumari	45.2	43.4	9.0	2.4	1200
Karur	33.6	47.6	14.3	4.5	800
Krishnagiri	46.4	38.1	13.3	2.3	800
Madurai	48.1	39.4	10.3	2.3	800
Nagapattinam	48.8	39.3	10.4	1.5	799
Namakkal	42.5	38.6	15.0	3.9	800
Perambalur	38.4	42.5	14.9	4.3	800
Pudukkottai	56.3	36.0	6.4	1.4	800
Ramanathapuram	51.1	41.0	6.8	1.1	800
Salem	42.9	44.5	10.0	2.6	798
Sivaganga	46.0	40.3	10.8	3.0	800
Thanjavur	47.6	38.3	11.5	2.6	800

The Nilgiris	45.5	45.9	7.2	1.4	797
Theni	43.8	40.3	11.9	4.1	800
Thiruvallur	39.9	47.4	9.6	3.1	800
Thiruvarur	46.1	40.9	11.0	2.0	800
Thoothukudi	44.3	42.4	11.8	1.6	800
Tiruchirappalli	46.3	40.6	10.1	3.1	1600
Tirunelveli	54.8	36.8	7.0	1.4	1200
Tiruppur	45.6	38.3	12.1	4.0	800
Tiruvannamalai	41.5	40.5	14.0	4.0	800
Vellore	37.8	40.3	16.6	5.4	797
Viluppuram	32.0	41.1	19.2	7.8	798
Virudhunagar	47.6	41.3	7.9	3.3	797

3.4. Duration of current Pregnancy

Duration of pregnancy is usually measured in terms of three trimesters; each of them of about three month's duration.

i.   First trimester: The first trimester of pregnancy is from conception to 12th week of pregnancy.

ii.   Second trimester: The second trimester of pregnancy is from 13th to 27th week of pregnancy.

iii.   Third trimester: The third trimester of pregnancy spans from week 28 to birth.

At the state level, the majority of respondents (50.4%) belonged to the third trimester. Around 33.5% of respondents belonged to the second trimester, while another about 16.1% respondents were belonged to the first trimester.

Figure 5: Percent Distribution of respondents by duration of current pregnancy in Tamil Nadu, HSS 2016-17
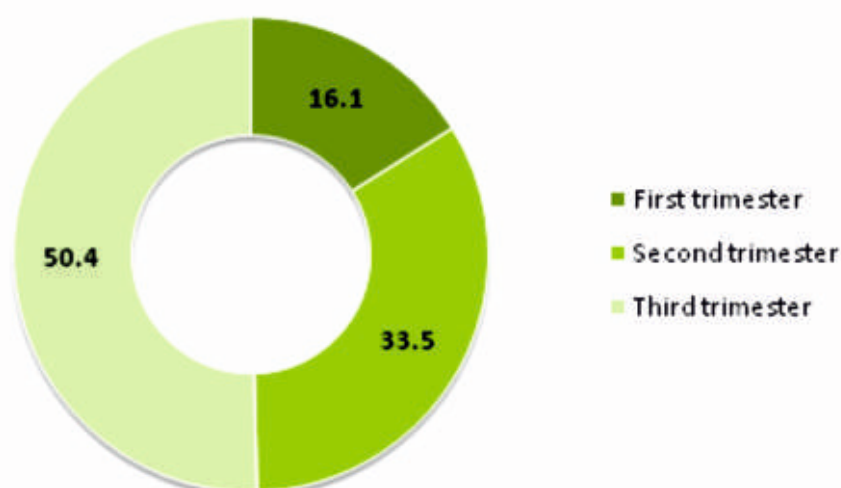
Table 8: District-wise % Distribution of respondents by Duration of pregnancy in Tamil Nadu, HSS 2016-17

State/District	1. First trimester	2. Second trimester	3. Third trimester	Grand Total
Tamil Nadu	16.08	33.53	50.39	28378
Ariyalur	16.6	39.4	44.0	800
Chennai	22.1	23.9	54.0	800
Coimbatore	21.2	34.7	44.1	1598
Cuddalore	19.6	46.9	33.5	800
Dharmapuri	7.7	37.5	54.8	1200
Dindigul	9.9	28.1	62.0	798
Erode	16.6	28.4	54.9	799
Kancheepuram	28.2	37.2	34.7	799
Kanniyakumari	21.8	28.4	49.8	1200
Karur	13.5	26.9	59.6	800
Krishnagiri	13.9	35.4	50.7	799
Madurai	13.6	29.6	56.8	800
Nagapattinam	13.5	33.6	52.9	800
Namakkal	10.0	30.5	59.5	800
Perambalur	22.3	40.3	37.5	800
Pudukkottai	9.9	43.5	46.6	800
Ramanathapuram	14.5	35.9	49.6	800
Salem	10.1	34.3	55.6	799
Sivaganga	10.3	30.8	59.0	800
Thanjavur	4.5	33.0	62.5	800
The Nilgiris	22.3	56.3	21.4	798
Theni	15.3	30.3	54.5	800
Thiruvallur	20.5	20.1	59.4	800
Thiruvarur	17.8	36.2	46.1	799
Thoothukudi	20.3	37.3	42.4	799
Tiruchirappalli	18.3	27.4	54.3	1597
Tirunelveli	8.1	29.8	62.1	1200
Tiruppur	21.4	29.3	49.4	800
Tiruvannamalai	21.6	35.5	42.9	800
Vellore	15.6	46.3	38.0	794
Viluppuram	13.9	21.3	64.8	799
Virudhunagar	17.9	32.6	49.5	800

3.5. Prior receipt of antenatal care services during current pregnancy

This refers to any prior receipt of antenatal care services from a health care facility (PHC/CHC/District hospitals / Maternity hospitals/Private health care facilities/NGO Health care facilities) by the pregnant women during her current pregnancy.

At the state level, about 84.2% of respondents were received ANC services during current pregnancy whereas 15.8% of respondents were not received antenatal care services.

Figure 6: Percent Distribution of respondents by ANC service uptake in Tamil Nadu, HSS 2016-17
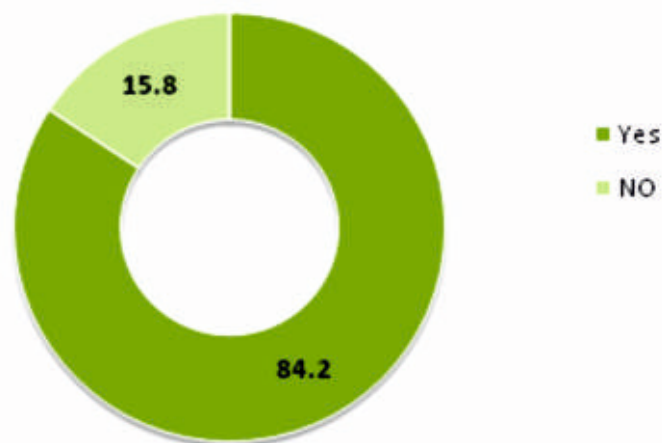
Table 9: District-wise % Distribution of respondents by Prior receipt of antenatal care services during current pregnancy in Tamil Nadu, HSS 2016-17

District	Yes	No	N
Tamil Nadu	84.2	15.8	28371
Ariyalur	78.4	21.6	800
Chennai	80.4	19.6	800
Coimbatore	73.9	26.1	1598
Cuddalore	78.1	21.9	800
Dharmapuri	96.6	3.4	1200
Dindigul	89.5	10.5	799
Erode	88.1	11.9	800
Kancheepuram	78.8	21.3	800
Kanniyakumari	42.3	57.7	1200
Karur	96.4	3.6	800
Krishnagiri	91.7	8.3	798
Madurai	98.0	2.0	798
Nagapattinam	78.1	21.9	799
Namakkal	93.5	6.5	799
Perambalur	83.4	16.6	800
Pudukkottai	95.5	4.5	797
Ramanathapuram	83.7	16.3	799
Salem	86.9	13.1	799
Sivaganga	92.8	7.3	800
Thanjavur	93.6	6.4	799
The Nilgiris	91.6	8.4	800
Theni	93.6	6.4	799

Thiruvallur		86.9	13.1	799
Thiruvarur		89.0	11.0	799
Thoothukudi		94.7	5.3	799
Tiruchirappalli		82.7	17.3	1599
Tirunelveli		99.1	0.9	1200
Tiruppur		78.7	21.3	799
Tiruvannamalai		55.9	44.1	799
Vellore		77.4	22.6	798
Viluppuram		98.1	1.9	797
Virudhunagar		66.5	33.5	798

3.6 Source of Referral to the ANC Clinic

This variable illuminates the various sources of referral, and helps identify if a specific bias is being introduced in the sample due to specific referrals of HIV-positive cases from any source. The response categories listed in the HSS data form include self-referral; family/relative/ neighbour/friend; NGO; private hospital (doctor/nurse); government hospital (including ANM/ASHA); and ICTC/ ART centre. Government health care providers include ANM, ASHA, doctors/nurses at PHC, and CHC.

Government hospital/ANM/ASHA was identified as the major source of referral to ANC clinics, accounting for 60% of respondents, followed by self-referral (26%), and family/relatives/neighbor/friends (12.1%). Only close to 1.3% had been referred by private service providers at the state level. NGOs and ICTC/ART centres accounted for 0.5%off referrals totally.

Figure 7: Percent Distribution of respondents by source of referral in Tamil Nadu, HSS 2016-17
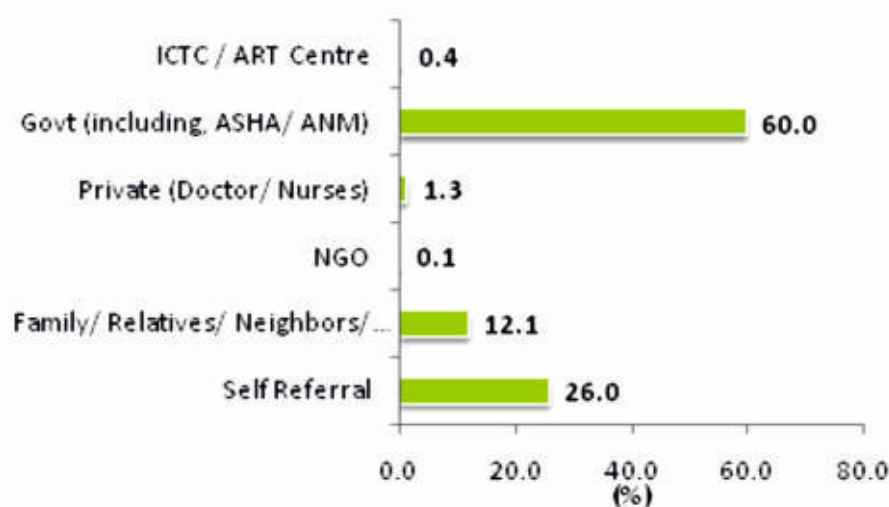
Table 10: District-wise % Distribution of respondents by source of referral and district in Tamil Nadu, HSS 2016-17

State/District	1. Self Referral	2. Family/ Relatives/ Neighbors/ Friends	3. NGO	4. Private (Doctor/ Nurses)	5. Govt (including, ASHA/ ANM)	6. ICTC / ART Centre	Grand Total
Tamil Nadu	26.04	12.08	0.13	1.35	60.05	0.36	28391
Ariyalur	6.0	0.0	0.0	0.0	93.6	0.4	800
Chennai	35.3	10.5	0.0	5.4	48.8	0.1	800
Coimbatore	20.9	19.8	0.1	1.5	57.4	0.4	1599
Cuddalore	16.8	21.6	0.0	10.5	51.1	0.0	800
Dharmapuri	8.5	24.3	0.1	0.0	67.1	0.0	1200
Dindigul	31.9	0.0	0.0	0.1	67.9	0.1	800
Erode	22.1	2.5	0.0	1.5	73.9	0.0	800
Kancheepuram	10.9	11.6	0.0	9.4	68.1	0.0	800
Kanniyakumari	54.8	35.1	0.0	0.3	9.8	0.0	1200
Karur	23.5	0.0	0.0	0.1	76.4	0.0	800
Krishnagiri	6.9	2.4	0.0	0.4	90.4	0.0	800
Madurai	26.4	44.6	0.0	0.3	28.6	0.1	800
Nagapattinam	54.8	4.1	0.0	0.0	41.1	0.0	800
Namakkal	29.6	3.1	0.3	0.6	66.3	0.1	800
Perambalur	0.6	0.0	0.0	0.0	99.4	0.0	800
Pudukkottai	22.1	60.9	0.8	0.1	16.1	0.0	800
Ramanathapuram	22.8	31.9	0.1	0.4	44.9	0.0	800
Salem	36.1	0.1	0.0	0.6	63.1	0.0	800
Sivaganga	22.0	24.0	0.1	0.3	53.6	0.0	800
Thanjavur	41.5	12.3	0.0	1.0	45.3	0.0	800
The Nilgiris	85.4	4.3	0.1	3.1	7.0	0.0	797
Theni	16.9	1.1	0.0	1.5	80.5	0.0	800
Thiruvallur	33.9	3.3	0.5	0.0	62.3	0.0	799
Thiruvarur	10.8	0.0	0.6	3.0	85.6	0.0	800
Thoothukudi	41.1	24.1	0.0	0.1	34.6	0.0	800
Tiruchirappalli	45.4	14.1	0.3	0.6	39.4	0.3	1600
Tirunelveli	13.4	2.9	0.3	0.2	83.2	0.1	1200
Tiruppur	20.3	0.9	0.0	0.6	78.2	0.0	799
Tiruvannamalai	14.6	0.4	0.1	1.8	73.4	9.8	800
Vellore	4.0	0.0	0.9	0.5	94.2	0.4	797
Viluppuram	0.3	0.3	0.0	1.0	98.3	0.3	800
Virudhunagar	40.3	3.8	0.0	0.6	55.4	0.0	800
Grand Total	**7392**	**3431**	**37**	**382**	**17048**	**101**	**28391**

3.7. Current Place of Residence

2016-17 records the reported current residence of the respondent as urban or rural. If the current place of residence of the respondent was Municipal Corporation, municipal council, or cantonment area, it was classified as urban. Otherwise, it was recorded as rural.

At the state level, 65.1% of the respondents are reported to be currently residing in rural areas and the rest (34.9%) are reported to be currently residing in urban areas. However, there were inter-district variations.

Figure 8: Percent Distribution of respondents by current place of residence in Tamil Nadu, HIV Sentinel Surveillance 2016-17.
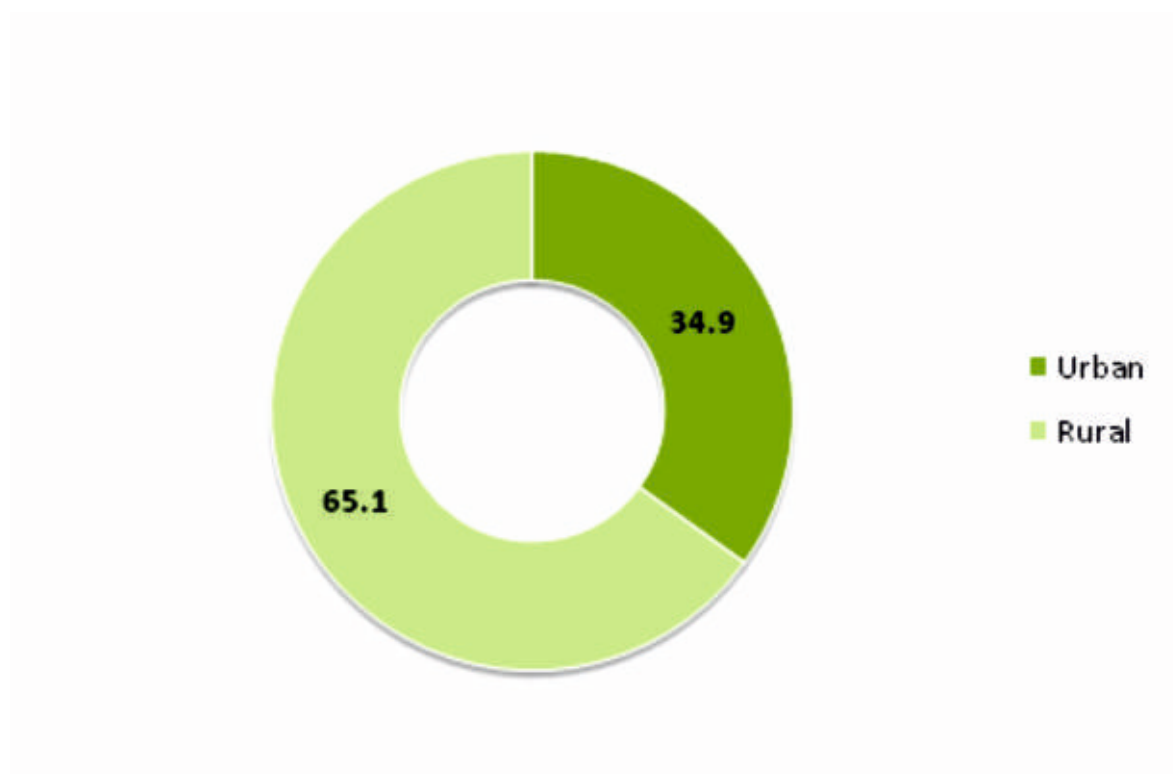
Table 11: District-wise % Distribution of respondents by Current Place of residence and district in Tamil Nadu, HSS 2016-17

State/District	Urban (%)	Rural (%)	Total (N)
Tamil Nadu	34.9	65.1	28357
Ariyalur	10.6	89.4	795
Chennai	73.50	26.5	800
Coimbatore	47.15	52.8	1599
Cuddalore	47.13	52.9	800
Dharmapuri	12.50	87.5	1200
Dindigul	36.05	64.0	799
Erode	22.78	77.2	799
Kancheepuram	44.67	55.3	797
Kanniyakumari	31.00	69.0	1200
Karur	29.38	70.6	800
Krishnagiri	49.50	50.5	800
Madurai	41.53	58.5	797
Nagapattinam	23.00	77.0	800
Namakkal	35.71	64.3	798
Perambalur	3.26	96.7	797
Pudukkottai	11.50	88.5	800
Ramanathapuram	36.50	63.5	800
Salem	42.01	58.0	795
Sivaganga	14.77	85.2	799
Thanjavur	26.28	73.7	799
The Nilgiris	99.00	1.0	798
Theni	49.25	50.8	800
Thiruvallur	28.57	71.4	798
Thiruvarur	8.13	91.9	800
Thoothukudi	52.00	48.0	800
Tiruchirappalli	34.83	65.2	1599
Tirunelveli	27.33	72.7	1200
Tiruppur	58.75	41.3	800
Tiruvannamalai	24.59	75.4	797
Vellore	44.53	55.5	795
Viluppuram	12.52	87.5	799
Virudhunagar	43.29	56.7	797

3.8. Current Occupation of the Respondent

Certain occupations are associated with higher exposure and risk to HIV. It is important to understand the profile of respondents with respect to their occupation. For this purpose, HSS has categorized 13 occupations, as detailed in an earlier chapter.

At the state level, the majority of the respondents (91.4%) were housewives, and 3.0% of respondents reported to be Service (Govt./Pvt.) and agricultural labourerand non-agricultural labourerwere accounted for 1.8% of respondents respectively.

Figure 9: District-wise % Distribution of respondents by Occupation in Tamil Nadu, HSS 2016-17

State/District	1. Agricultural Labourer	2. Non Agricultural Labourer	3. Domestic Servant	4. Skilled / Semiskilled worker	5. Petty business / small shop	6. Large Business/Self employed	7. Service (Govt./Pvt.)	8. Student	9. Hotel staff	10. Truck driver/Helper	11. Local transport Worker	12. Agricultural cultivator /	14. Housewife
Tamil Nadu	1.75	1.76	0.10	0.68	0.16	0.04	2.95	0.81	0.06	0.00	0.01	0.32	91.35
Ariyalur	6.3	0.4	0	0.1	0.3	0	1.6	0.5	0	0	0	2.5	88.4
Chennai	0.1	0.5	0.3	0.1	0.6	0.4	4.5	0.8	0.1	0	0	0.3	92.4
Coimbatore	0.4	0.6	0.1	1.1	0.3	0.1	7.8	0.4	0	0	0	0	89.3
Cuddalore	0.3	0.1	0.1	0.3	0.3	0	3.8	1.3	0	0	0	0.1	93.9
Dharmapuri	2.3	0.1	0	0	0	0	0.8	0.5	0.1	0	0	0.1	96.2
Dindigul	0.9	1.3	0	0.4	0.1	0	1	0.5	0	0	0	0	95.9
Erode	0.4	1.3	0.1	0.1	0.1	0	0.8	0.6	0.1	0	0	0	96.5
Kancheepuram	0.4	0.3	0.5	0.4	0	0	4.8	0.8	0.1	0	0	0	92.9
Kanniyakumari	0	0	0	0.2	0	0	5.8	0.8	0	0	0	0	93.3
Karur	0.1	1.9	0.1	1.1	0.3	0	2.3	1.1	0.1	0	0	0.1	92.9
Krishnagiri	0.3	1.4	0	0.1	0	0	1.1	2	0	0	0	0	95.1
Madurai	0.4	2.9	0.1	0.6	0.3	0.1	3	1.1	0	0	0	0	91.5
Nagapattinam	0.1	0.1	0	0.1	0.3	0	1.4	0.5	0	0	0	0.1	97.4
Namakkal	0.6	3	0	1.5	0.3	0	1.5	1.5	0	0	0	0	91.6
Perambalur	7.1	2.9	0	0.4	0.3	0	3.4	1.9	0.1	0	0	3.6	80.4
Pudukkottai	6.8	3.4	0	0.4	0.1	0.1	4.3	0.6	0.1	0	0	0.1	84.1
Ramanathapuram	0	6.6	0	0	0	0	2	0.5	0	0	0	0.1	90.8
Salem	0.6	0.5	0	0	0	0	2	1.3	0	0	0	0.1	95.5
Sivaganga	0.4	0.1	0	0	0.1	0.1	2.4	0.3	0.1	0	0	0.6	95.9
Thanjavur	0.6	0	0	0	0	0	2.3	0.5	0	0	0	0.3	96.4
The Nilgiris	1	0	0	0.1	0	0	0.3	0	0	0	0.1	0	98.5
Theni	1	0.1	0	0.1	0.1	0	1.9	2.1	0.3	0	0	0	94.4
Thiruvallur	0.1	1.3	0	0.3	0.3	0	2.4	0.8	0	0	0	0	95
Thiruvarur	0.1	0	0	0	0	0	1.5	0.4	0	0	0	0	98
Thoothukudi	1.1	5.3	0	1.1	0	0	3.4	1.4	0.1	0	0	0	87.6
Tiruchirappalli	10.4	7.6	0.7	1	0.6	0.1	8.5	1.6	0.3	0	0.1	0.3	68.9
Tirunelveli	1.2	4.5	0	0.6	0.2	0	1.8	0.5	0	0	0	0.1	91.3
Tiruppur	0	0.8	0	4.8	0	0.1	0.5	0.4	0.1	0.1	0	0.1	93.1
Tiruvannamalai	2.4	2.9	0.1	0.1	0.3	0	1.4	0.1	0	0	0	0.4	92.4
Vellore	1.3	0.8	0.1	0.9	0	0	1.8	0.1	0.1	0	0	0.6	94.4
Viluppuram	1.5	0.6	0.1	0.1	0.3	0	2.3	0.5	0	0	0	1	93.6
Virudhunagar	1.5	1.1	0.1	5.6	0	0.4	2.8	0.9	0	0	0	0.3	87.4

3.9. Current Occupation of Spouse

The respondents were also asked about the current occupation of their spouses. Occupation of spouse is an important epidemiological variable that may help identify population groups at higher risk of acquiring HIV. HSS used the same occupational categories as those used for the respondent. The two differences were that the category 'unemployed' (Code 13) is used in the place of 'housewife' and there is an additional category 'not applicable' (for never married/widowed/divorced/ separated)' (Code 99).

Figure 10: % Distribution of respondents by the Occupation of spouse in Tamil Nadu, HSS 2016-17
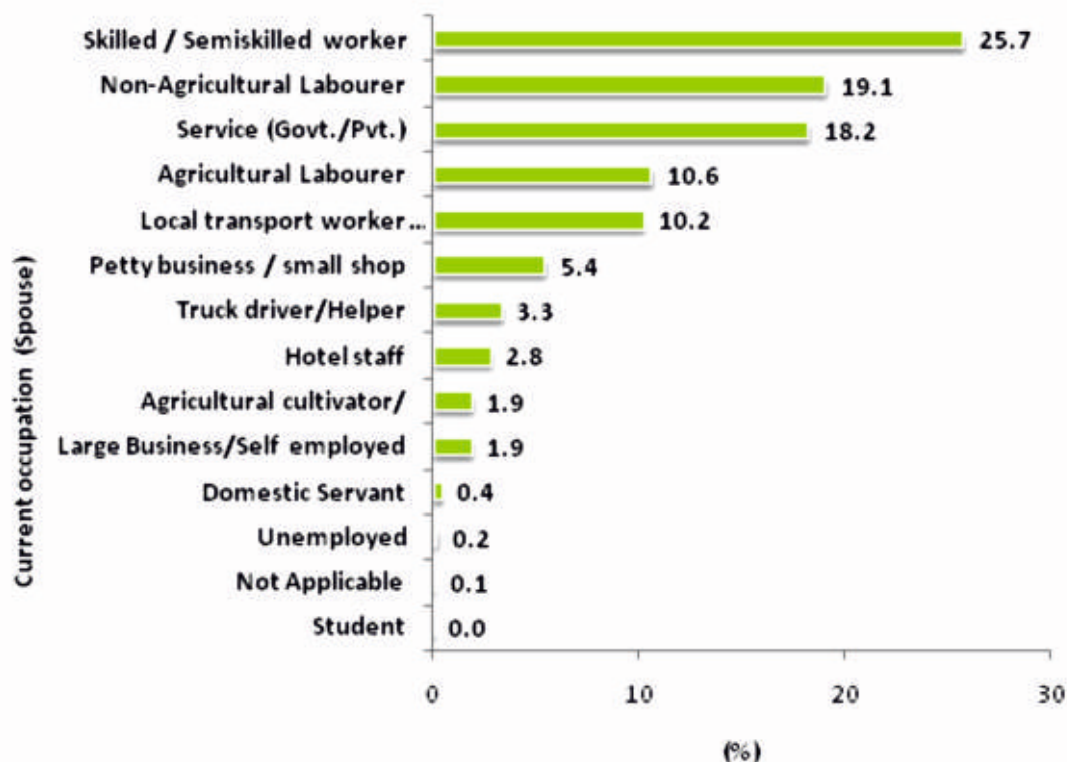
Table 13: District-wise % Distribution of respondents by the Occupation of spouse in Tamil Nadu, HSS 2016-17

State/District	Agricultural Labourer	NonAgricultural Labourer	Domestic Servant	Skilled / Semiskilled worker	Petty business / small shop	Large Business/Self employed	Service (Govt./Pvt.)	Student	Hotel staff	Truck driver/Helper	Local transport Worker	Agricultural cultivator	Unemployed	Not Applicable	N
	%	%	%	%	%	%	%	%	%	%	%	%	%	99	
Tamil Nadu	10.6	19.1	0.4	25.7	5.4	1.9	18.2	0.0	2.8	3.3	10.2	1.9	0.2	0.1	28390
Ariyalur	24.1	21.4	0.0	13.4	2.1	1.5	16.0	0.0	3.8	1.8	9.4	6.3	0.4	0.0	800
Chennai	2.0	16.3	0.3	20.1	10.4	1.9	29.6	0.0	2.1	3.9	13.3	0.3	0.0	0.0	800
Coimbatore	6.1	12.4	0.1	25.3	5.0	7.1	29.8	0.1	1.7	0.9	11.0	0.3	0.1	0.2	1600
Cuddalore	8.5	31.0	0.0	24.8	6.4	0.9	14.6	0.0	1.4	3.6	7.6	1.1	0.1	0.0	800
Dharmapuri	14.2	23.1	0.7	22.2	8.0	1.6	15.8	0.2	0.6	5.6	6.7	1.3	0.3	0.0	1199
Dindigul	7.8	32.8	0.0	16.3	7.8	2.6	13.5	0.0	2.3	0.5	15.0	1.0	0.4	0.0	798
Erode	7.8	30.4	0.1	36.9	2.8	0.9	7.0	0.0	1.0	1.3	11.9	0.0	0.0	0.1	800
Kancheepuram	10.1	7.4	8.5	26.3	6.5	1.5	25.1	0.0	1.4	4.6	7.4	0.3	0.1	0.9	800
Kanniyakumari	2.9	4.3	0.3	51.5	3.1	2.5	25.8	0.0	1.1	0.8	7.6	0.1	0.0	0.0	1200
Karur	2.3	27.6	0.0	32.0	3.8	4.0	15.9	0.0	1.5	5.3	6.1	1.6	0.0	0.0	800
Krishnagiri	2.6	19.5	0.0	22.5	6.4	1.0	25.0	0.0	2.9	2.9	13.4	3.5	0.3	0.0	799

District														
Madurai	22.1	22.4	0.0	21.1	5.6	1.1	12.1	0.0	2.6	0.5	12.1	0.0	0.1	0.1	800
Nagapattinam	13.8	4.1	0.0	43.9	5.0	0.4	13.4	0.1	4.5	2.6	11.5	0.8	0.0	0.0	800
Namakkal	5.5	22.3	2.1	26.5	5.9	0.9	12.3	0.0	1.0	11.3	11.3	0.5	0.5	0.1	800
Perambalur	10.4	17.0	0.0	17.1	2.6	0.3	16.9	0.1	5.6	2.3	10.6	17.1	0.0	0.0	800
Pudukkottai	16.8	8.9	0.0	36.5	4.0	1.8	8.4	0.1	5.8	1.9	9.0	7.0	0.0	0.0	800
Ramanathapuram	4.5	18.6	0.0	33.4	4.0	2.4	23.4	0.0	3.1	0.5	10.0	0.1	0.0	0.0	800
Salem	5.3	45.1	0.0	12.0	3.8	0.8	15.3	0.1	0.8	12.4	3.1	1.3	0.0	0.3	800
Sivaganga	2.6	31.4	0.1	18.0	5.0	1.0	14.5	0.0	8.0	2.6	10.3	5.8	0.6	0.0	799
Thanjavur	16.1	19.1	0.0	31.3	4.0	2.3	7.6	0.0	3.5	1.9	11.0	2.8	0.4	0.1	800
The Nilgiris	24.6	13.3	0.0	17.5	4.9	0.6	21.0	0.0	6.4	0.3	11.3	0.1	0.1	0.0	800
Theni	16.4	16.5	0.0	18.1	6.0	3.5	20.0	0.1	3.5	1.8	12.4	1.5	0.1	0.1	800
Thiruvallur	3.5	23.4	0.0	10.8	6.1	0.5	40.1	0.4	0.6	1.1	11.1	1.9	0.4	0.1	800
Thiruvarur	23.1	5.6	0.0	28.6	3.8	0.0	18.3	0.0	2.3	2.4	14.1	1.9	0.0	0.0	800
Thoothukudi	3.1	28.6	0.0	25.6	5.8	2.4	13.4	0.1	2.9	4.8	12.4	0.1	0.6	0.3	800
Tiruchirappalli	10.3	14.0	0.4	20.8	6.6	2.8	26.1	0.1	3.8	3.6	10.2	0.9	0.3	0.3	1600
Tirunelveli	10.8	32.3	0.3	10.9	8.4	0.7	17.7	0.1	2.5	9.7	6.6	0.1	0.1	0.0	1200
Tiruppur	7.4	14.0	0.0	54.0	3.9	1.6	5.8	0.0	1.6	1.5	9.9	0.1	0.0	0.3	800
Tiruvannamalai	15.8	10.4	0.1	27.4	8.8	1.3	14.4	0.0	3.5	7.3	10.3	0.5	0.5	0.0	800
Vellore	11.5	25.2	0.0	23.7	6.6	2.8	8.4	0.0	6.1	4.1	11.5	0.0	0.0	0.0	798
Viluppuram	27.9	10.9	0.9	13.0	5.8	0.5	16.5	0.0	2.3	1.6	11.6	7.5	1.3	0.3	799
Virudhunagar	6.5	11.4	0.0	43.7	2.9	2.1	17.8	0.0	2.5	1.3	11.5	0.3	0.0	0.0	798

3.10. Migration Status of Spouse

In order to assess the relationship between spousal migration status and HIV prevalence among ANC clinic attendees, respondents in HSS were asked whether spouse resides in another place/town away from wife for work for longer than 6 months. This question was not applicable to those respondents who were never married/widowed/divorced/separated.

At the state level, around 5.4% of the respondents reported that their spouses were migrants, though there were significant inter-district variations.

Figure 11: Percentage of respondents with migrant spouse in Tamil Nadu, HSS 2016-17
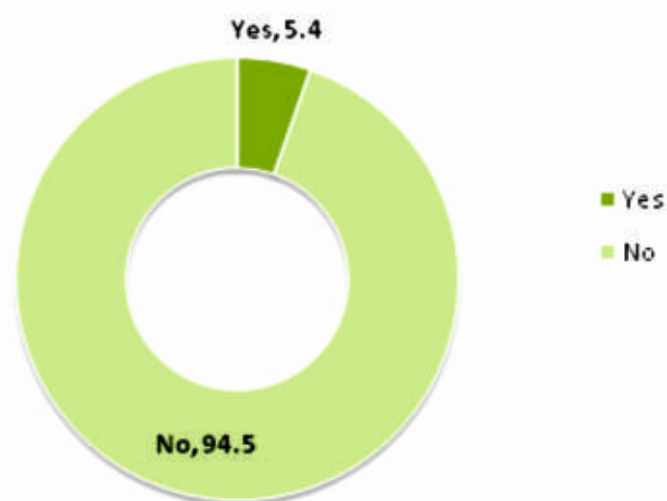
Table 14: District-wise percentage of respondents with migrant spouse in Tamil Nadu, HSS 2016-17

State/District	YES	No	Not Applicable	N
	%	%	%	
Tamil Nadu	5.4	94.5	0.1	28396
Ariyalur	9.8	90.3	0.0	800
Chennai	2.5	97.5	0.0	800
Coimbatore	1.9	97.9	0.2	1600
Cuddalore	6.8	93.3	0.0	800
Dharmapuri	1.0	99.0	0.0	1200
Dindigul	0.3	99.8	0.0	800
Erode	1.6	98.2	0.1	799
Kancheepuram	0.8	98.4	0.9	800
Kanniyakumari	9.7	90.3	0.0	1200
Karur	0.6	99.4	0.0	800
Krishnagiri	1.5	98.5	0.0	800
Madurai	5.6	94.3	0.1	800
Nagapattinam	11.5	88.5	0.0	800
Namakkal	2.5	97.4	0.1	800
Perambalur	13.6	86.4	0.0	800
Pudukkottai	12.5	87.5	0.0	800
Ramanathapuram	17.4	82.6	0.0	800
Salem	0.1	99.6	0.3	800
Sivaganga	16.1	83.9	0.0	800
Thanjavur	10.6	89.3	0.1	800
The Nilgiris	0.3	99.8	0.0	800
Theni	3.3	96.6	0.1	800
Thiruvallur	1.4	98.5	0.1	799
Thiruvarur	5.9	94.1	0.0	800
Thoothukudi	4.5	95.3	0.3	800
Tiruchirappalli	7.5	92.2	0.3	1600
Tirunelveli	5.4	94.6	0.0	1200
Tiruppur	0.3	99.5	0.3	800
Tiruvannamalai	11.1	88.9	0.0	800
Vellore	0.8	99.2	0.0	799
Viluppuram	3.9	95.9	0.3	800
Virudhunagar	2.6	97.4	0.0	799

3.11. HIV Testing History

This refers to the HIV testing history of pregnant women. At the state level, 63.2% of respondents were reported that they were previously tested for HIV.

Figure 12: Percent Distribution of respondents by HIV testing history in Tamil Nadu, HSS 2016-17
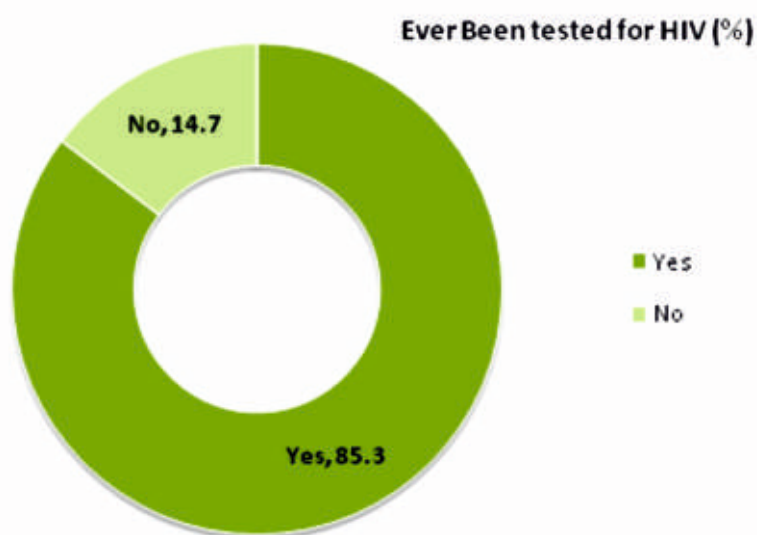
Table 15: District-wise percentage of respondents with HIV testing historyin Tamil Nadu, HSS 2016-17

State/District	Ever been tested for HIV	Ever been tested for HIV	Grand Total
	Yes (%)	No (%)	
Tamil Nadu	85.3	14.7	28399
Ariyalur	99.8	0.3	800
Chennai	76.8	23.3	800
Coimbatore	83.6	16.4	1600
Cuddalore	84.0	16.0	800
Dharmapuri	94.9	5.1	1200
Dindigul	90.8	9.3	800
Erode	95.3	4.8	800
Kancheepuram	71.6	28.4	800
Kanniyakumari	72.2	27.8	1200
Karur	90.6	9.4	800
Krishnagiri	81.3	18.8	800
Madurai	91.0	9.0	800
Nagapattinam	82.6	17.4	800
Namakkal	85.3	14.8	800

Perambalur	85.8	14.3	800
Pudukkottai	88.6	11.4	800
Ramanathapuram	89.1	10.9	800
Salem	87.0	13.0	800
Sivaganga	95.0	5.0	800
Thanjavur	93.0	7.0	800
The Nilgiris	84.1	15.9	800
Theni	91.8	8.3	800
Thiruvallur	84.9	15.1	800
Thiruvarur	90.9	9.1	800
Thoothukudi	86.1	13.9	800
Tiruchirappalli	85.1	14.9	1600
Tirunelveli	98.8	1.3	1200
Tiruppur	68.3	31.8	800
Tiruvannamalai	70.1	29.9	800
Vellore	69.3	30.7	799
Viluppuram	83.0	17.0	800
Virudhunagar	76.4	23.6	800

3.12. Time of last HIV Testing

This question aims to understand the timing of last HIV testing of respondents in reference to current pregnancy. At the state level, majority of the respondents (67.3%) were tested for HIV during current pregnancy, whereas 18.0% of respondents were tested before current pregnancy. Around 14.7% of the respondents were reported as never tested for HIV.

Figure 13: Percent Distribution of respondents by Time of last HIV Testing in Tamil Nadu, HSS 2016-17
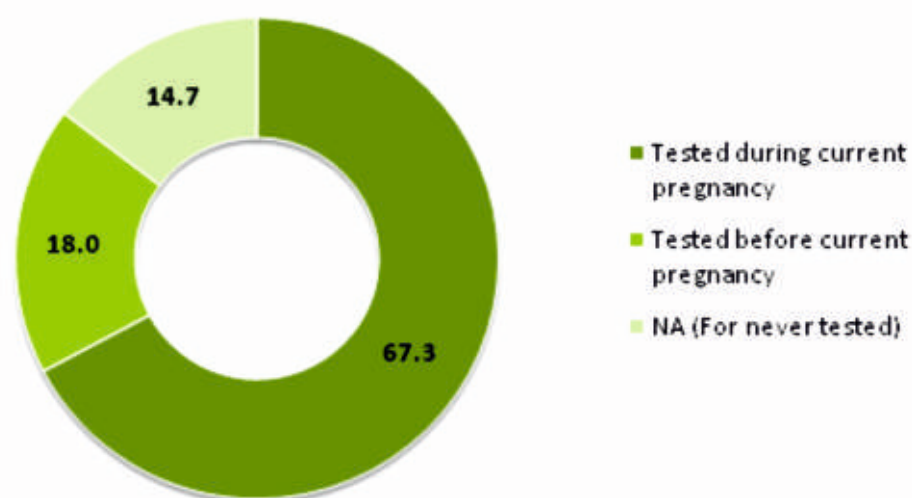
Table 16: District-wise percentage of respondents with Time of last HIV Testing in Tamil Nadu, HSS 2016-17

State/District	(Only the respondent whom tested for HIV test previously)		
	Tested during current pregnancy (%)	Tested before current pregnancy (%)	N
Tamil Nadu	**78.9**	**21.1**	**24194**
Ariyalur	81.0	19.0	798
Chennai	83.2	16.8	614
Coimbatore	82.4	17.6	1335
Cuddalore	40.1	59.9	669
Dharmapuri	94.4	5.6	1138
Dindigul	89.9	10.1	725
Erode	87.8	12.2	760
Kancheepuram	58.7	41.3	572
Kanniyakumari	64.9	35.1	866
Karur	84.6	15.4	725
Krishnagiri	72.7	27.3	649
Madurai	60.9	39.1	728
Nagapattinam	82.3	17.7	661
Namakkal	72.0	28.0	682
Perambalur	98.3	1.7	686
Pudukkottai	85.6	14.4	708
Ramanathapuram	85.4	14.6	713
Salem	83.3	16.7	695
Sivaganga	87.9	12.1	760
Thanjavur	90.0	10.0	743
The Nilgiris	65.9	34.1	672
Theni	68.1	31.9	733
Thiruvallur	83.4	16.6	679
Thiruvarur	83.1	16.9	726
Thoothukudi	69.9	30.1	688
Tiruchirappalli	83.2	16.8	1360
Tirunelveli	64.5	35.5	1185
Tiruppur	96.9	3.1	545
Tiruvannamalai	78.3	21.7	561
Vellore	79.6	20.4	553
Viluppuram	80.2	19.8	660
Virudhunagar	78.2	21.8	605

3.13. Result of last HIV test

This refers to the result of the last HIV test of the ANC respondent. At the state level, around 0.2% of the respondents were reported that their last HIV test result was Positive. The majority of respondents (84.5%) were reported as HIV negative. Whereas 0.6% of respondent reported that did not collect the last HIV test result.

Figure 14: Percent Distribution of respondents by Result of last HIV testin Tamil Nadu, HSS 2016-17
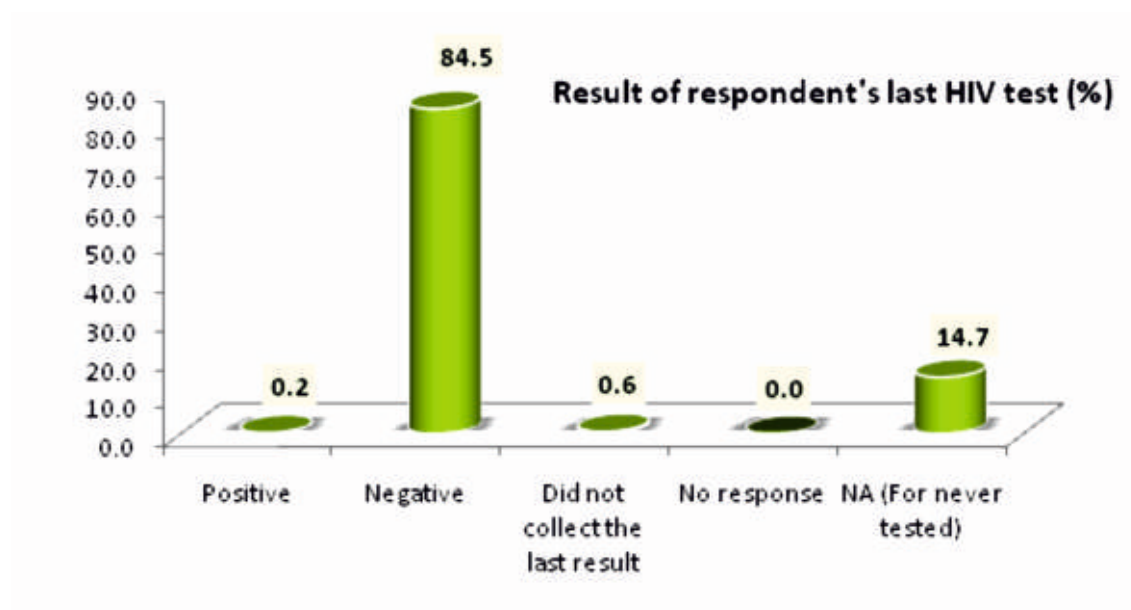
Table 17: District-wise percentage of respondents with Result of last HIV test in Tamil Nadu, HSS 2016-17

(Only the respondent whom tested for HIV test previously)					
State/District	Positive (%)	Negative (%)	Did not collect the test result (%)	No Response	N
Tamil Nadu	0.28	99.01	0.68	0.03	24196
Ariyalur	0.00	100.00	0.00	0.00	797
Chennai	0.82	97.21	1.80	0.16	610
Coimbatore	0.60	97.16	2.02	0.22	1336
Cuddalore	0.30	99.40	0.30	0.00	672
Dharmapuri	0.26	99.74	0.00	0.00	1138
Dindigul	0.14	99.86	0.00	0.00	724
Erode	0.52	99.48	0.00	0.00	762
Kancheepuram	0.18	99.82	0.00	0.00	571
Kanniyakumari	0.00	100.00	0.00	0.00	865
Karur	0.14	99.86	0.00	0.00	725
Krishnagiri	0.31	99.07	0.62	0.00	646
Madurai	0.41	98.90	0.55	0.14	728
Nagapattinam	0.00	100.00	0.00	0.00	661
Namakkal	0.29	96.92	2.79	0.00	681
Perambalur	0.00	100.00	0.00	0.00	686
Pudukkottai	0.42	99.58	0.00	0.00	707
Ramanathapuram	0.00	100.00	0.00	0.00	713
Salem	0.43	99.57	0.00	0.00	696
Sivaganga	0.26	99.61	0.00	0.13	760

Thanjavur	0.13	99.87	0.00	0.00	743								
The Nilgiris	0.00	100.00	0.00	0.00	673								
Theni	0.00	100.00	0.00	0.00	734								
Thiruvallur	0.00	100.00	0.00	0.00	677								
Thiruvarur	0.00	100.00	0.00	0.00	725								
Thoothukudi	0.00	100.00	0.00	0.00	689								
Tiruchirappalli	0.59	98.90	0.44	0.07	1361								
Tirunelveli	0.59	99.32	0.08	0.00	1185								
Tiruppur	0.55	99.45	0.00	0.00	546								
Tiruvannamalai	0.36	84.85	14.80	0.00	561								
Vellore	0.18	98.37	1.27	0.18	553								
Viluppuram	0.30	99.70	0.00	0.00	663								
Virudhunagar	0.49	99.51	0.00	0.00	608								

3.14. Management of HIV infections

This refers to the enrolment of HIV positive respondents in HIV care, either for pre-ART or ART services, at the time of surveillance. At the state level, 97% (n=65) of the respondents whom with HIV positive results were taking care from Government hospital/ART centres. Whereas, 1.5% (n=1) of the respondent with HIV positive taking care from Government hospital/ART centres as well as in Private facilities.

Table 18: District-wise percentage of respondents with Management of HIV infectionsin Tamil Nadu, HSS 2016-17

(If respondent whom say Positive for privious HIV test and their current HIV management)

State/District	(1) ART	(2) NGO	(3) Pvt	(4)Pharmacist/Chemist (5) Alternative/non Allopathic	(6) Any other type	(7) Not seeking taking for HIV management	(1)+(2)	(1)+(3)	(1)+(2)+(3)	(1)+(2)+(3)+(6)	(1)+(2)+(6)	No Answer	total
Tamil Nadu	97	0	0	0	0	0	0	0	1.49	0	0	0	1.49	67
Chennai	100	0	0	0	0	0	0	0	0	0	0	0	0	5
Coimbatore	87.5	0	0	0	0	0	0	0	12.5	0	0	0	0	8
Cuddalore	100	0	0	0	0	0	0	0	0	0	0	0	0	2
Dharmapuri	100	0	0	0	0	0	0	0	0	0	0	0	0	3
Dindigul	0	0	0	0	0	0	0	0	0	0	0	0	100	1
Erode	100	0	0	0	0	0	0	0	0	0	0	0	0	4
Kancheepuram	100	0	0	0	0	0	0	0	0	0	0	0	0	1
Karur	100	0	0	0	0	0	0	0	0	0	0	0	0	1
Krishnagiri	100	0	0	0	0	0	0	0	0	0	0	0	0	2
Madurai	100	0	0	0	0	0	0	0	0	0	0	0	0	3

Namakkal	100	0	0	0	0	0	0	0	0	0	0	0	0	2
Pudukkottai	100	0	0	0	0	0	0	0	0	0	0	0	0	3
Salem	100	0	0	0	0	0	0	0	0	0	0	0	0	3
Sivaganga	100	0	0	0	0	0	0	0	0	0	0	0	0	2
Thanjavur	100	0	0	0	0	0	0	0	0	0	0	0	0	1
Tiruchirappalli	100	0	0	0	0	0	0	0	0	0	0	0	0	8
Tirunelveli	100	0	0	0	0	0	0	0	0	0	0	0	0	7
Tiruppur	100	0	0	0	0	0	0	0	0	0	0	0	0	3
Tiruvannamalai	100	0	0	0	0	0	0	0	0	0	0	0	0	2
Vellore	100	0	0	0	0	0	0	0	0	0	0	0	0	1
Viluppuram	100	0	0	0	0	0	0	0	0	0	0	0	0	2
Virudhunagar	100	0	0	0	0	0	0	0	0	0	0	0	0	3

3.15. ART Uptake

This refers to the current uptake of 'Antiretroviral therapy' by HIV positive respondents (N=67). At the state level, 97% (n=65) of the respondents were currently taking ART.

Table 19: District-wise percentage of HIV positive respondents with ART uptakein Tamil Nadu, HSS 2016-17

State/District	Yes (%)	No (%)	N
Tamil Nadu	97.0	3.0	67
Chennai	100.0	0.0	5
Coimbatore	100.0	0.0	8
Cuddalore	100.0	0.0	2
Dharmapuri	100.0	0.0	3
Dindigul	100.0	0.0	1
Erode	100.0	0.0	4
Kancheepuram	100.0	0.0	1
Karur	100.0	0.0	1
Krishnagiri	100.0	0.0	2
Madurai	100.0	0.0	3
Namakkal	100.0	0.0	2
Pudukkottai	100.0	0.0	3
Salem	66.7	33.3	3
Sivaganga	50.0	50.0	2
Thanjavur	100.0	0.0	1
Tiruchirappalli	100.0	0.0	8
Tirunelveli	100.0	0.0	7
Tiruppur	100.0	0.0	3
Tiruvannamalai	100.0	0.0	2
Vellore	100.0	0.0	1
Viluppuram	100.0	0.0	2
Virudhunagar	100.0	0.0	3

CHAPTER 4

LEVELS OF HIV PREVALENCE AMONG ANC CLINIC ATTENDEES

HIV prevalence is the proportion of respondents who are found HIV positive at a given point of time in a specified geographic area. It indicates the burden of the epidemic in different population groups.

HIV prevalence among ANC clinic attendees is considered as proxy for HIV burden in general population. HIV prevalence of 1% or more among ANC clinic attendees is considered as high level, 0.5 - 0.99% is considered as moderate level and less than 0.5% is considered as low HIV prevalence for the analysis purpose in this report. This chapter describes the levels of HIV prevalence among ANC clinic attendees at state and district level.

4.1. HIV Prevalence at State and District Level

Table 20: HIV Prevalence at State &District Level

District	Positive (%)	Total tested
Ariyalur	0.00	800
Kanniyakumari	0.00	1200
Nagapattinam	0.00	800
Perambalur	0.00	800
The Nilgiris	0.00	800
Thiruvallur	0.00	800
Thoothukudi	0.00	800
Dindigul	0.13	800
Kancheepuram	0.13	800
Karur	0.13	800
Ramanathapuram	0.13	800
Thanjavur	0.13	800
Theni	0.13	800
Thiruvarur	0.13	800
Cuddalore	0.25	800
Krishnagiri	0.25	800
Tiruvannamalai	0.25	800
Vellore	0.25	800
Tamil Nadu	0.27	28400
Dharmapuri	0.33	1200
Madurai	0.38	800
Pudukkottai	0.38	800
Salem	0.38	800
Sivaganga	0.38	800
Viluppuram	0.38	800
Virudhunagar	0.38	800
Coimbatore	0.50	1600
Erode	0.50	800
Namakkal	0.50	800
Tiruchirappalli	0.50	1600
Tiruppur	0.50	800
Tirunelveli	0.58	1200
Chennai	0.63	800

Figure 15: HIV Prevalence among (%) among ANC Clinic Attendees by district, HSS 2016-17

District wise HIV Prevalence (%) of Tamil Nadu 2016-17

District	HIV Prevalence (%)
Chennai	0.63
Tirunelveli	0.58
Tiruppur	0.50
Tiruchirappalli	0.50
Namakkal	0.50
Erode	0.50
Coimbatore	0.50
Virudhunagar	0.38
Viluppuram	0.38
Sivaganga	0.38
Salem	0.38
Pudukkottai	0.38
Madurai	0.38
Dharmapuri	0.33
Tamil Nadu	0.27
Vellore	0.25
Tiruvannamalai	0.25
Krishnagiri	0.25
Cuddalore	0.25
Thiruvarur	0.13
Theni	0.13
Thanjavur	0.13
Ramanathapuram	0.13
Karur	0.13
Kancheepuram	0.13
Dindigul	0.13
Thoothukudi	0.00
Thiruvallur	0.00
The Nilgiris	0.00
Perambalur	0.00
Nagapattinam	0.00
Kanniyakumari	0.00
Ariyalur	0.00

HIV Prevalence (%)

CHAPTER 5

HIV PREVALENCE AMONG ANC CLINIC ATTENDEES BY BACKGROUND CHARACTERISTICS

The national, state and district response to the HIV epidemic is guided by data obtained through HIV Sentinel Surveillance (HSS). The HIV epidemic in India continues to be concentrated among HRG with low level and declining prevalence among general population.

This chapter gives details about HIV/AIDS prevalence as observed against the key nine demographic and socio-economic variables which were recorded for each respondent. Fully acknowledging that several factors work in tandem or individually to either cause or prevent HIV, hence we do not suggest any evident causation by projecting the key variables vis a vis the HIV prevalence, as risk factors for acquiring HIV. However, this sort of detailed analysis will help the programme and policy makers to understand the risk factors associated with transmission of HIV/AIDS with particular demographic characteristics. This chapter presents cross tabulations of demographic variables with HIV/AIDS positivity amongthe ANC clinic attendees. A detailed state-wise analysis will be needed to understand region wise variations, applying local knowledge about vulnerabilities and risk factors.

The following sections present the findings for each of these background characteristics:

1. Age

2. Literacy status

3. Order of current pregnancy

4. Duration of Pregnancy

5. ANC service uptake

6. Source of referral to the ANC clinic

7. Current place of residence

8. Current occupation of

9. Current occupation of spouse

10. Migration status of spouse

5.1. HIV Prevalence among ANC Clinic Attendees by Age

Figure 16: HIV Prevalence among ANC Clinic Attendees by Age, HSS 2016-17, Tamil Nadu
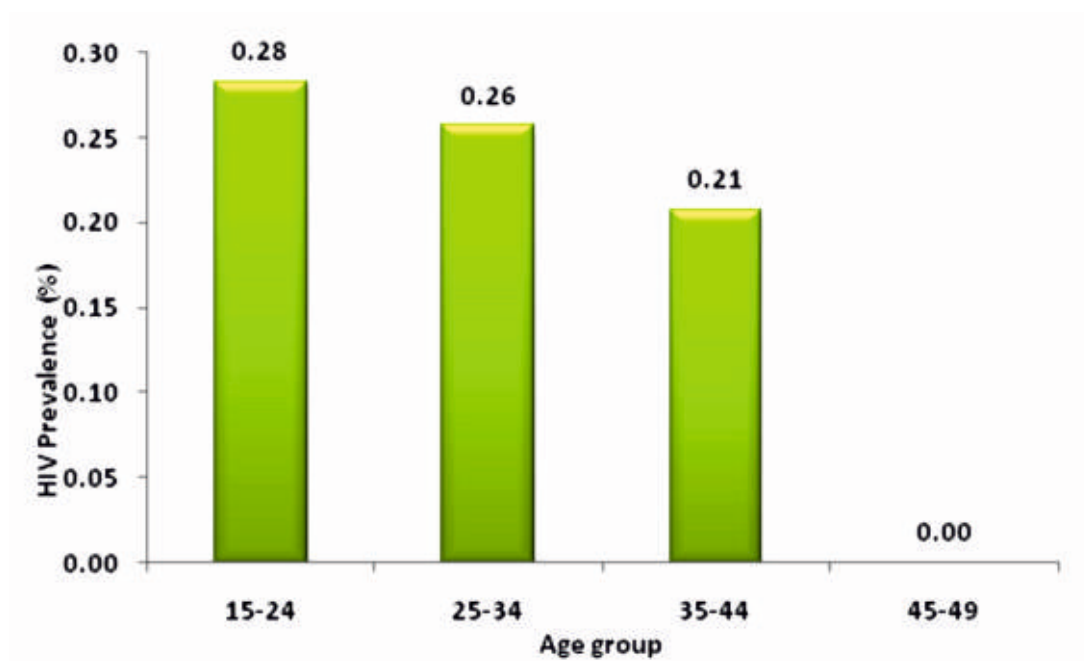
Table 21 HIV Prevalence among ANC Clinic Attendees by Age

State/Districts	15-24 %	15-24 Total	25-34 %	25-34 Total	35-44 %	35-44 Total	45-49 Total %	45-49 Total N	Grand Total N
Tamil Nadu	0.28	16618	0.26	11300	0.21	482	0	0.00	28400
Ariyalur	0.00	487	0.00	304	0.00	9	0	0.00	800
Chennai	0.95	419	0.28	359	0.00	22	0	0.00	800
Coimbatore	0.50	1002	0.53	567	0.00	31	0	0.00	1600
Cuddalore	0.27	370	0.24	422	0.00	8	0	0.00	800
Dharmapuri	0.44	908	0.00	278	0.00	14	0	0.00	1200
Dindigul	0.22	451	0.00	335	0.00	14	0	0.00	800
Erode	0.60	499	0.36	281	0.00	20	0	0.00	800
Kancheepuram	0.23	438	0.00	348	0.00	14	0	0.00	800
Kanniyakumari	0.00	456	0.00	693	0.00	51	0	0.00	1200
Karur	0.00	422	0.00	365	7.69	13	0	0.00	800
Krishnagiri	0.39	519	0.00	273	0.00	8	0	0.00	800
Madurai	0.39	508	0.35	282	0.00	10	0	0.00	800
Nagapattinam	0.00	459	0.00	331	0.00	10	0	0.00	800
Namakkal	0.38	525	0.75	265	0.00	10	0	0.00	800
Perambalur	0.00	485	0.00	304	0.00	11	0	0.00	800

Pudukkottai	0.25	400	0.51	391	0.00	9	0	0.00	800
Ramanathapuram	0.23	437	0.00	347	0.00	16	0	0.00	800
Salem	0.20	490	0.68	296	0.00	14	0	0.00	800
Sivaganga	0.73	412	0.00	372	0.00	16	0	0.00	800
Thanjavur	0.26	392	0.00	396	0.00	12	0	0.00	800
The Nilgiris	0.00	502	0.00	279	0.00	19	0	0.00	800
Theni	0.19	530	0.00	262	0.00	8	0	0.00	800
Thiruvallur	0.00	498	0.00	293	0.00	9	0	0.00	800
Thiruvarur	0.00	364	0.24	421	0.00	15	0	0.00	800
Thoothukudi	0.00	442	0.00	347	0.00	11	0	0.00	800
Tiruchirappalli	0.51	978	0.50	597	0.00	25	0	0.00	1600
Tirunelveli	0.62	803	0.53	374	0.00	23	0	0.00	1200
Tiruppur	0.00	547	1.65	243	0.00	10	0	0.00	800
Tiruvannamalai	0.43	468	0.00	317	0.00	15	0	0.00	800
Vellore	0.00	481	0.64	311	0.00	8	0	0.00	800
Viluppuram	0.00	435	0.86	349	0.00	16	0	0.00	800
Virudhunagar	0.41	491	0.34	298	0.00	11	0	0.00	800

5.2. HIV Prevalence among ANC Clinic Attendees by Literacy Status

Under HSS 2014-15, TAMIL NADU, HIV prevalence among ANC Clinic attendees the literacy status was classified into five categories:

1. **Illiterate:** people with no formal or non-formal education the HIV prevalence is 0.7 %
2. **Literate and till 5th standard:** people with non-formal education or those who joined school but had not studied beyond 5th standard the HIV prevalence is 0.3%
3. **6th to 10th standard:** people who studied beyond 5th standard but not beyond 10th standard the HIV prevalence is 0.28%.
4. **11th to graduation:** people who studied beyond 10th standard but not beyond graduation. Includes those with technical education/diplomas the HIV prevalence is 0.25%.
5. **Post-graduation:** people who studied beyond graduation the HIV prevalence is 0.1%.

Figure 17: HIV Prevalence (%) among ANC Clinic Attendees by Literacy Status, HSS 2016-17, Tamil Nadu
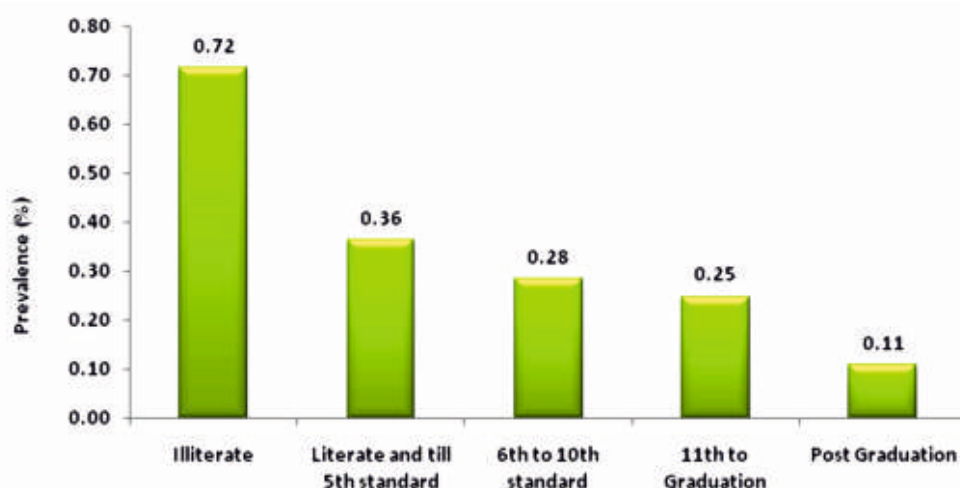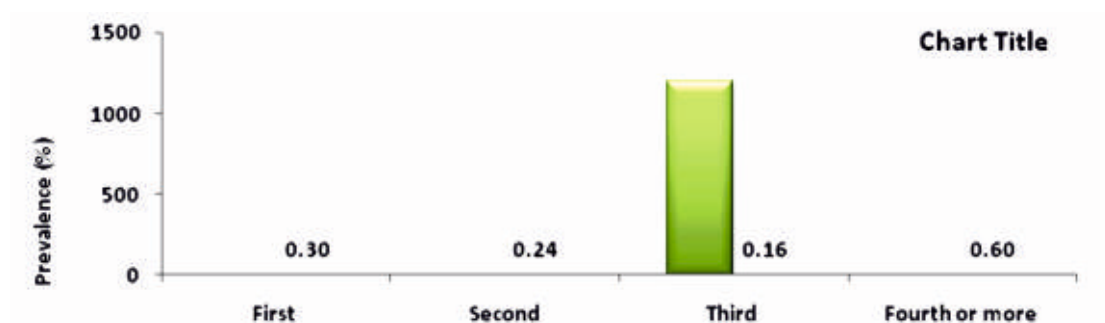
Table 22: HIV Prevalence (%) among ANC Clinic Attendees by Literacy Status and Districts, HSS 2016-17, Tamil Nadu

State/District	1. Illiterate %	Total	2. Literate and till 5th standard %	Total	3. 6th to 10th standard %	Total	4. 11th to Graduation %	Total	5. Post Graduation %	Total	N
Tamil Nadu	0.72	699	0.36	1652	0.28	12045	0.25	12120	0.11	1878	28394
Ariyalur	0.00	26	0.00	33	0.00	327	0.00	351	0.00	62	799
Chennai	0.00	13	0.00	44	0.85	354	0.65	309	0.00	80	800
Coimbatore	2.63	38	1.47	68	0.63	630	0.32	632	0.00	232	1600
Cuddalore	0.00	19	0.00	48	0.31	320	0.29	349	0.00	64	800
Dharmapuri	0.00	30	0.00	50	0.22	457	0.34	593	1.43	70	1200
Dindigul	0.00	21	0.00	60	0.28	351	0.00	337	0.00	31	800
Erode	2.44	41	0.00	65	0.28	353	0.63	315	0.00	26	800
Kancheepuram	0.00	8	0.00	36	0.00	356	0.29	341	0.00	58	799
Kanniyakumari	0.00	3	0.00	30	0.00	308	0.00	741	0.00	118	1200
Karur	0.00	4	1.28	78	0.00	347	0.00	318	0.00	53	800
Krishnagiri	2.63	38	2.63	38	0.00	369	0.00	300	0.00	54	799
Madurai	0.00	13	0.00	58	0.57	352	0.29	346	0.00	31	800
Nagapattinam	0.00	9	0.00	23	0.00	365	0.00	371	0.00	32	800
Namakkal	0.00	27	0.00	71	0.96	311	0.31	327	0.00	64	800
Perambalur	0.00	3	0.00	49	0.00	309	0.00	382	0.00	57	800
Pudukkottai	0.00	13	0.00	23	0.55	366	0.29	343	0.00	55	800
Ramanathapuram	0.00	6	0.00	67	0.00	314	0.28	359	0.00	54	800
Salem	0.00	69	0.00	37	0.28	351	0.65	307	0.00	35	799
Sivaganga	0.00	21	0.00	37	0.00	297	0.76	395	0.00	50	800
Thanjavur	0.00	7	0.00	41	0.27	371	0.00	328	0.00	53	800
The Nilgiris	0.00	10	0.00	34	0.00	286	0.00	440	0.00	30	800
Theni	0.00	10	0.00	33	0.00	329	0.26	380	0.00	48	800
Thiruvallur	0.00	20	0.00	42	0.00	347	0.00	355	0.00	36	800
Thiruvarur	0.00	4	0.00	26	0.26	382	0.00	334	0.00	54	800
Thoothukudi	0.00	7	0.00	68	0.00	364	0.00	331	0.00	30	800
Tiruchirappalli	0.00	68	2.13	94	0.47	632	0.30	672	0.75	134	1600
Tirunelveli	0.00	15	0.00	53	0.16	621	1.25	479	0.00	32	1200
Tiruppur	0.00	16	1.61	62	0.71	420	0.00	225	0.00	77	800
Tiruvannamalai	0.00	25	0.00	42	0.25	397	0.34	297	0.00	39	800
Vellore	3.33	30	0.00	69	0.25	393	0.00	242	0.00	64	798
Viluppuram	0.00	59	0.00	90	0.88	340	0.00	282	0.00	29	800
Virudhunagar	3.85	26	0.00	83	0.31	326	0.29	339	0.00	26	800

5.3. HIV Prevalence among ANC Clinic Attendees by Order of Pregnancy

The order of pregnancy denotes the number of times a woman has become pregnant. It includes the number of live births, still births and abortions. It is also referred to as 'gravida'. As noted earlier in the context of HIV, order of pregnancy indicates the duration of exposure to sexual risks, so HIV prevalence among primi-gravida is considered as a proxy for new HIV infections and is an indicator of state HIV incidence.

Figure 18: HIV Prevalence (%) among ANC Clinic Attendees by Order of Pregnancy, HSS 2016-17, Tamil Nadu

Table 23: HIV Prevalence (%) among ANC Clinic Attendees by Order of Pregnancy and districts, HSS 2016-17, Tamil Nadu

	1. First		2. Second		3. Third		4. Fourth or more		
State/District	%	N	%	N	%	N	%	N	Total
Tamil Nadu	0.30	12791	0.24	11567	0.16	3187	0.60	836	28381
Ariyalur	0.00	370	0.00	301	0.00	106	0.00	21	798
Chennai	0.54	371	0.70	287	0.93	108	0.00	33	799
Coimbatore	0.38	783	0.49	615	0.00	157	4.55	44	1599
Cuddalore	0.00	309	0.58	343	0.00	123	0.00	25	800
Dharmapuri	0.55	550	0.00	482	0.75	133	0.00	35	1200
Dindigul	0.29	341	0.00	365	0.00	79	0.00	15	800
Erode	0.56	355	0.29	350	0.00	79	6.67	15	799
Kancheepuram	0.27	374	0.00	308	0.00	93	0.00	25	800
Kanniyakumari	0.00	542	0.00	521	0.00	108	0.00	29	1200
Karur	0.00	269	0.26	381	0.00	114	0.00	36	800
Krishnagiri	0.54	371	0.00	305	0.00	106	0.00	18	800
Madurai	0.52	385	0.32	315	0.00	82	0.00	18	800

Nagapattinam	0.00	390	0.00	314	0.00	83	0.00	12	799
Namakkal	0.59	340	0.32	309	0.83	120	0.00	31	800
Perambalur	0.00	307	0.00	340	0.00	119	0.00	34	800
Pudukkottai	0.22	450	0.69	288	0.00	51	0.00	11	800
Ramanathapuram	0.24	409	0.00	328	0.00	54	0.00	9	800
Salem	0.00	342	0.85	355	0.00	80	0.00	21	798
Sivaganga	0.54	368	0.31	322	0.00	86	0.00	24	800
Thanjavur	0.26	381	0.00	306	0.00	92	0.00	21	800
The Nilgiris	0.00	363	0.00	366	0.00	57	0.00	11	797
Theni	0.00	350	0.31	322	0.00	95	0.00	33	800
Thiruvallur	0.00	319	0.00	379	0.00	77	0.00	25	800
Thiruvarur	0.00	369	0.31	327	0.00	88	0.00	16	800
Thoothukudi	0.00	354	0.00	339	0.00	94	0.00	13	800
Tiruchirappalli	0.68	740	0.31	649	0.00	162	2.04	49	1600
Tirunelveli	0.76	657	0.45	442	0.00	84	0.00	17	1200
Tiruppur	0.27	365	0.33	306	1.03	97	3.13	32	800
Tiruvannamalai	0.60	332	0.00	324	0.00	112	0.00	32	800
Vellore	0.33	301	0.31	321	0.00	132	0.00	43	797
Viluppuram	0.00	255	0.61	328	0.65	153	0.00	62	798
Virudhunagar	0.53	379	0.30	329	0.00	63	0.00	26	797

5.4 HIV Prevalence among ANC Clinic Attendees by Duration of Pregnancy

Figure 19: HIV Prevalence (%) among ANC Clinic Attendees by Duration of Pregnancy, HSS 2016-17, Tamil Nadu
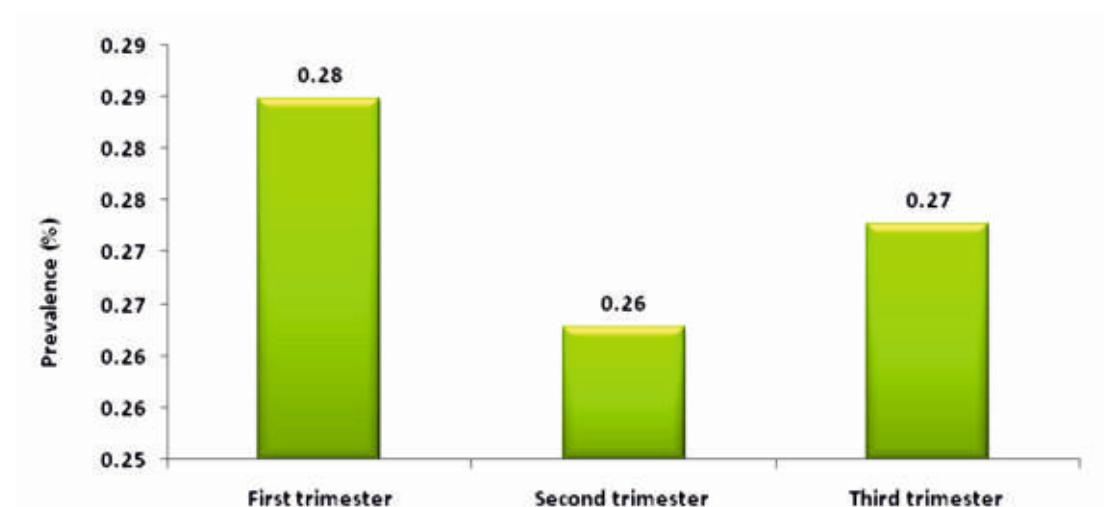
Table 24: HIV Prevalence (%) among ANC Clinic Attendees by Duration of Pregnancy and districts, HSS 2016-17, Tamil Nadu

State/District	1. First		2. Second		3. Third		Grand Total
	%	N	%	N	%	N	
Tamil Nadu	0.28	4564	0.26	9515	0.27	14299	28378
Ariyalur	0.00	133	0.00	315	0.00	352	800
Chennai	0.56	177	0.52	191	0.69	432	800
Coimbatore	0.59	338	0.18	555	0.71	705	1598
Cuddalore	0.00	157	0.27	375	0.37	268	800
Dharmapuri	0.00	92	0.00	450	0.61	658	1200
Dindigul	0.00	79	0.45	224	0.00	495	798
Erode	0.00	133	0.88	227	0.46	439	799
Kancheepuram	0.00	225	0.34	297	0.00	277	799
Kanniyakumari	0.00	262	0.00	341	0.00	597	1200
Karur	0.00	108	0.47	215	0.00	477	800
Krishnagiri	0.00	111	0.71	283	0.00	405	799
Madurai	0.00	109	0.84	237	0.22	454	800
Nagapattinam	0.00	108	0.00	269	0.00	423	800
Namakkal	1.25	80	0.82	244	0.21	476	800
Perambalur	0.00	178	0.00	322	0.00	300	800
Pudukkottai	1.27	79	0.29	348	0.27	373	800
Ramanathapuram	0.00	116	0.00	287	0.25	397	800
Salem	2.47	81	0.00	274	0.23	444	799
Sivaganga	0.00	82	0.41	246	0.42	472	800
Thanjavur	0.00	36	0.00	264	0.20	500	800
The Nilgiris	0.00	178	0.00	449	0.00	171	798
Theni	0.00	122	0.00	242	0.23	436	800
Thiruvallur	0.00	164	0.00	161	0.00	475	800
Thiruvarur	0.00	142	0.35	289	0.00	368	799
Thoothukudi	0.00	162	0.00	298	0.00	339	799
Tiruchirappalli	0.68	293	0.46	437	0.46	867	1597
Tirunelveli	3.09	97	0.28	358	0.40	745	1200
Tiruppur	0.00	171	0.43	234	0.76	395	800
Tiruvannamalai	0.00	173	0.00	284	0.58	343	800
Vellore	0.81	124	0.00	368	0.33	302	794
Viluppuram	0.00	111	0.59	170	0.39	518	799
Virudhunagar	0.00	143	1.15	261	0.00	396	800

5.5 HIV Prevalence among ANC Clinic Attendees by ANC service uptake

Figure 20: HIV Prevalence (%) among ANC Clinic Attendees by Duration of Pregnancy and districts, HSS 2016-17, Tamil Nadu
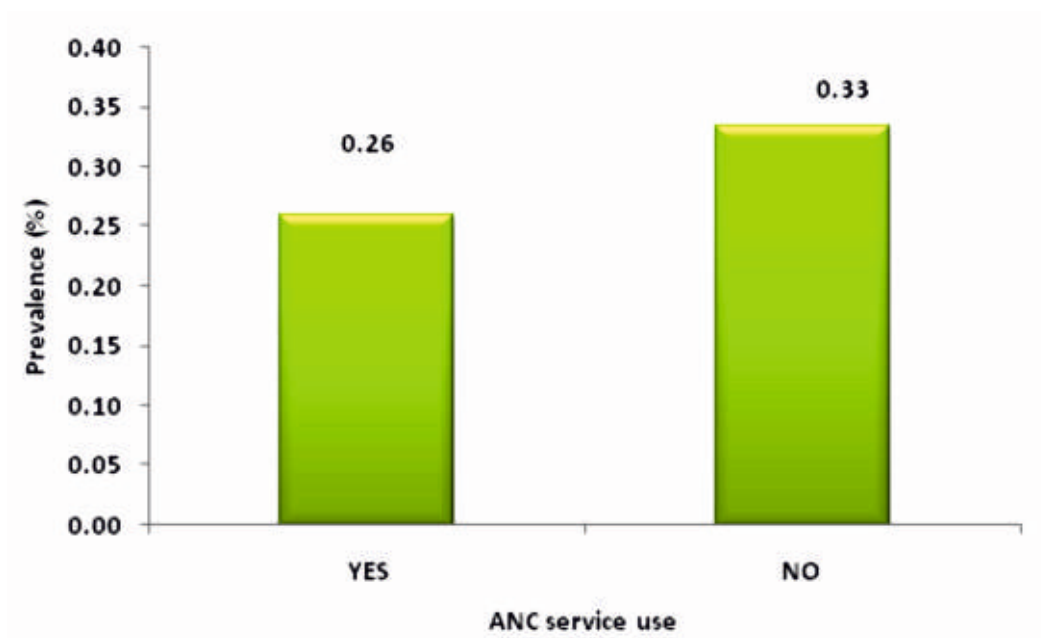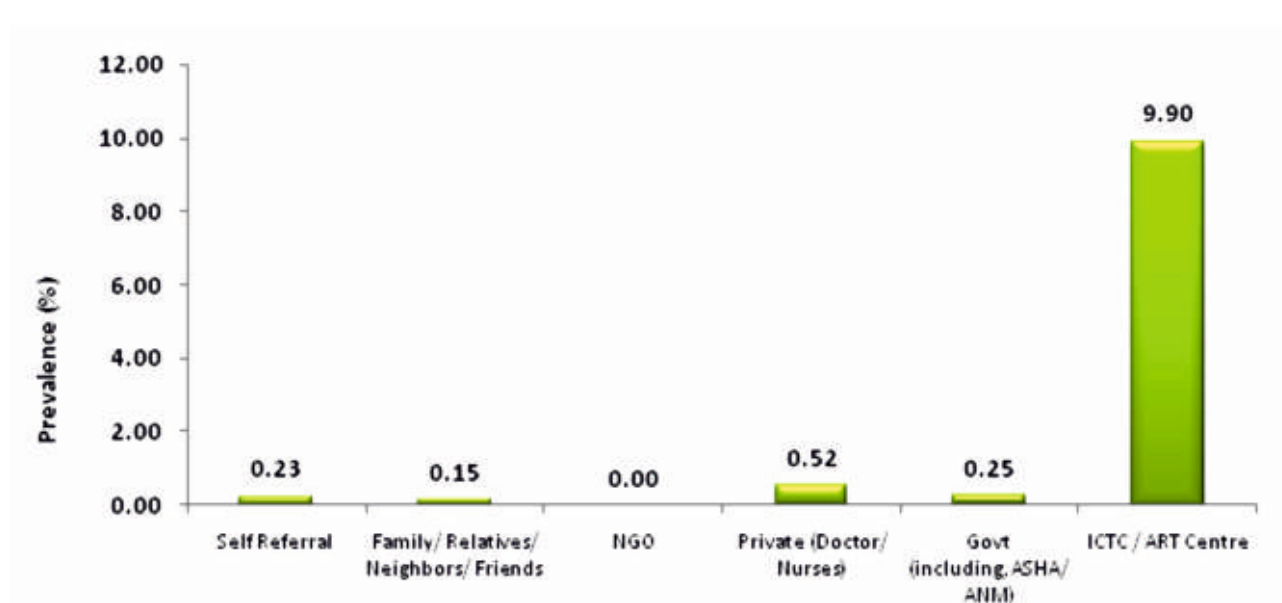

Table 25: HIV Prevalence (%) among ANC Clinic Attendees by Duration of Pregnancy and districts, HSS 2016-17, Tamil Nadu

Districts	Yes		No		Total
	%	N	%	N	
Tamil Nadu	0.26	23891	0.33	4480	28371
Ariyalur	0.00	627	0.00	173	800
Chennai	0.47	643	1.27	157	800
Coimbatore	0.34	1181	0.96	417	1598
Cuddalore	0.16	625	0.57	175	800
Dharmapuri	0.35	1159	0.00	41	1200
Dindigul	0.14	715	0.00	84	799
Erode	0.43	705	1.05	95	800
Kancheepuram	0.16	630	0.00	170	800
Kanniyakumari	0.00	508	0.00	692	1200
Karur	0.13	771	0.00	29	800
Krishnagiri	0.27	732	0.00	66	798
Madurai	0.38	782	0.00	16	798
Nagapattinam	0.00	624	0.00	175	799
Namakkal	0.54	747	0.00	52	799

Perambalur	0.00	667	0.00	133	800
Pudukkottai	0.39	761	0.00	36	797
Ramanathapuram	0.15	669	0.00	130	799
Salem	0.14	694	1.90	105	799
Sivaganga	0.40	742	0.00	58	800
Thanjavur	0.13	748	0.00	51	799
The Nilgiris	0.00	733	0.00	67	800
Theni	0.13	748	0.00	51	799
Thiruvallur	0.00	694	0.00	105	799
Thiruvarur	0.14	711	0.00	88	799
Thoothukudi	0.00	757	0.00	42	799
Tiruchirappalli	0.53	1322	0.36	277	1599
Tirunelveli	0.50	1189	9.09	11	1200
Tiruppur	0.48	629	0.59	170	799
Tiruvannamalai	0.45	447	0.00	352	799
Vellore	0.16	618	0.56	180	798
Viluppuram	0.26	782	6.67	15	797
Virudhunagar	0.56	531	0.00	267	798

5.6. HIV Prevalence among ANC Clinic Attendees by Source of Referral

Figure 21: HIV Prevalence (%) among ANC Clinic Attendees by Source of Referral, HSS 2016-17, Tamil Nadu

Table 26:HIV Prevalence (%) among ANC Clinic Attendees by Source of Referral, HSS 2016-17, Tamil Nadu

State/District	1. Self Referral %	N	2. Family/ Relatives/ Neighbors %	N	3. NGO %	N	4. Private (Doctor/ Nurses) %	N	5. Govt (including, ASHA/ ANM) %	N	6. ICTC/ ART Centre %	N	Total
Tamil Nadu	0.23	7392	0.15	3431	0.00	37	0.52	382	0.25	17048	9.90	101	28391
Ariyalur	0.00	48							0.00	749	0.00	3	800
Chennai	0.35	282	1.19	84			2.33	43	0.26	390	100.00	1	800
Coimbatore	0.00	334	0.00	316	0.00	1	0.00	24	0.33	918	83.33	6	1599
Cuddalore	0.75	134	0.00	173			0.00	84	0.24	409			800
Dharmapuri	0.00	102	0.34	292	0.00	1			0.37	805			1200
Dindigul	0.00	255					0.00	1	0.18	543	0.00	1	800
Erode	1.13	177	0.00	20			0.00	12	0.34	591			800
Kancheepuram	0.00	87	0.00	93			0.00	75	0.18	545			800
Kanniyakumari	0.00	658	0.00	421			0.00	4	0.00	117			1200
Karur	0.00	188					0.00	1	0.16	611			800
Krishnagiri	0.00	55	0.00	19			0.00	3	0.28	723			800
Madurai	0.00	211	0.00	357			0.00	2	1.31	229	0.00	1	800
Nagapattinam	0.00	438	0.00	33					0.00	329			800
Namakkal	0.84	237	0.00	25	0.00	2	0.00	5	0.38	530	0.00	1	800
Perambalur	0.00	5							0.00	795			800
Pudukkottai	0.56	177	0.21	487	0.00	6	0.00	1	0.78	129			800
Ramanathapuram	0.00	182	0.00	255	0.00	1	0.00	3	0.28	359			800
Salem	0.69	289	0.00	1			0.00	5	0.20	505			800
Sivaganga	0.00	176	0.52	192	0.00	1	50.00	2	0.23	429			800
Thanjavur	0.30	332	0.00	98			0.00	8	0.00	362			800
The Nilgiris	0.00	681	0.00	34	0.00	1	0.00	25	0.00	56			797
Theni	0.00	135	0.00	9			0.00	12	0.16	644			800
Thiruvallur	0.00	271	0.00	26	0.00	4			0.00	498			799
Thiruvarur	0.00	86			0.00	5	0.00	24	0.15	685			800
Thoothukudi	0.00	329	0.00	193			0.00	1	0.00	277			800
Tiruchirappalli	0.41	727	0.00	226	0.00	4	0.00	9	0.32	630	75.00	4	1600
Tirunelveli	0.00	161	2.86	35	0.00	3	0.00	2	0.60	998	0.00	1	1200
Tiruppur	0.62	162	0.00	7			0.00	5	0.48	625			799
Tiruvannamalai	0.00	117	0.00	3	0.00	1	0.00	14	0.34	587	0.00	78	800
Vellore	3.13	32			0.00	7	0.00	4	0.13	751	0.00	3	797
Viluppuram	0.00	2	0.00	2			0.00	8	0.25	786	50.00	2	800
Virudhunagar	0.62	322	0.00	30			0.00	5	0.23	443			800

5.7. HIV Prevalence among ANC Clinic Attendees by Place of Residence

Figure 22:HIV Prevalence (%) among ANC Clinic Attendees by Place of residence, HSS 2016-17, Tamil Nadu
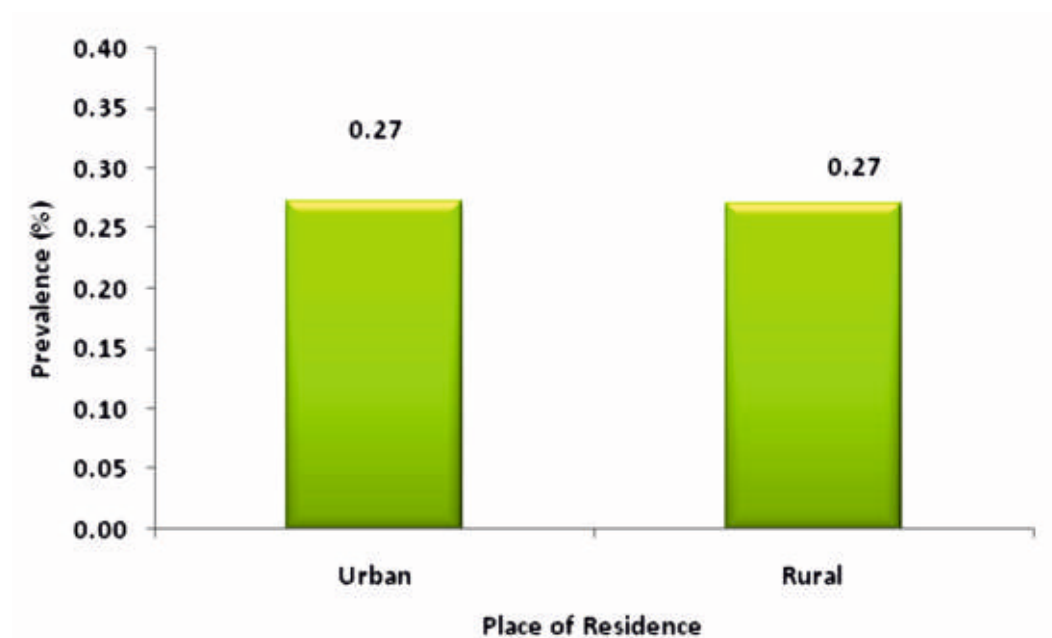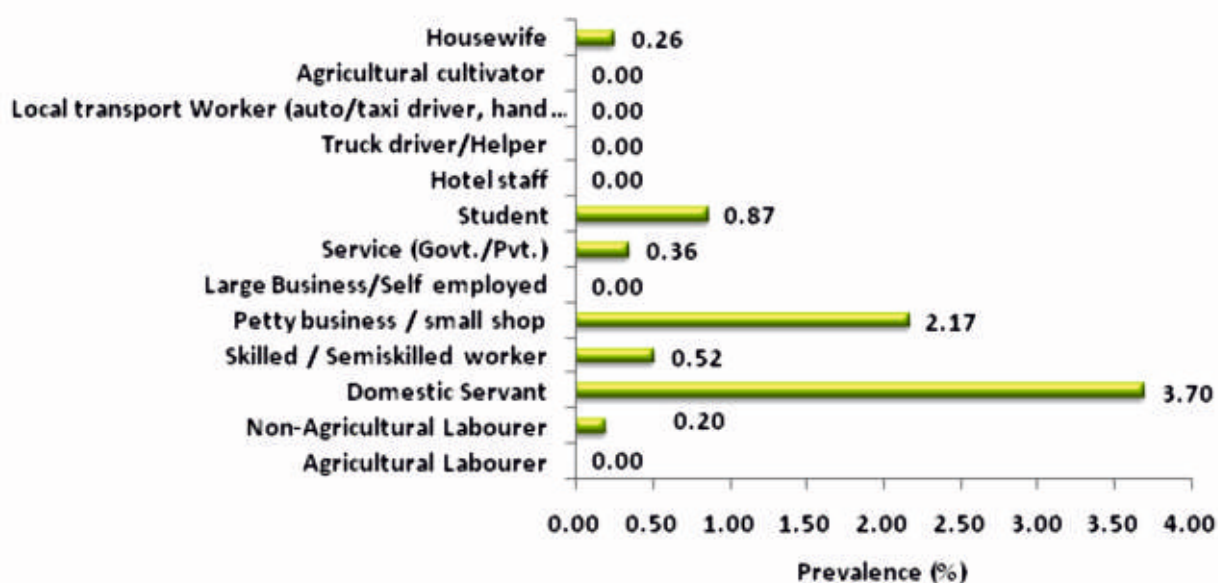

Table 27: HIV Prevalence among ANC Clinic Attendees by Place of Residence and district, HSS 2016-17

State/District	Urban		Rural		Total
	%	N	%	N	
Tamil Nadu	0.27	9897	0.27	18460	28357
Ariyalur	0.00	84	0.00	711	795
Chennai	0.68	588	0.47	212	800
Coimbatore	0.53	754	0.47	845	1599
Cuddalore	0.53	377	0.00	423	800
Dharmapuri	0.00	150	0.38	1050	1200
Dindigul	0.00	288	0.20	511	799
Erode	0.00	182	0.65	617	799
Kancheepuram	0.00	356	0.23	441	797
Kanniyakumari	0.00	372	0.00	828	1200
Karur	0.00	235	0.18	565	800
Krishnagiri	0.00	396	0.50	404	800
Madurai	0.60	331	0.21	466	797
Nagapattinam	0.00	184	0.00	616	800
Namakkal	0.35	285	0.58	513	798

Perambalur	0.00	26	0.00	771	797
Pudukkottai	0.00	92	0.42	708	800
Ramanathapuram	0.00	292	0.20	508	800
Salem	0.00	334	0.65	461	795
Sivaganga	0.00	118	0.44	681	799
Thanjavur	0.48	210	0.00	589	799
The Nilgiris	0.00	790	0.00	8	798
Theni	0.25	394	0.00	406	800
Thiruvallur	0.00	228	0.00	570	798
Thiruvarur	0.00	65	0.14	735	800
Thoothukudi	0.00	416	0.00	384	800
Tiruchirappalli	0.90	557	0.29	1042	1599
Tirunelveli	0.61	328	0.57	872	1200
Tiruppur	0.64	470	0.30	330	800
Tiruvannamalai	0.00	196	0.33	601	797
Vellore	0.28	354	0.23	441	795
Viluppuram	0.00	100	0.43	699	799
Virudhunagar	0.29	345	0.44	452	797

5.8. HIV Prevalence among ANC Clinic Attendees by Current Occupation of Respondent

Figure 23: HIV Prevalence (%) among ANC Clinic Attendees by Current Occupation of Respondent, HSS 2016-17, Tamil Nadu

Table 28: HIV Prevalence among ANC Clinic Attendees by Current Occupation of Respondent, HSS 2016-17

State/District	Agricultural Labourer		Non Agricultural Labourer		Domestic Servant		Skilled / Semiskilled worker		Petty business / small shop		Large Business/Self employed		Service (Govt./Pvt.)		Student		Hotel staff		Truck driver/Helper		Local transport Worker		Agricultural cultivator/		Housewife		Total
	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	
Tamil Nadu	0.00	497	0.20	501	3.70	27	0.52	193	2.17	46	0.00	12	0.36	839	0.87	231	0.00	17	0.00	1	0.00	2	0.00	90	0.26	25942	28398
Ariyalur	0.00	50	0.00	3					0.00	2			0.00	13	0.00	4							0.00	20	0.00	707	800
Chennai	0.00	1	0.00	4					20.00	5	0.00	3	0.00	36	0.00	6	0.00	1					0.00	2	0.54	739	800
Coimbatore	0.00	6	0.00	10					0.00	4			0.00	125	0.00	6									0.56	1428	1600
Cuddalore	0.00	2	0.00	1							0.00	1	0.00	30	0.00	10							0.00	1	0.27	751	800
Dharmapuri	0.00	28											0.00	9	16.67	6	0.00	1					0.00	1	0.26	1154	1200
Dindigul	0.00	7	0.00	10			0.00	3	0.00	1			0.00	8	0.00	4									0.13	767	800
Erode	0.00	3	0.00	10	0.00	1	0.00	1	0.00	1			0.00	6	20.00	5	0.00	1							0.39	772	800
Kancheepuram	0.00	3	0.00	2	0.00	4	0.00	3					0.00	38	0.00	6	0.00	1							0.13	743	800
Kanniyakumari							0.00	2					0.00	69	0.00	10									0.00	1119	1200
Karur	0.00	1	0.00	15	0.00	1	0.00	9	0.00	2			0.00	18	0.00	9	0.00	1					0.00	1	0.13	743	800
Krishnagiri	0.00	2	0.00	11			0.00	1					0.00	9	0.00	16									0.26	761	800
Madurai	0.00	3	4.35	23	0.00	1	0.00	5	0.00	2			0.00	24	0.00	9									0.27	732	800
Nagapattinam	0.00	1	0.00	1			0.00	1	0.00	2	0.00	1	0.00	11	0.00	4							0.00	1	0.00	779	800
Namakkal	0.00	5	0.00	24			0.00	12	0.00	2			0.00	12	0.00	12									0.55	733	800
Perambalur	0.00	57	0.00	23			0.00	3	0.00	2			0.00	27	0.00	15	0.00	1					0.00	29	0.00	643	800
Pudukkottai	0.00	54	0.00	27			0.00	3	0.00	3	0.00	1	0.00	34	0.00	5	0.00	1					0.00	1	0.45	673	800
Ramanathapuram			0.00	53									0.00	16	0.00	4							0.00	1	0.14	726	800
Salem	0.00	5	0.00	4									6.25	16	0.00	10							0.00	1	0.26	764	800
Sivaganga	0.00	3	0.00	1					0.00	1	0.00	1	0.00	19	0.00	2	0.00	1					0.00	5	0.39	767	800
Thanjavur	0.00	5											0.00	18	0.00	4							0.00	2	0.13	771	800
The Nilgiris	0.00	8					0.00	1	0.00	1			0.00	2							0.00	1			0.00	788	800
Theni	0.00	8	0.00	1			0.00	1	0.00	1			0.00	15	0.00	17	0.00	2							0.13	755	800
Thiruvallur	0.00	1	0.00	10			0.00	2	0.00	2			0.00	19	0.00	6									0.00	760	800
Thiruvarur	0.00	1											0.00	12	0.00	3									0.13	784	800
Thoothukudi	0.00	9	0.00	42	9.09	11	0.00	9					0.00	27	0.00	11	0.00	1							0.00	701	800
Tiruchirappalli	0.00	167	0.00	122			0.00	16	0.00	10	0.00	1	0.74	136	0.00	25	0.00	4			0.00	1	0.00	5	0.54	1101	1599
Tirunelveli	0.00	14	0.00	54			0.00	7	0.00	2			4.76	21	0.00	6							0.00	1	0.55	1095	1200
Tiruppur	0.00		0.00	6			2.63	38			0.00	1	0.00	4	0.00	3	0.00	1	0.00	1			0.00	1	0.40	745	800
Tiruvannamalai	0.00	19	0.00	23	0.00	1	0.00	1	0.00	2			0.00	11	0.00	1	0.00	1					0.00	3	0.27	739	800
Vellore	0.00	10	0.00	6	0.00	1	0.00	7					0.00	14	0.00	1	0.00	1					0.00	5	0.27	754	799
Viluppuram	0.00	12	0.00	5	0.00	1	0.00	1	0.00	2			0.00	18	0.00	4							0.00	8	0.40	749	800
Virudhunagar	0.00	12	0.00	9	0.00	1	0.00	45			0.00	3	0.00	22	0.00	7							0.00	2	0.43	699	800

5.9. HIV Prevalence among ANC Clinic Attendees by Current Occupation of Spouse

Figure 24:HIV Prevalence among ANC Clinic Attendees by Current Occupation of Spouse, HSS 2016-17
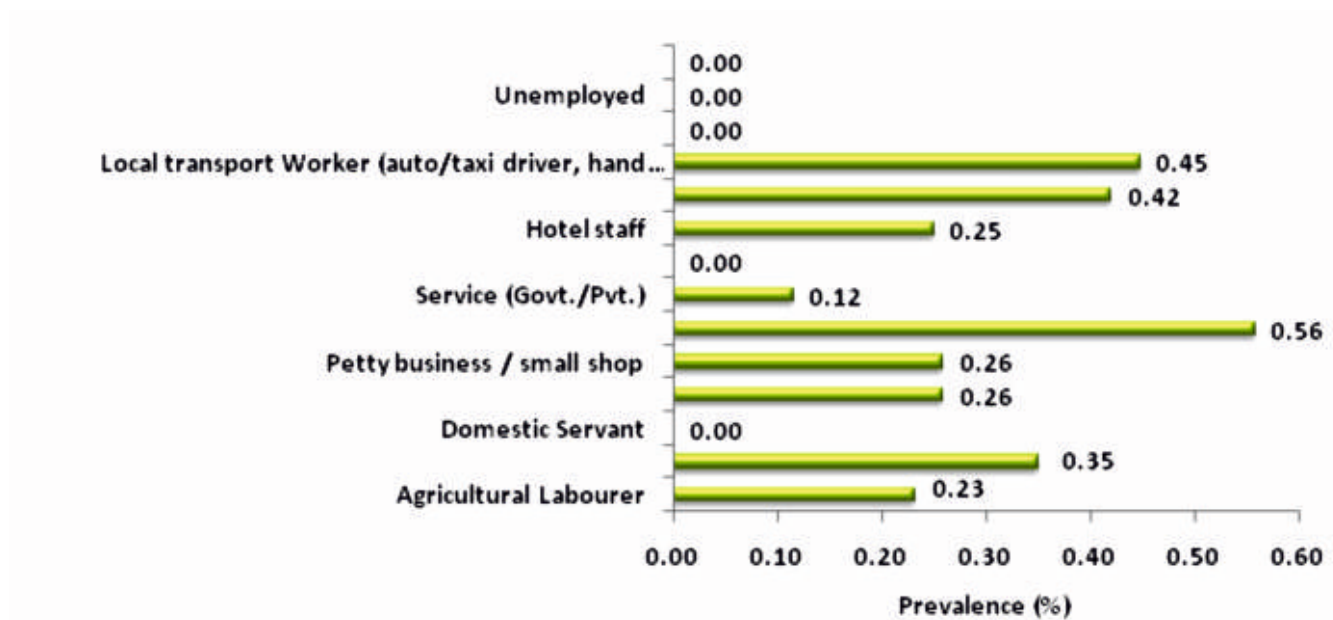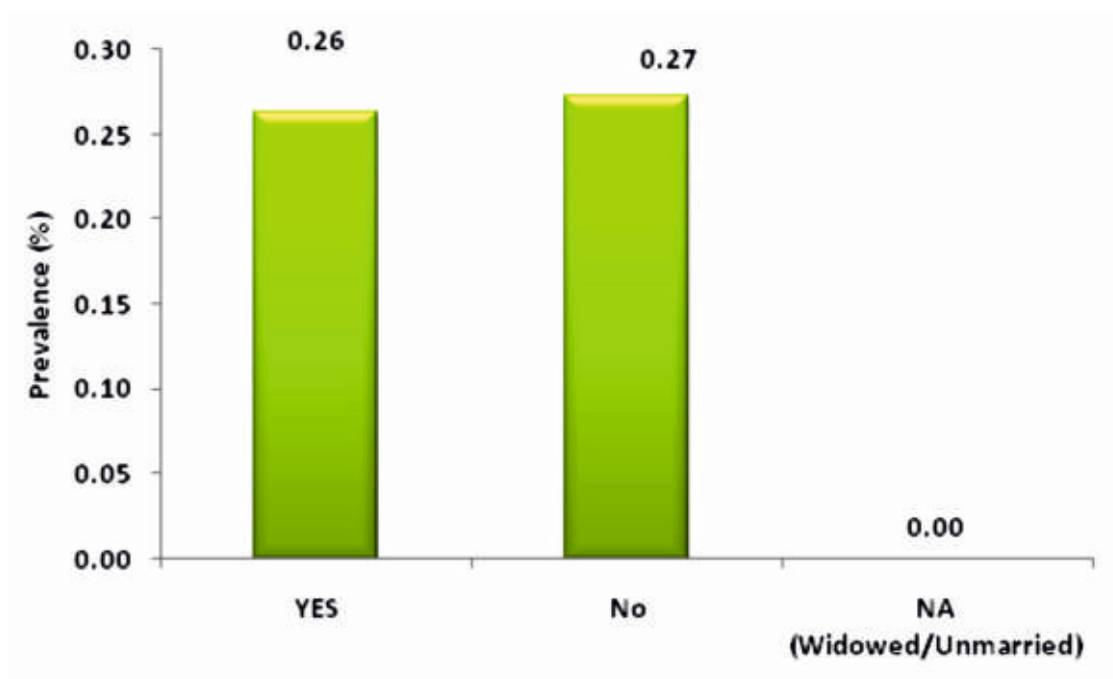
Table 29: HIV Prevalence among ANC Clinic Attendees by Current Occupation of Spouse, HSS 2016-17

State/District	Agricultural Labourer %	N	Non-Agricultural Labourer %	N	Domestic Servant %	N	Skilled / Semiskilled worker %	N	Petty business / small shop %	N	Large Business/Self employed %	N	Service (Govt./Pvt.) %	N	Student %	N	Hotel staff %	N	Truck driver/Helper %	N	Local transport Worker %	N	Agricultural cultivator/ %	N	Unemployed %	N	Not Applicable %	N
Tamil Nadu	**0.23**	**3012**	**0.35**	**5412**	**0.00**	**119**	**0.26**	**7306**	**0.26**	**1542**	**0.56**	**537**	**0.12**	**5171**	**0.00**	**14**	**0.25**	**799**	**0.42**	**951**	**0.45**	**2900**	**0.00**	**541**	**0.00**	**57**	**0.00**	**29**
Ariyalur	0.00	193	0.00	171			0.00	107	0.00	17	0.00	12	0.00	128			0.00	30	0.00	14	0.00	75	0.00	50		3		
Chennai	0.00	16	0.00	130	0.00	2	0.00	161	0.00	83	6.67	15	0.00	237			5.88	17	0.00	31	2.83	106	0.00	2				
Coimbatore	0.00	98	1.01	198	0.00	1	0.74	405	1.25	80	0.00	114	0.00	476	0.00	1	0.00	27	0.00	15	1.14	176	0.00	5	0.00	1	0.00	3
Cuddalore	0.00	68	0.81	248			0.00	198	0.00	51	0.00	7	0.00	117			0.00	11	0.00	29	0.00	61	0.00	9	0.00	1		
Dharmapuri	0.00	170	0.72	277	0.00	8	0.38	266	0.00	96	0.00	19	0.00	189	0.00	2	0.00	7	1.49	67	0.00	80	0.00	15	0.00	3		
Dindigul	0.00	62	0.38	262			0.00	130	0.00	62	0.00	21	0.00	108			0.00	18	0.00	4	0.00	120	0.00	8	0.00	3		
Erode	0.00	62	0.82	243	0.00	1	0.34	295	0.00	22	0.00	7	0.00	56			0.00	8	0.00	10	1.05	95					0.00	1
Kancheepuram	0.00	81	1.69	59	0.00	68	0.00	210	0.00	52	0.00	12	0.00	201			0.00	11	0.00	37	0.00	59	0.00	2	0.00	1	0.00	7
Kanniyakumari	0.00	35	0.00	52	0.00	4	0.00	618	0.00	37	0.00	30	0.00	309			0.00	13	0.00	10	0.00	91	0.00	1				
Karur	0.00	18	0.00	221			0.00	256	0.00	30	0.00	32	0.79	127			0.00	12	0.00	42	0.00	49	0.00	13				
Krishnagiri	0.00	21	1.28	156			0.00	180	0.00	51	0.00	8	0.00	200			0.00	23	0.00	23	0.00	107	0.00	28	0.00	2	0.00	1
Madurai	0.56	177	0.00	179			1.18	169	0.00	45	0.00	9	0.00	97			0.00	21	0.00	4	0.00	97			0.00	1		
Nagapattinam	0.00	110	0.00	33			0.00	351	0.00	40	0.00	3	0.00	107	0.00	1	0.00	36	0.00	21	0.00	92	0.00	6				
Namakkal	0.00	44	1.12	178	0.00	17	0.00	212	0.00	47	0.00	7	1.02	98			0.00	8	0.00	90	1.11	90	0.00	4	0.00	4	0.00	1
Perambalur	0.00	83	0.00	136			0.00	137	0.00	21	0.00	2	0.00	135	0.00	1	0.00	45	0.00	18	0.00	85	0.00	137				
Pudukkottai	0.75	134	0.00	71			0.00	292	0.00	32	0.00	14	0.00	67	0.00	1	0.00	46	0.00	15	2.78	72	0.00	56				
Ramanathapuram	0.00	36	0.00	149			0.37	267	0.00	32	0.00	19	0.00	187			0.00	25	0.00	4	0.00	80	0.00	1				
Salem	0.00	42	0.28	361			0.00	96	0.00	30	0.00	6	0.82	122	0.00	1	0.00	6	1.01	99	0.00	25	0.00	10			0.00	2
Sivaganga	0.00	21	0.00	251	0.00	1	0.69	144	5.00	40	0.00	8	0.00	116			0.00	64	0.00	21	0.00	82	0.00	46	0.00	5		
Thanjavur	0.00	129	0.65	153			0.00	250	0.00	32	0.00	18	0.00	61			0.00	28	0.00	15	0.00	88	0.00	22	0.00	3	0.00	1
The Nilgiris	0.00	197	0.00	106			0.00	140	0.00	39	0.00	5	0.00	168			0.00	51	0.00	2	0.00	90	0.00	1	0.00	1		
Theni	0.00	131	0.00	132			0.00	145	0.00	48	3.57	28	0.00	160	0.00	1	0.00	28	0.00	14	0.00	99	0.00	12	0.00	1	0.00	1
Thiruvallur	0.00	28	0.00	187			0.00	86	0.00	49	0.00	4	0.00	321	0.00	3	0.00	5	0.00	9	0.00	89	0.00	15	0.00	3	0.00	1
Thiruvarur	0.00	185	0.00	45			0.44	229	0.00	30			0.00	146			0.00	18	0.00	19	0.00	113	0.00	15				
Thoothukudi	0.00	25	0.00	229			0.00	205	0.00	46	0.00	19	0.00	107	0.00	1	0.00	23	0.00	38	0.00	99	0.00	1	0.00	5	0.00	2
Tiruchirappalli	0.00	164	0.45	224	0.00	6	0.60	333	0.00	106	0.00	44	0.48	417	0.00	1	0.00	60	3.45	58	0.61	163	0.00	14	0.00	5	0.00	5
Tirunelveli	2.31	130	0.26	387	0.00	3	0.76	131	0.00	101	0.00	8	0.47	212	0.00	1	3.33	30	0.00	116	0.00	79	0.00	1	0.00	1	0.00	1
Tiruppur	0.00	59	0.00	112			0.93	432	0.00	31	0.00	13	0.00	46			0.00	13	0.00	12	0.00	79					0.00	2
Tiruvannamalai	0.00	126	0.00	83	0.00	1	0.00	219	1.43	70	0.00	10	0.00	115			0.00	28	0.00	58	1.22	82	0.00	4	0.00	4		
Vellore	0.00	92	0.00	201			0.00	189	0.00	53	4.55	22	0.00	67			0.00	49	0.00	33	1.09	92						
Viluppuram	0.90	223	0.00	87	0.00	7	0.00	104	0.00	46	0.00	4	0.00	132			0.00	18	0.00	13	1.08	93	0.00	60	0.00	10	0.00	2
Virudhunagar	0.00	52	1.10	91			0.57	349	0.00	23	0.00	17	0.00	142			0.00	20	0.00	10	0.00	92	0.00	2				

5.10. HIV Prevalence among ANC Clinic Attendees by Migration Status of Spouse

Figure 25: HIV Prevalence among ANC Clinic Attendees by Migration status of Spouse, HSS 2016-17

Table 30: HIV Prevalence among ANC Clinic Attendees by Migration status of Spouse, HSS 2016-17

State/District	Yes		No		Not Applicable		Grand Total
	%	N	%	N	%	N	
Tamil Nadu	0.26	1524	0.27	26843	0.00	29	28396
Ariyalur	0.00	78	0.00	722			800
Chennai	0.00	20	0.64	780			800
Coimbatore	0.00	30	0.51	1567	0.00	3	1600
Cuddalore	0.00	54	0.27	746			800
Dharmapuri	0.00	12	0.34	1188			1200
Dindigul	0.00	2	0.13	798			800
Erode	15.38	13	0.25	785	0.00	1	799
Kancheepuram	0.00	6	0.13	787	0.00	7	800
Kanniyakumari	0.00	116	0.00	1084			1200
Karur	0.00	5	0.13	795			800
Krishnagiri	0.00	12	0.25	788			800
Madurai	0.00	45	0.40	754	0.00	1	800
Nagapattinam	0.00	92	0.00	708			800
Namakkal	0.00	20	0.51	779	0.00	1	800
Perambalur	0.00	109	0.00	691			800
Pudukkottai	0.00	100	0.43	700			800
Ramanathapuram	0.00	139	0.15	661			800
Salem	0.00	1	0.38	797	0.00	2	800
Sivaganga	0.00	129	0.45	671			800
Thanjavur	0.00	85	0.14	714	0.00	1	800
The Nilgiris	0.00	2	0.00	798			800
Theni	0.00	26	0.13	773	0.00	1	800
Thiruvallur	0.00	11	0.00	787	0.00	1	799
Thiruvarur	0.00	47	0.13	753			800
Thoothukudi	0.00	36	0.00	762	0.00	2	800
Tiruchirappalli	0.83	120	0.47	1475	0.00	5	1600
Tirunelveli	0.00	65	0.62	1135			1200
Tiruppur	0.00	2	0.50	796	0.00	2	800
Tiruvannamalai	1.12	89	0.14	711			800
Vellore	0.00	6	0.25	793			799
Viluppuram	0.00	31	0.39	767	0.00	2	800
Virudhunagar	0.00	21	0.39	778			799

CHAPTER 6

HIV PREVALENCE TREND AMONG ANC CLINIC ATTENDEES

6.1 HIV Prevalence trend at State Level

The primary objective of HIV Sentinel Surveillance is to generate data on trends of HIV prevalence among various population groups in the country and state. Over time, HIV Sentinel Surveillance has offered vital clues to newer areas where HIV was emerging, highlighting rising trends in certain Districts or regions..

This has been a critical input to the strategic planning efforts under the National AIDS Control Programme and contributed to shaping the strategies for prevention and control of HIV/AIDS in the state. This chapter presents the trends of HIV prevalence among ANC clinic attendees at state and district levels. Data from the year 2002 has been used for trend analysis. Data from only consistent sites was used for trend analysis as it avoids the effect of addition of new sites on HIV prevalence in subsequent years, and hence provides a better picture of HIV trends in a district. Further, in order to smoothen the sampling variations in HIV prevalence due to small sample size at sentinel site level, a three-year moving average was calculated at state/district levels and trends have been analysed using this data. All the invalid sites i.e. sites where sample size was less than 75% (300) of the target sample size of 400, were excluded from trend analysis for that year.

Though there was a clear declining trend seen in Tamil Nadu, within the state, there are variations in HIV prevalence among the districts. District level information on HIV is essential for planning district strategies in HIV prevention and control. District wise trend analysis was performed on surveillance data collected during the year 2002-2017 using moving average technique.

Figure 26: HIV prevalence trend at Tamil Nadu
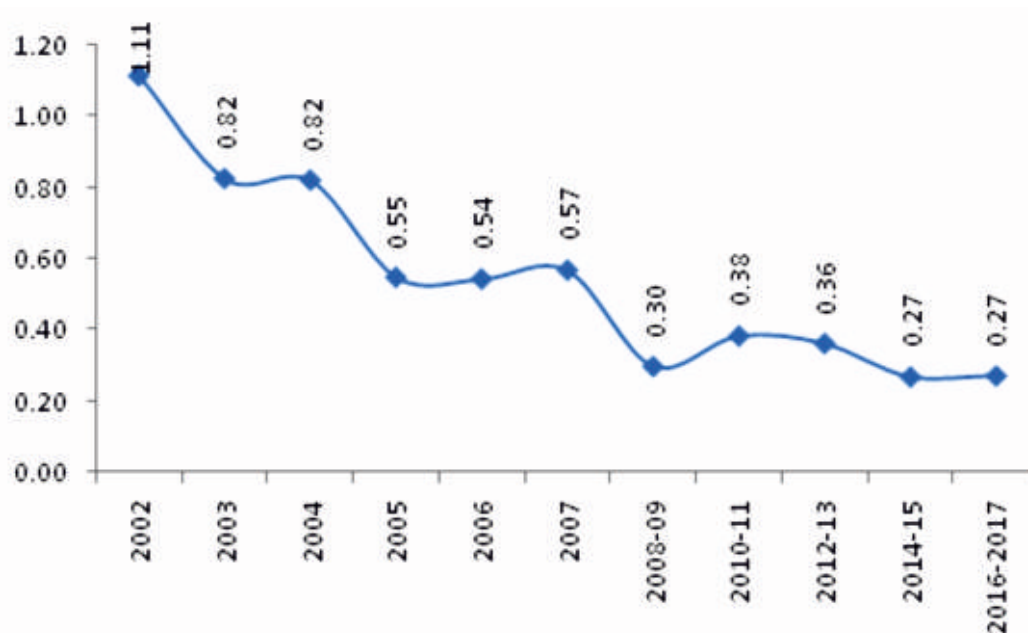
6.2 HIV Prevalence trend at district level

Figure 27
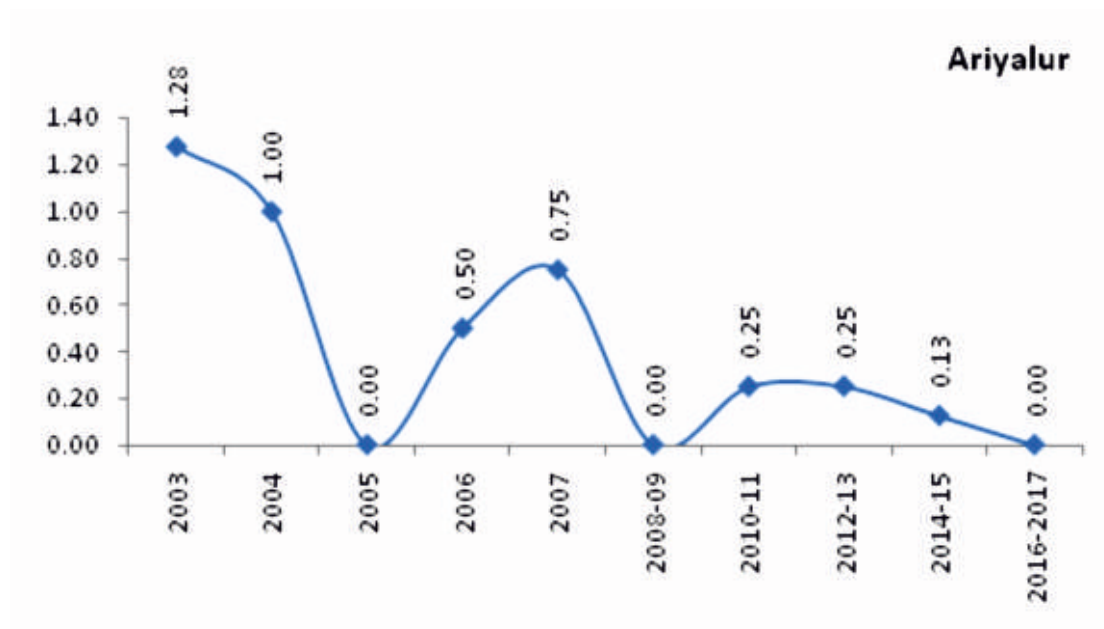
Figure 28
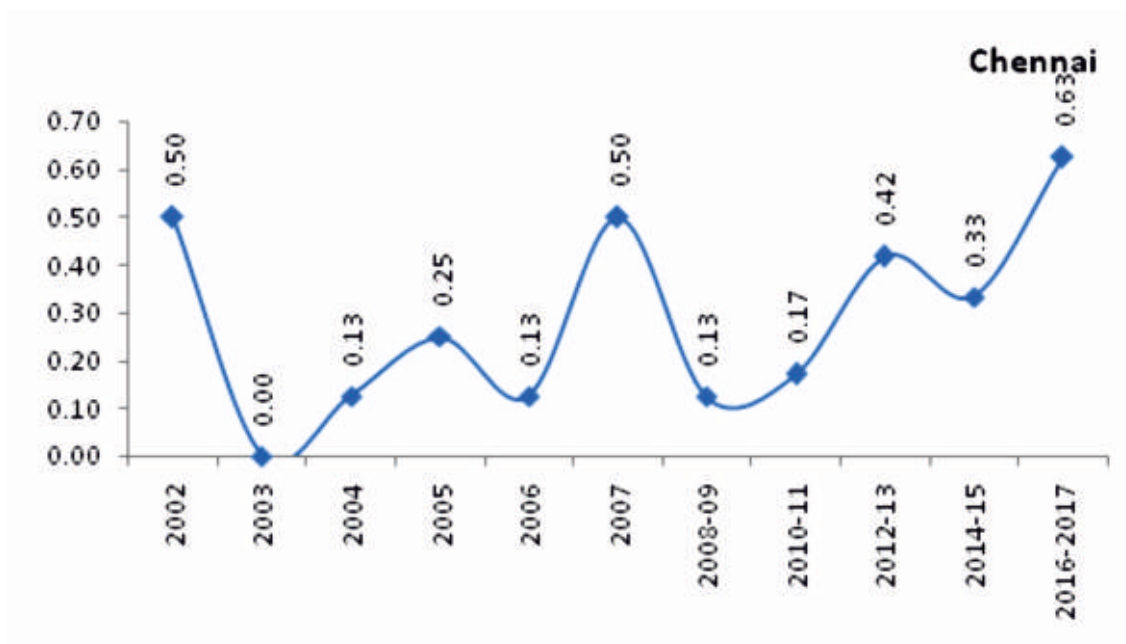
Figure 29
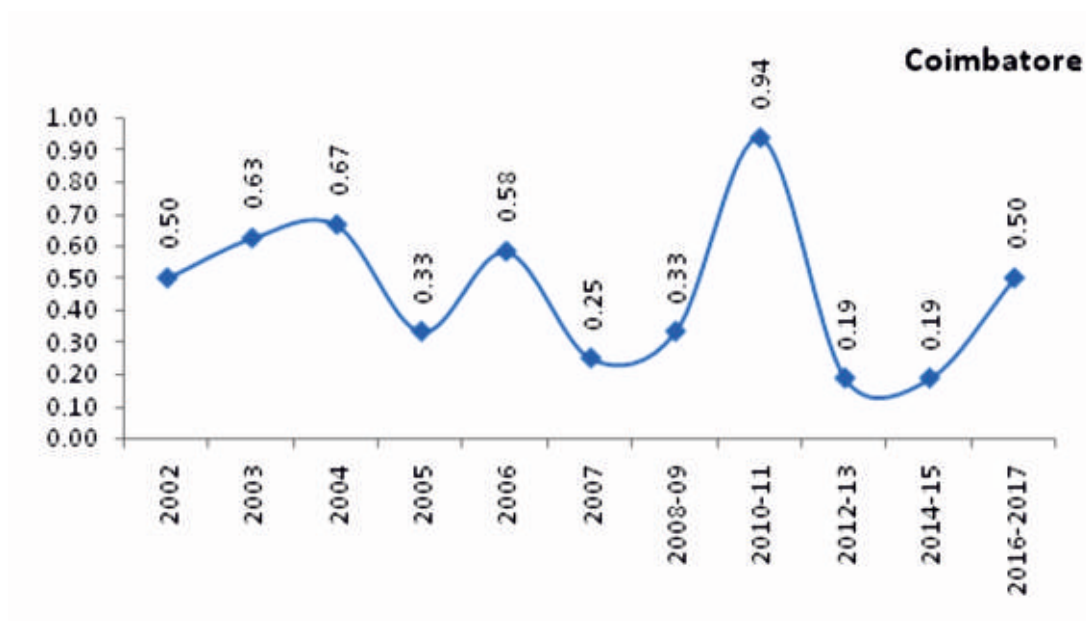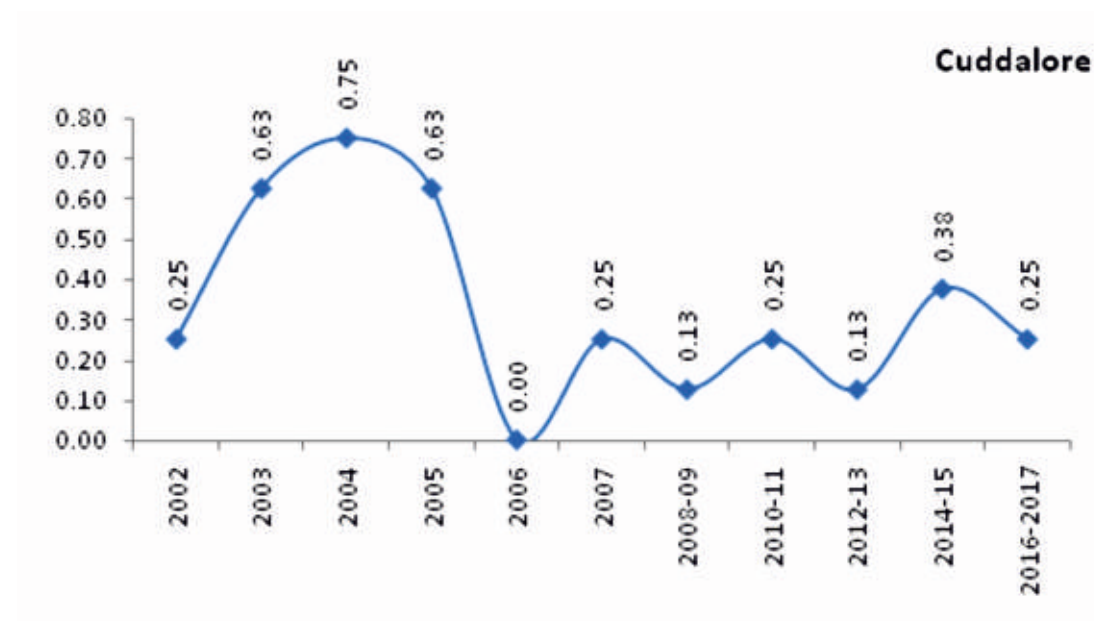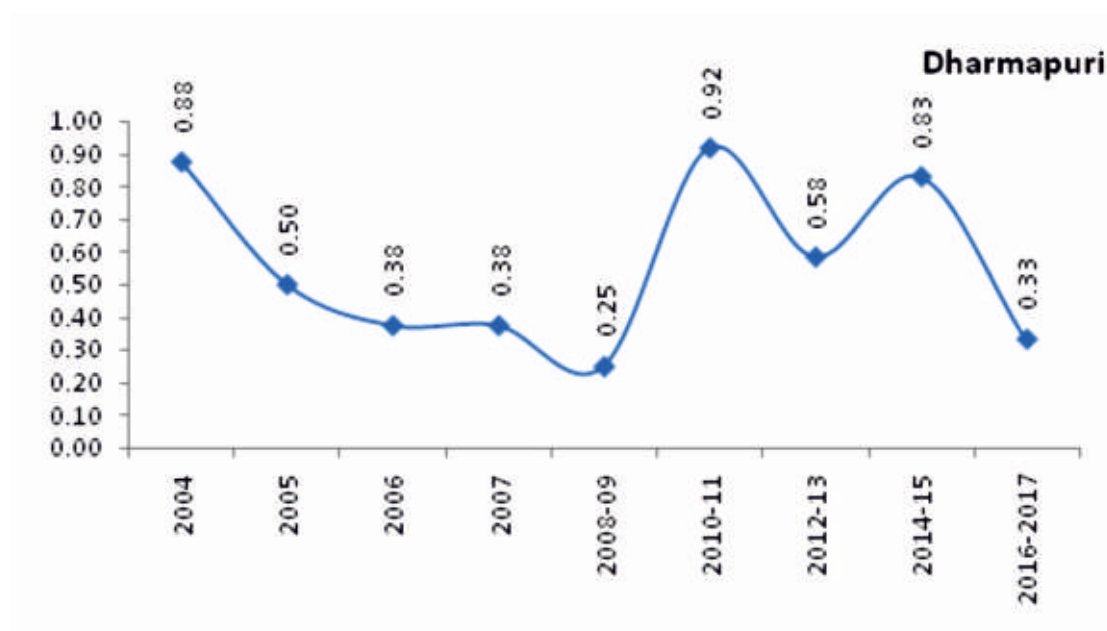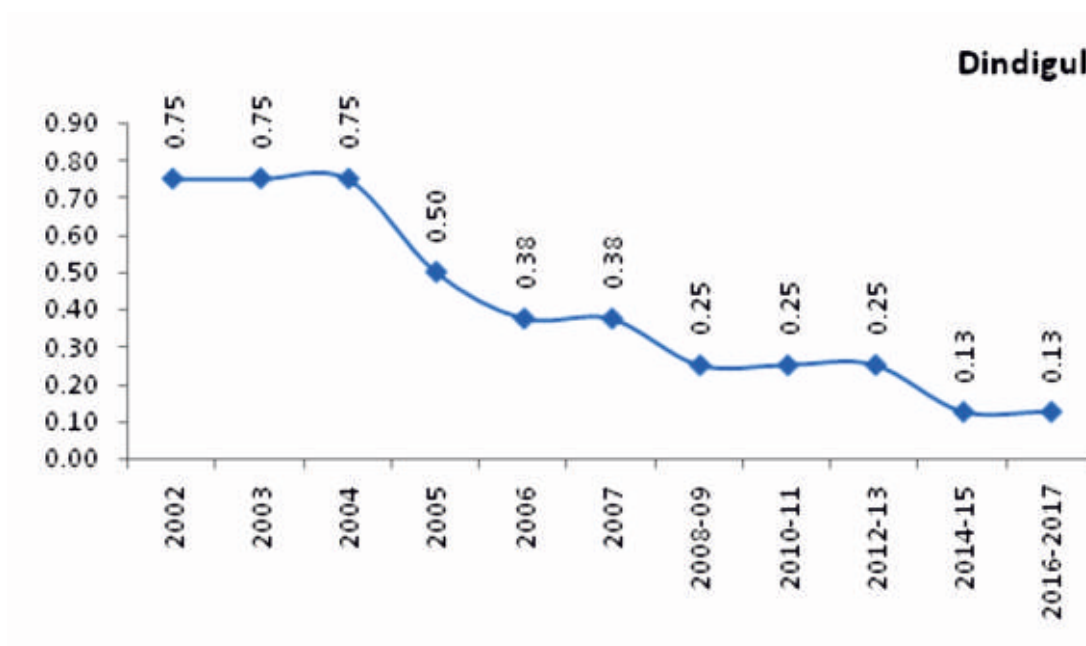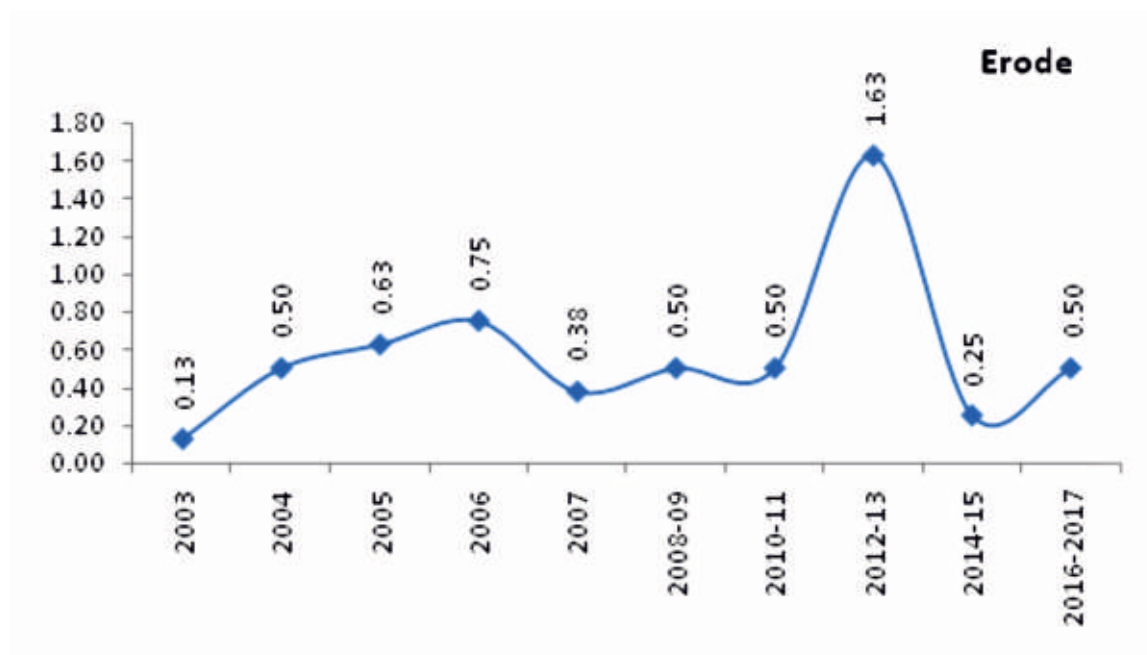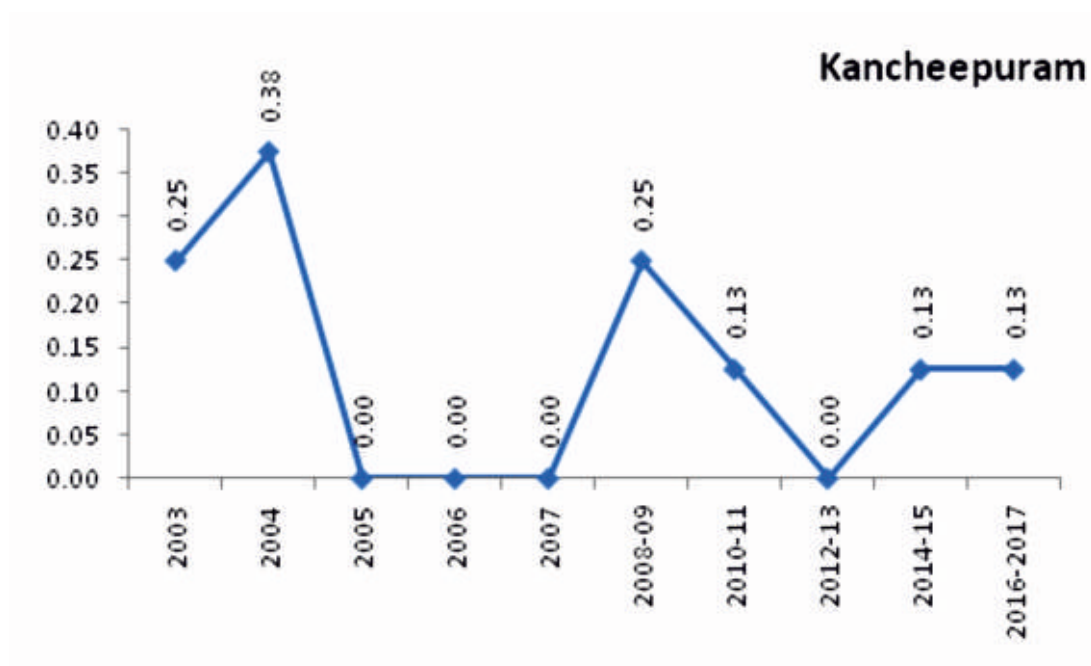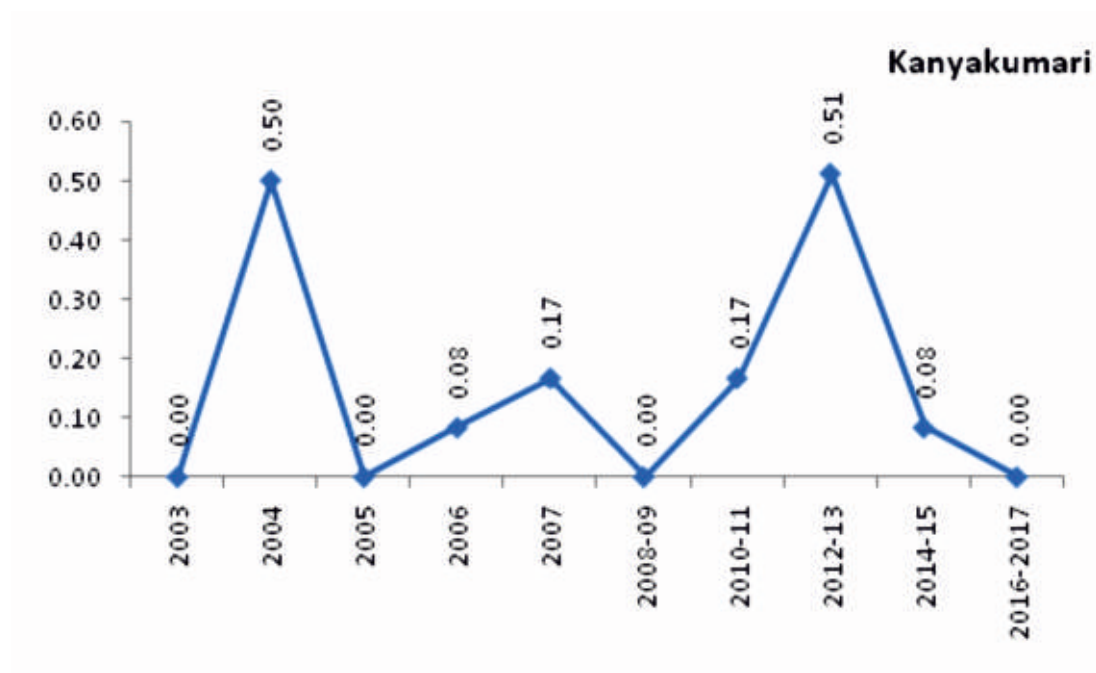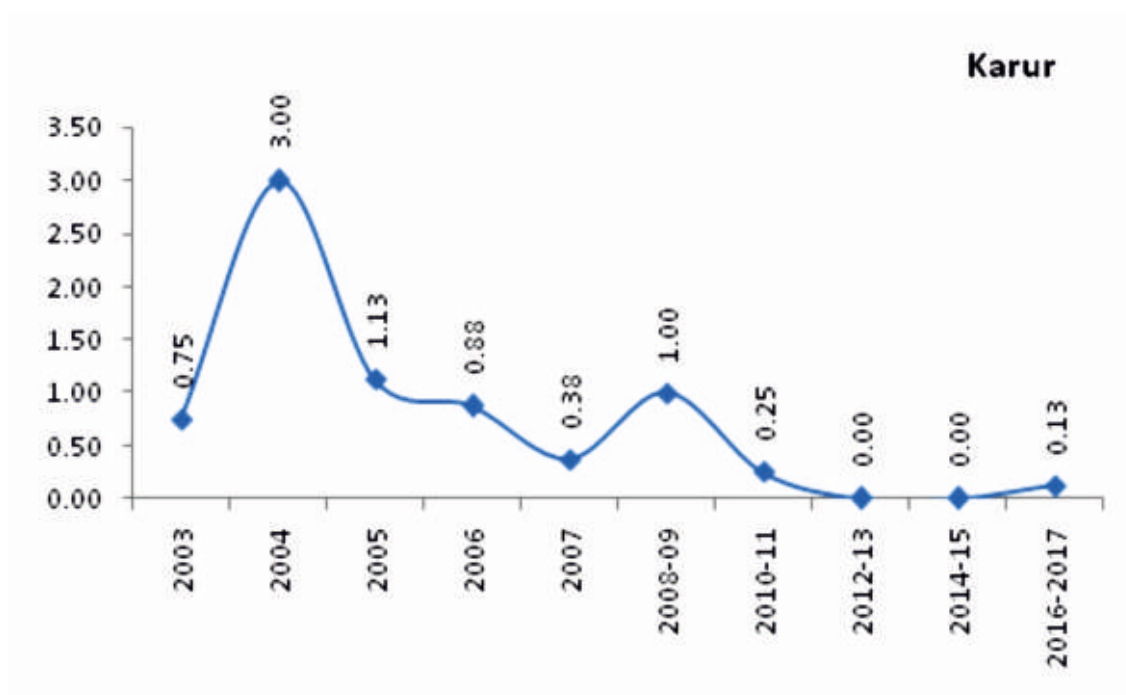
Coimbatore

Figure 30

Cuddalore

Figure 31

Dharmapuri

Year	Value
2004	0.88
2005	0.50
2006	0.38
2007	0.38
2008-09	0.25
2010-11	0.92
2012-13	0.58
2014-15	0.83
2016-2017	0.33

Figure 32

Dindigul

Year	Value
2002	0.75
2003	0.75
2004	0.75
2005	0.50
2006	0.38
2007	0.38
2008-09	0.25
2010-11	0.25
2012-13	0.25
2014-15	0.13
2016-2017	0.13

Figure 33

Erode

Figure 34

Kancheepuram

Figure 35

Kanyakumari

Figure 36

Karur

Figure 37

Krishnagiri

Figure 38

Madurai

Figure 39

Nagapattinam

Figure 40

Namakkal

Figure 41

Perambalur

Figure 42

Pudukkottai

Figure 43

Ramanathapuram

Figure44

Salem

Figure 45

Sivaganga

Figure46

Thanjavur

Figure 47

The Nilgiris

Figure48

Theni

Figure 49

Thiruvallur

Figure 50

Thiruvarur

Figure 51

Thoothukkudi

Figure 52

Tiruchirappalli

Figure 53

Tirunelveli

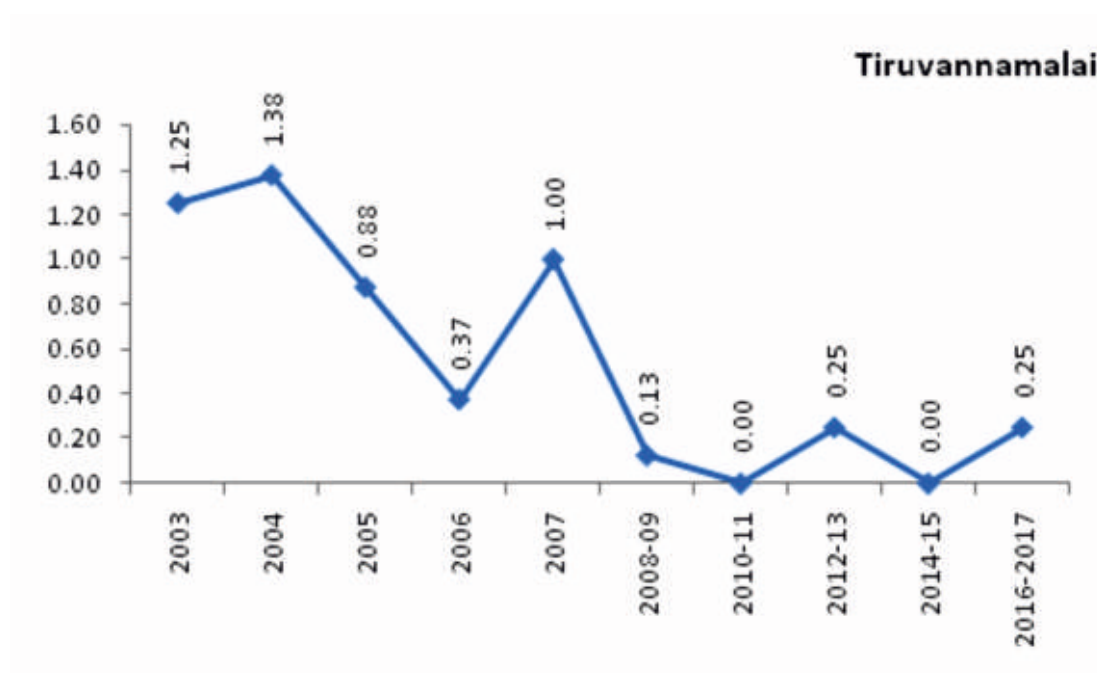**Figure 54**

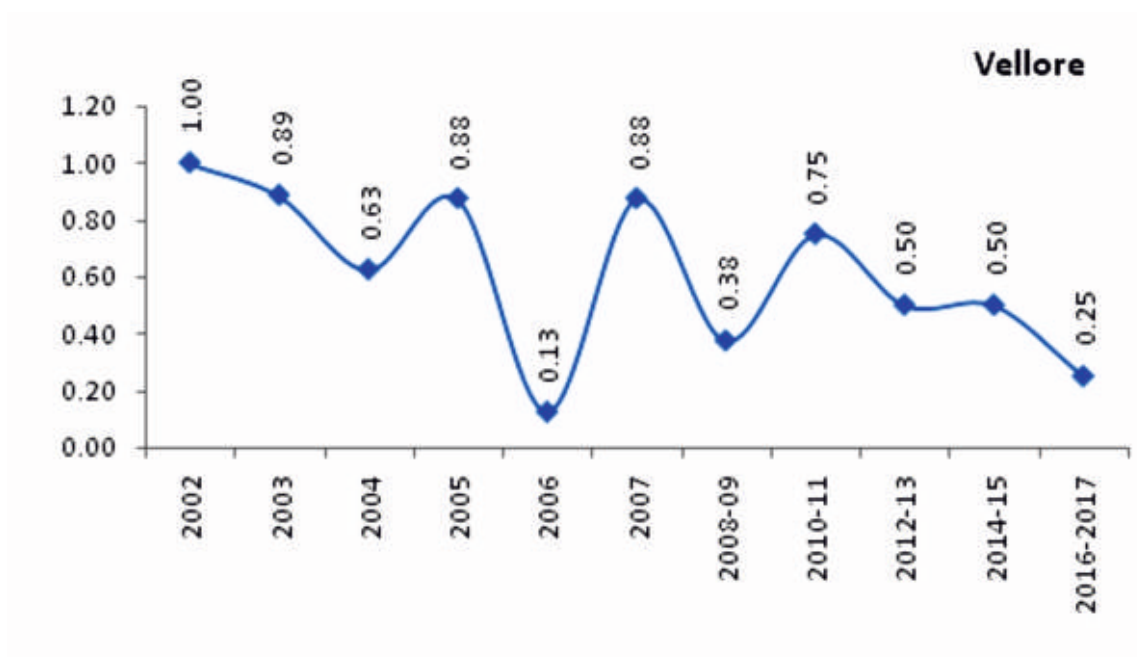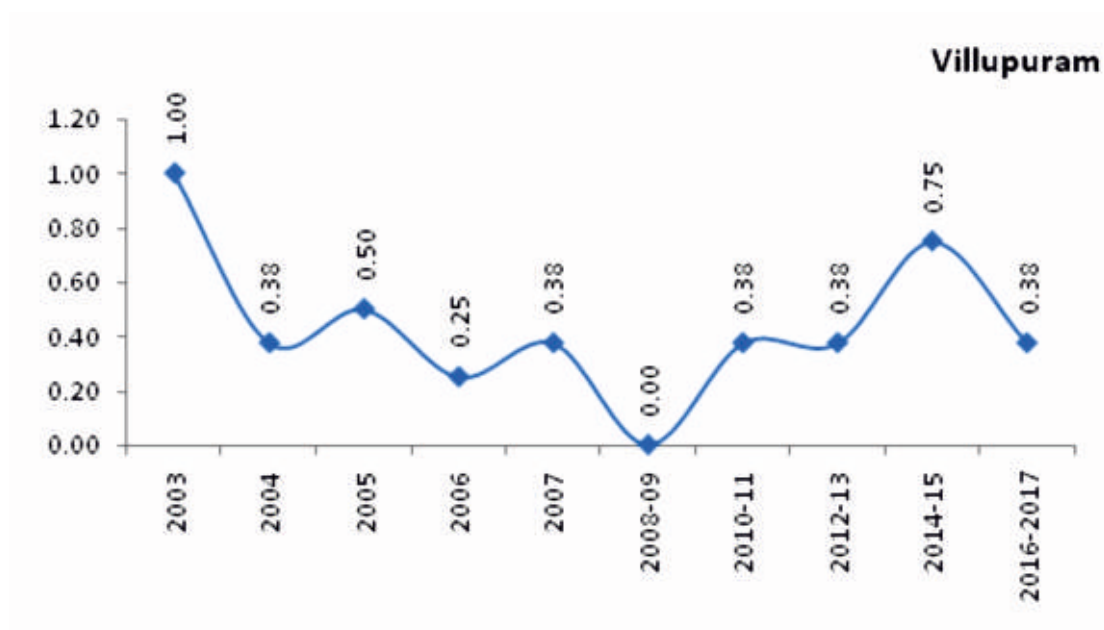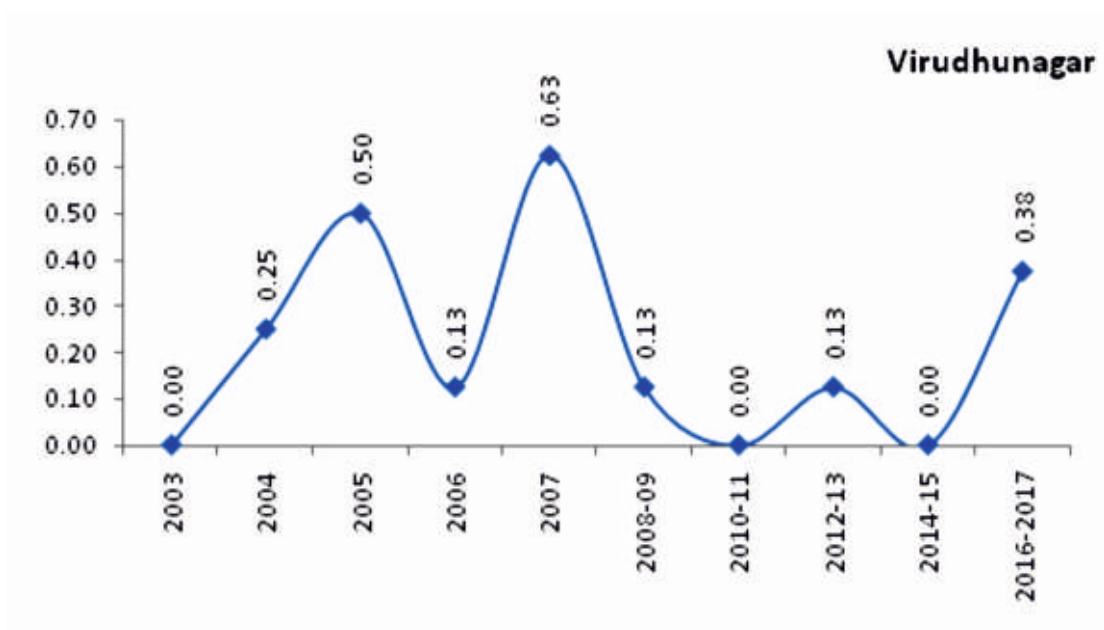Tiruppur
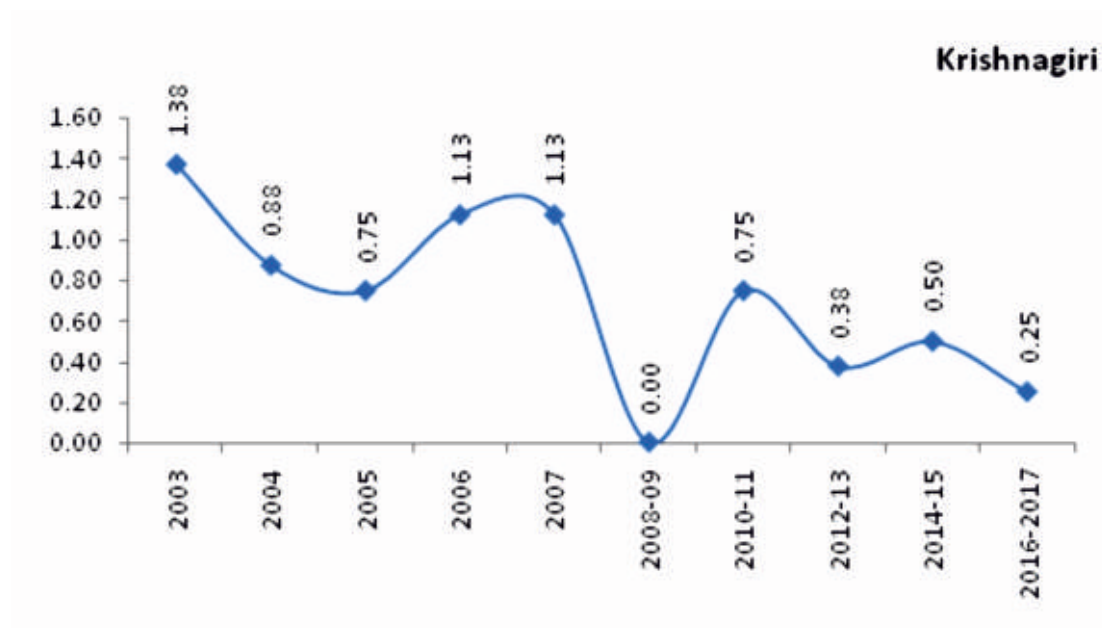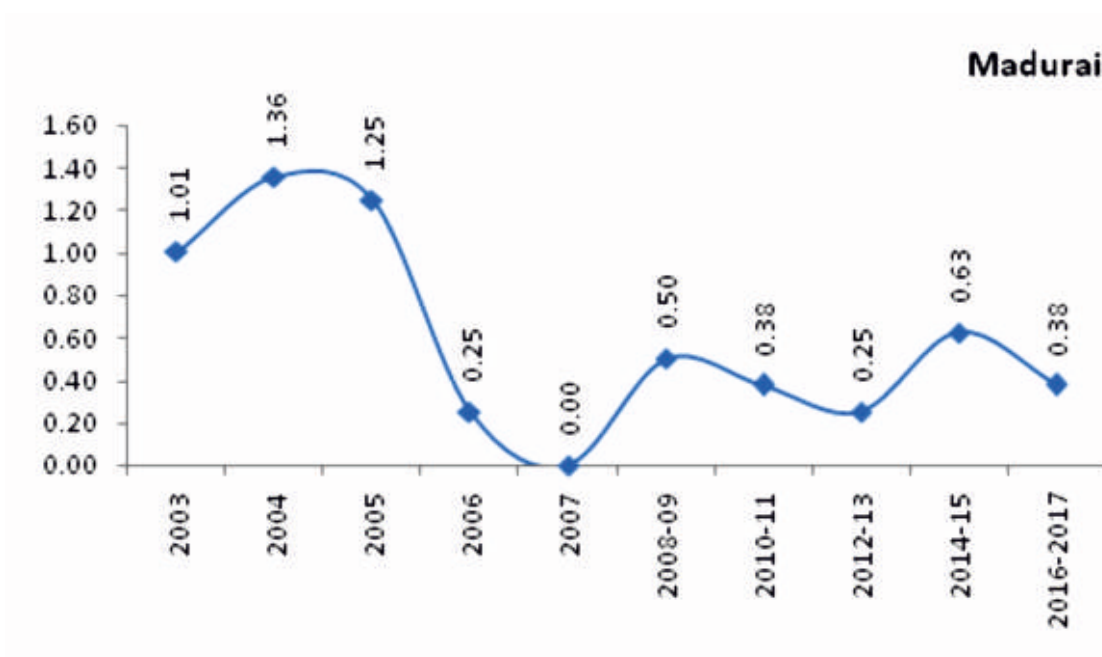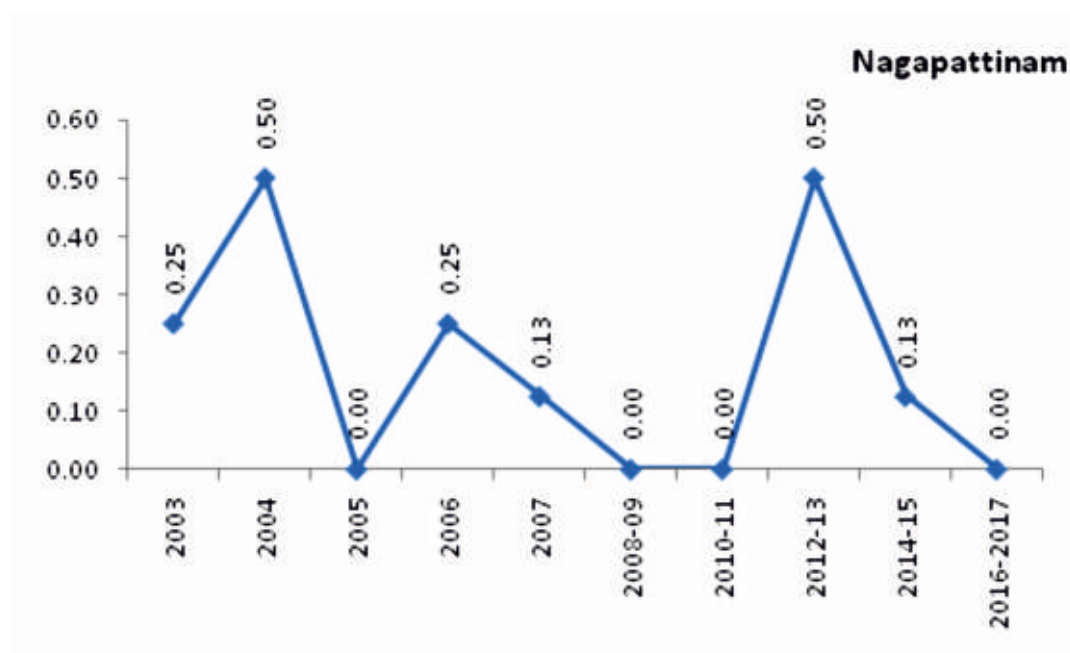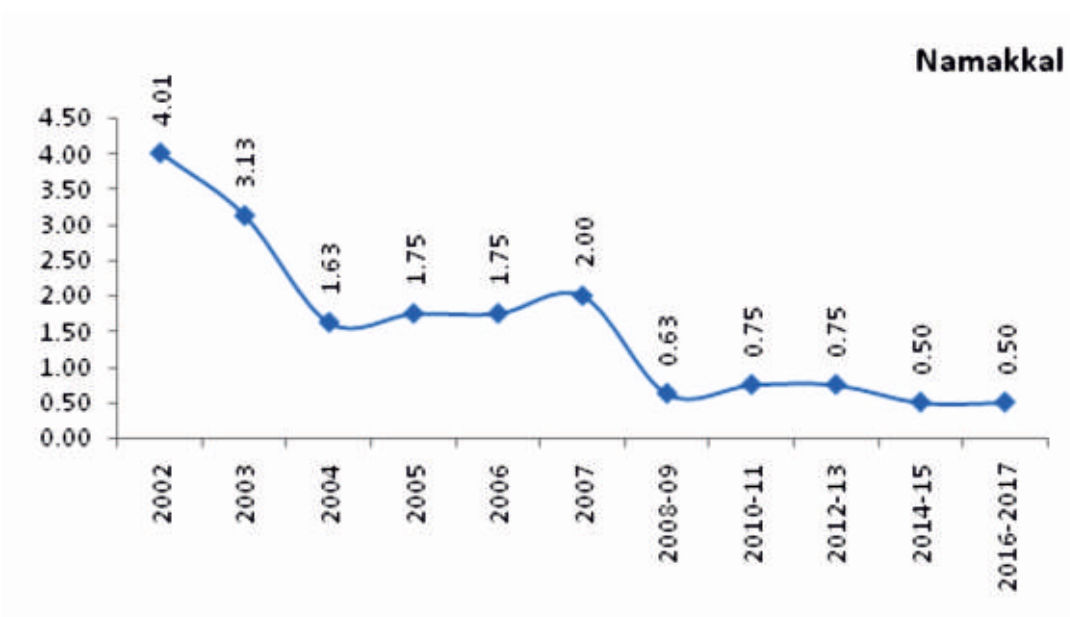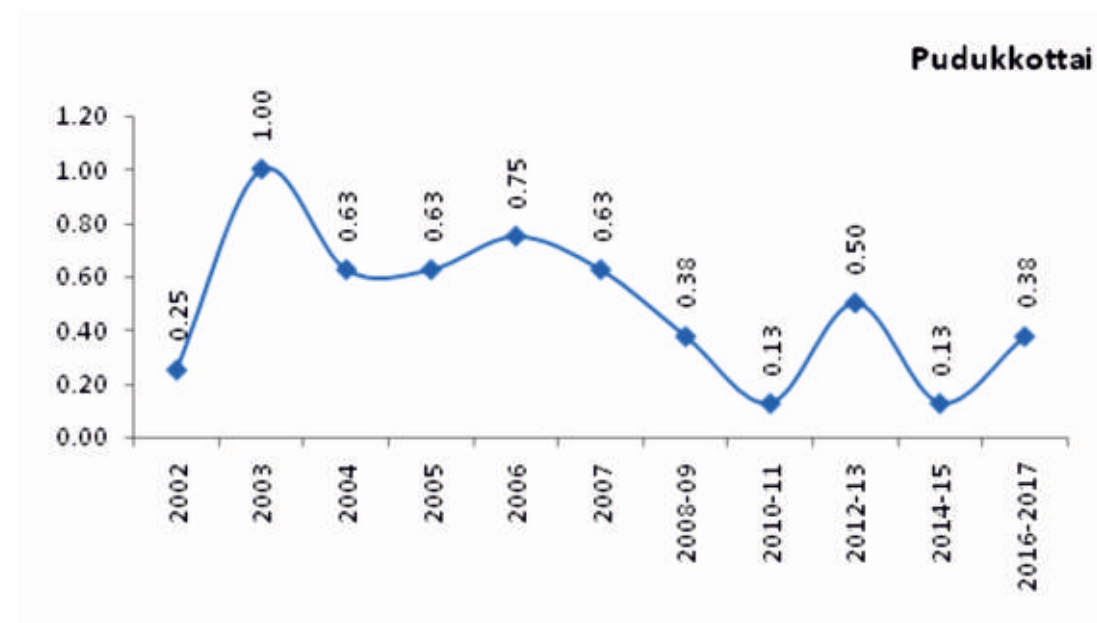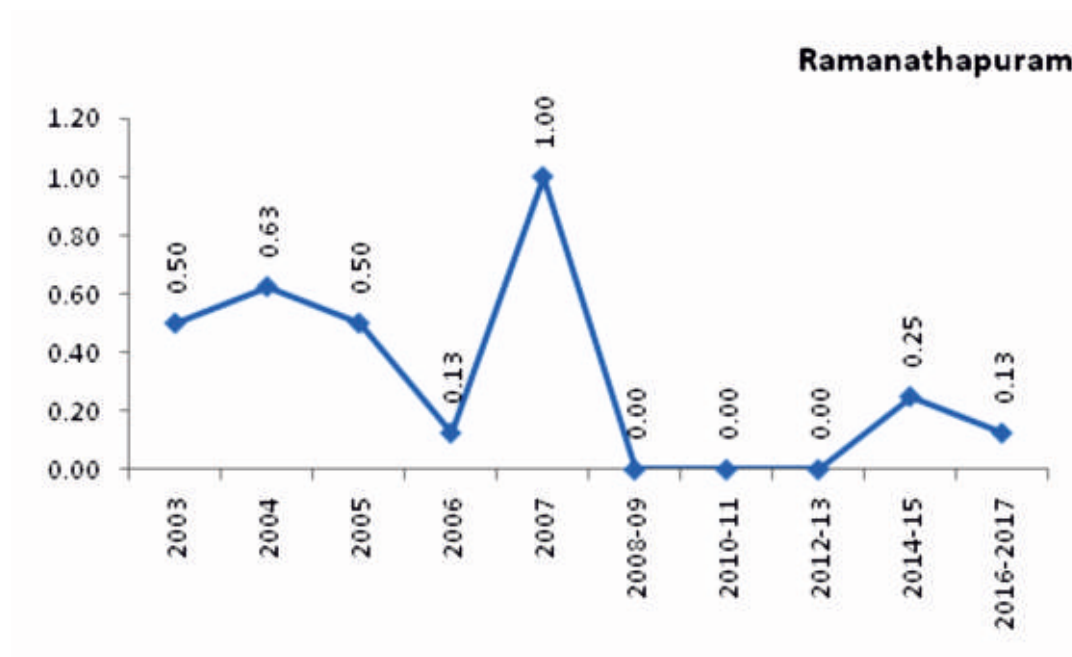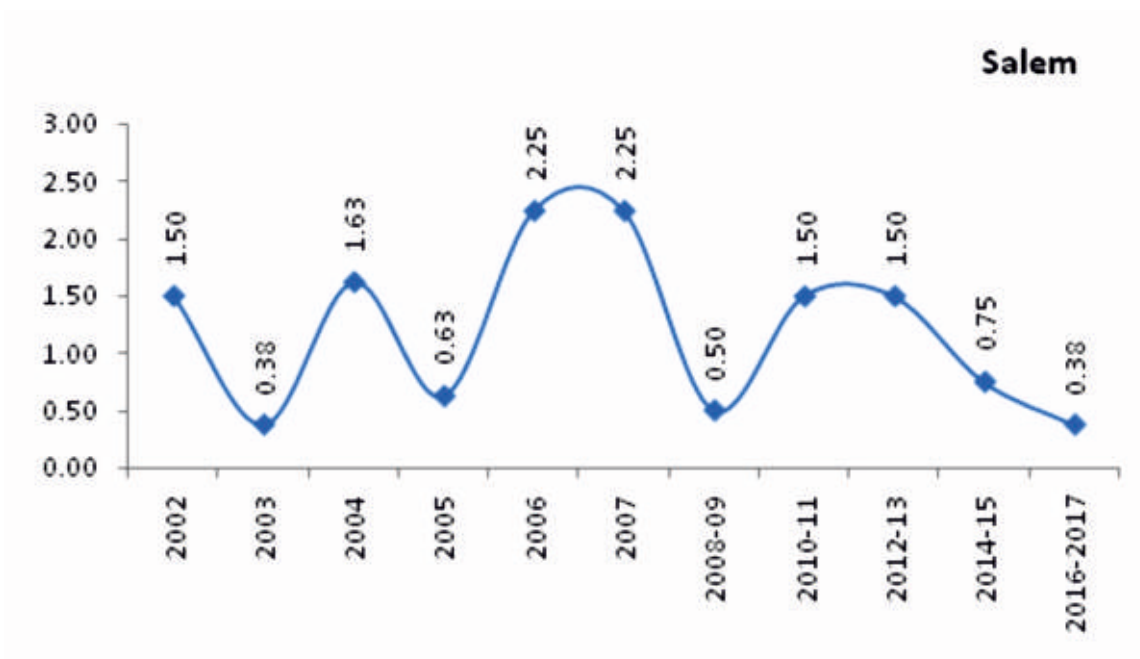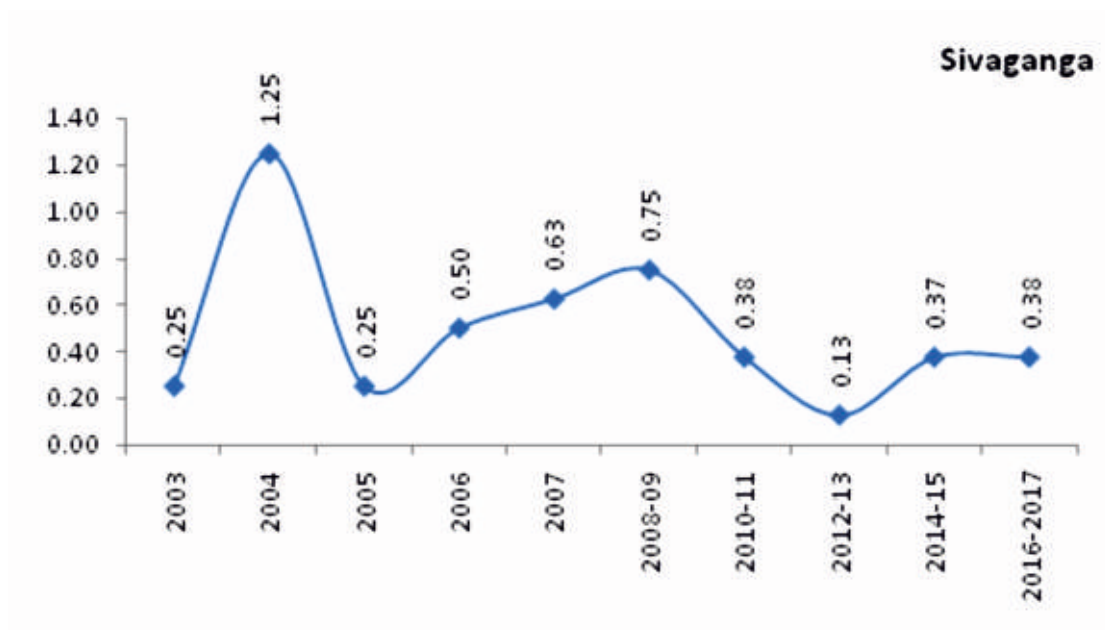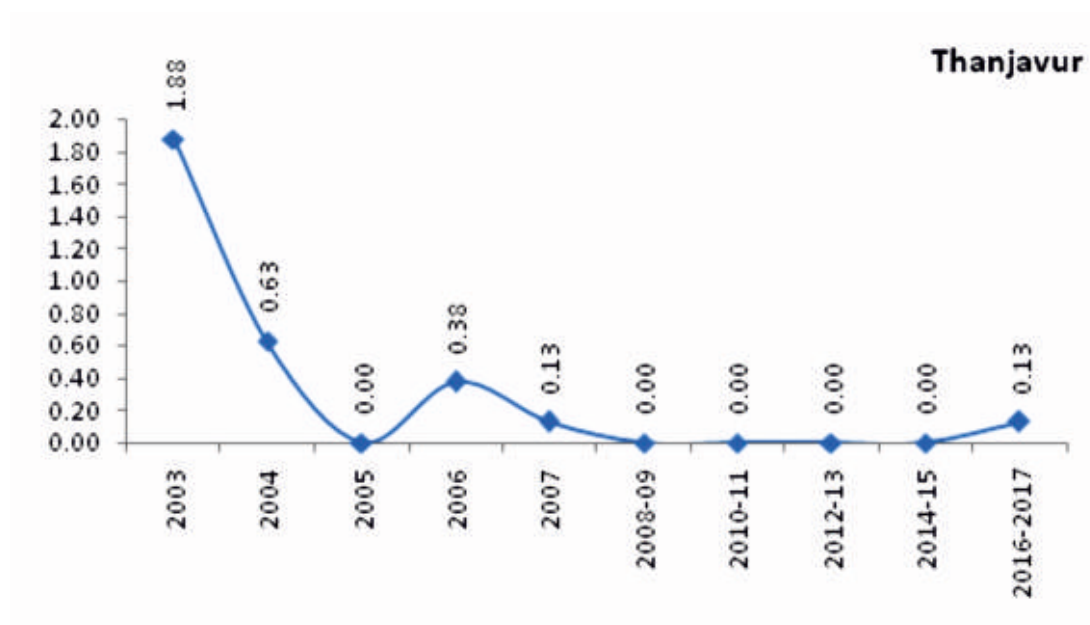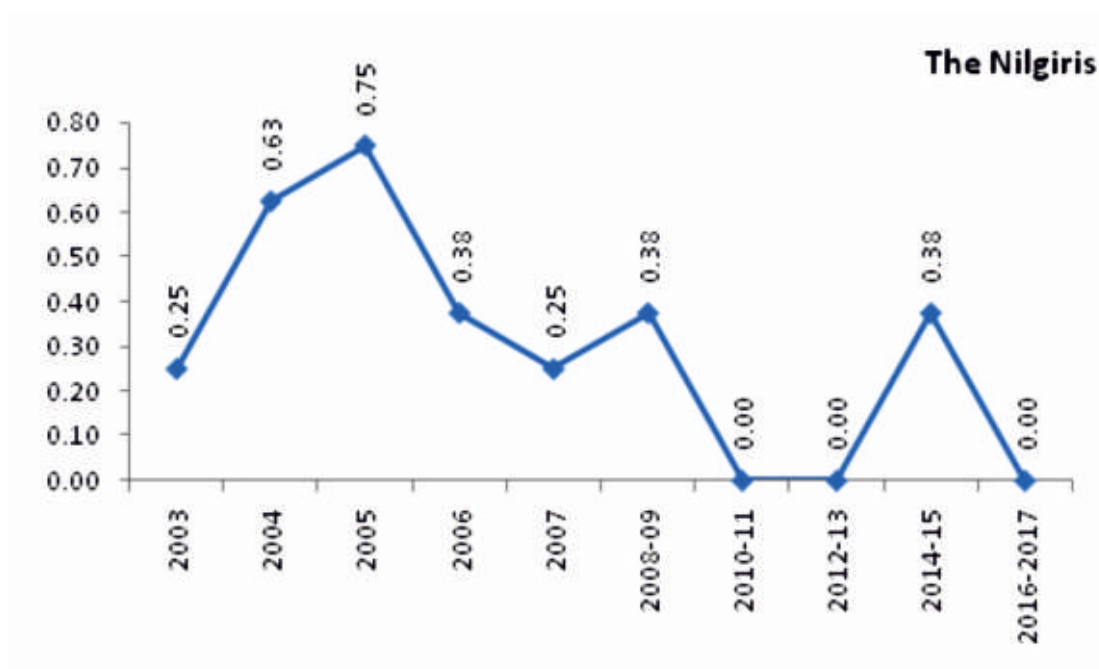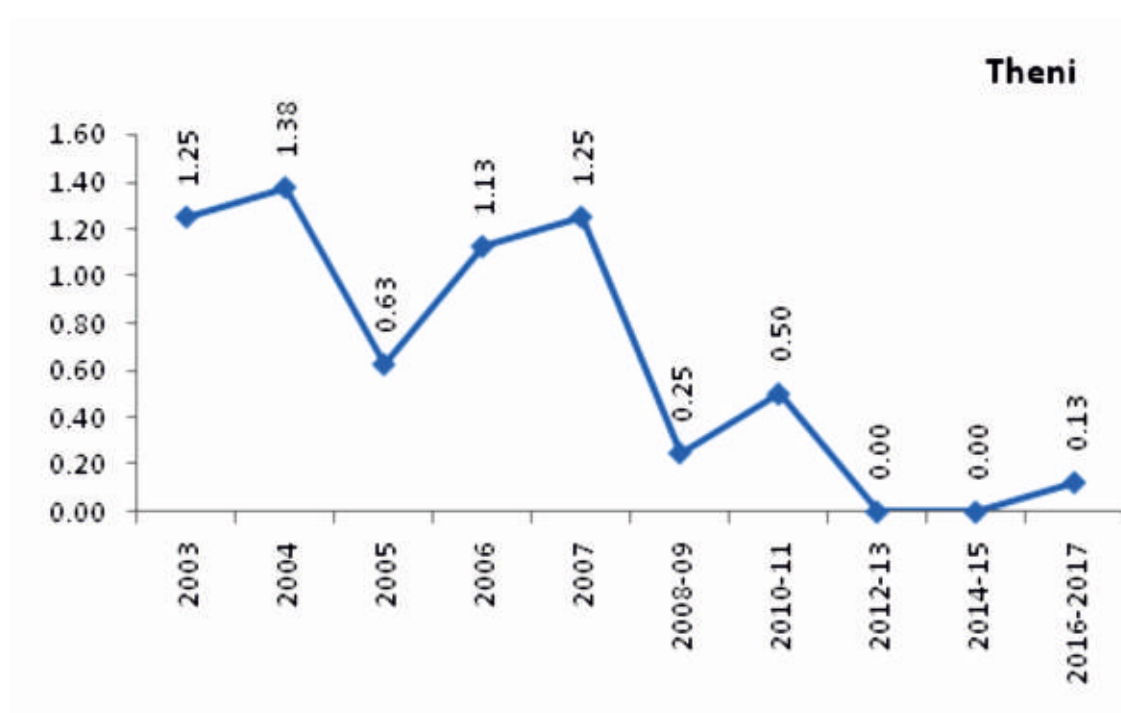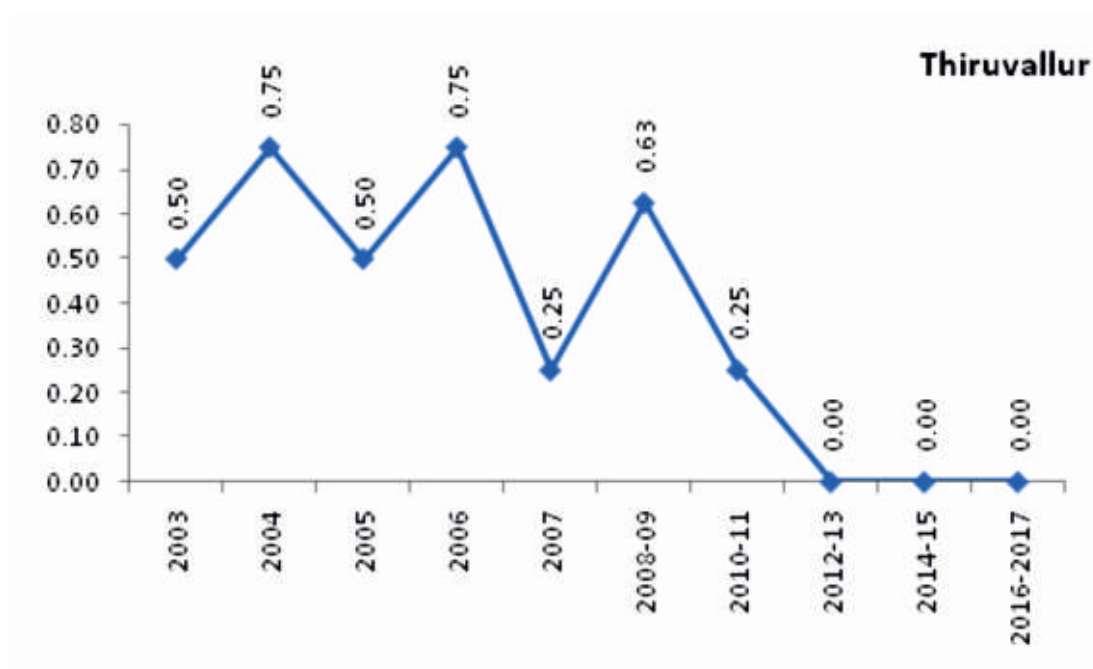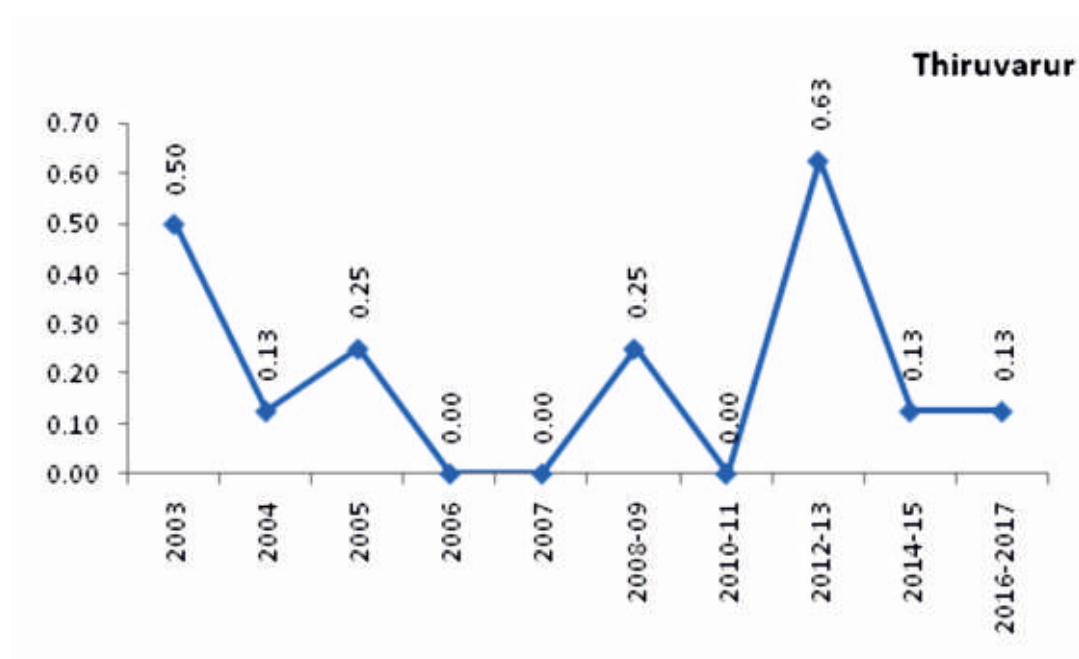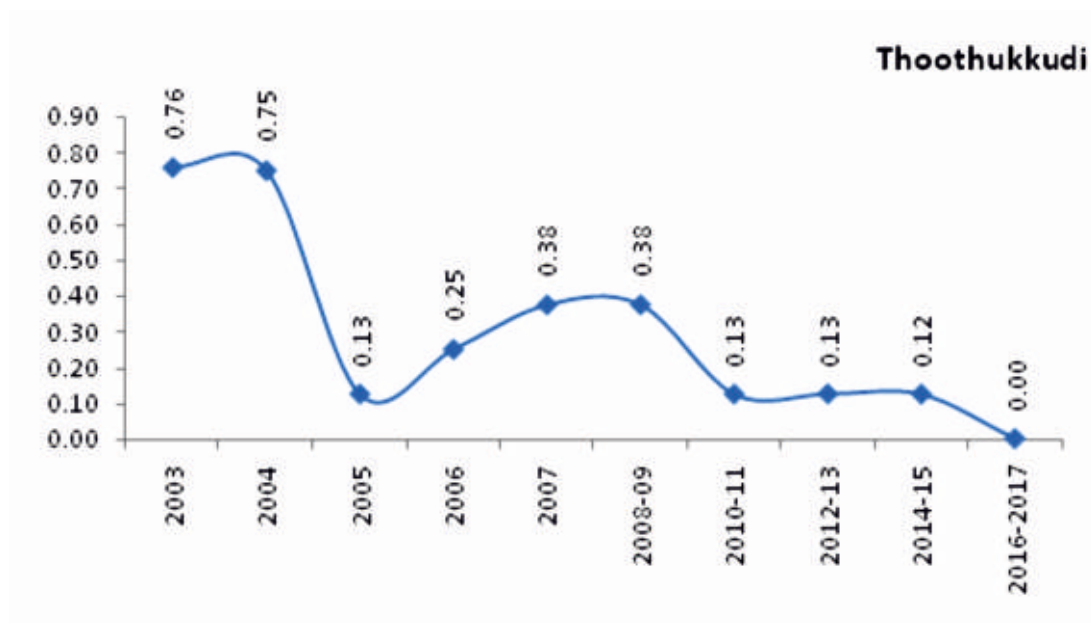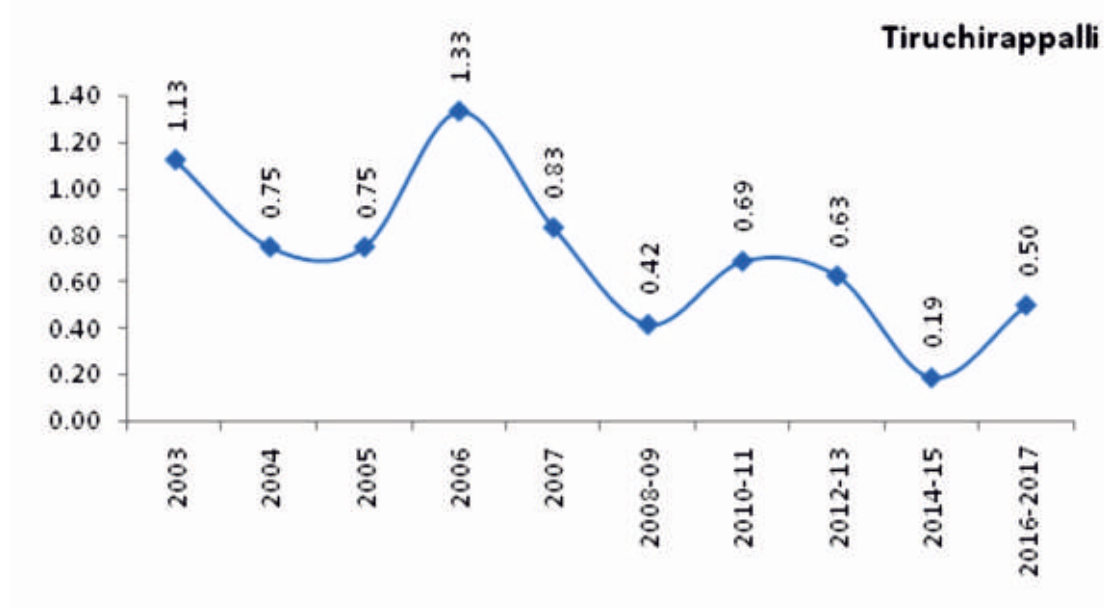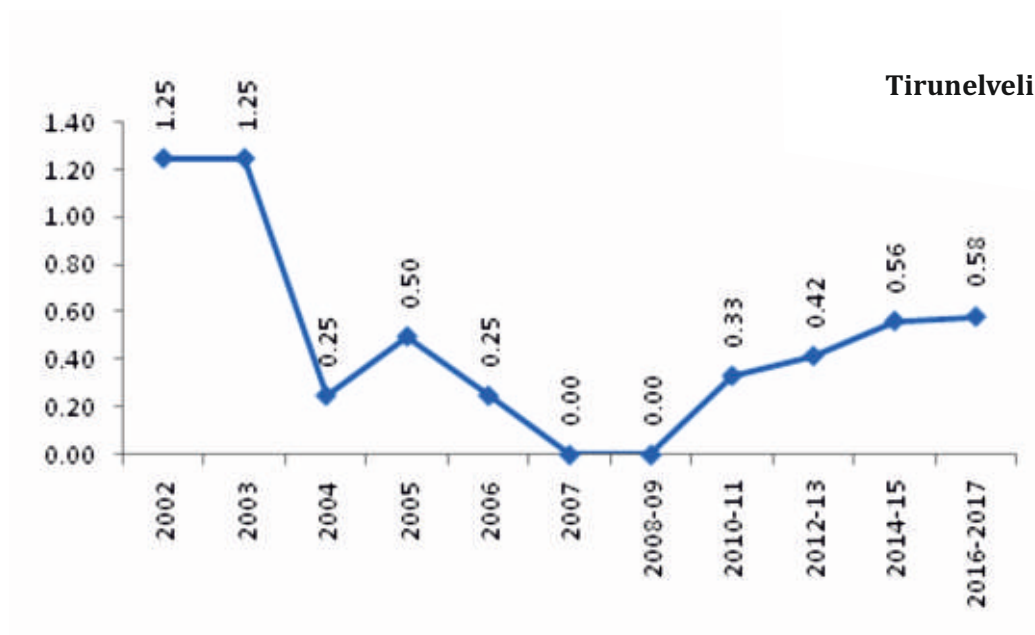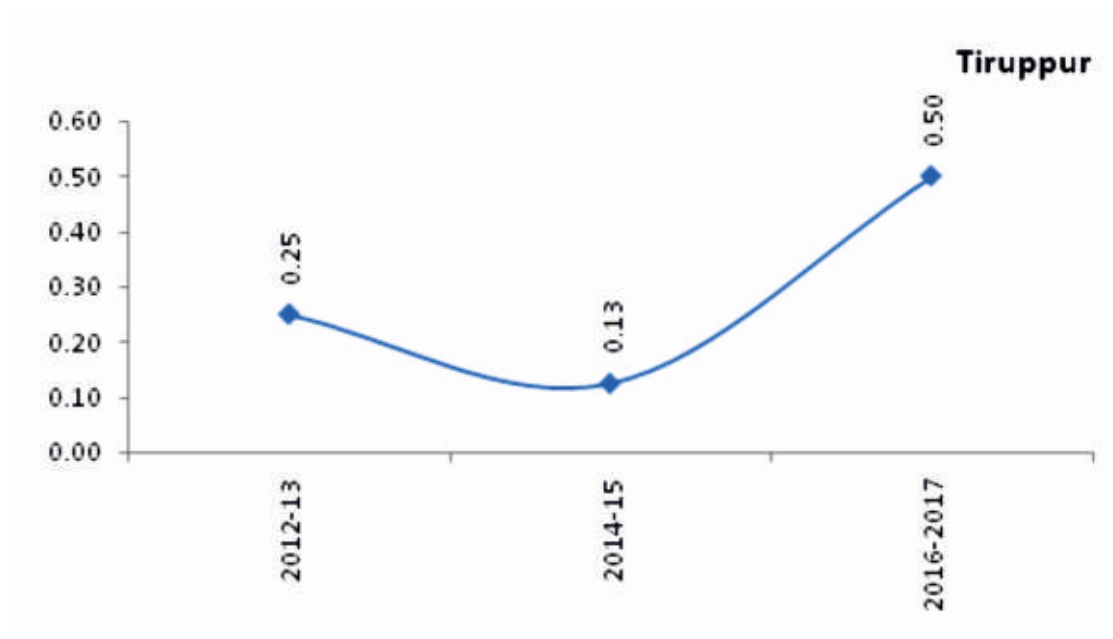
Figure 55

Figure56

Figure 57

Figure58

CHAPTER 7

SUMMARY

- The total sample of ANC analyzed was 28400across 32 districts in Tamil Nadu. The median age of respondents were 24 years in the state and ranged between 16 and 44 years across different districts.
- State level HIV prevalence among ANC respondents (n=28400) was 0.27%.
- HIV Prevalence among the age group of 15-24 was 0.28%and the same was 0.26% in 25-34 and 0.21% in 35-44 years age group.
- The proportion of illiterate ANC was 2.4% at the state level and the HIV prevalence among them was 0.7%.
- The proportions of illiterates varied from less than 2.4% in Erodeto 3.8% in Virudhunagar.
- At the state level, 45.7% of the respondents reported being pregnant for the first time.
- The state level HIV prevalence among ANC clinic attendees in primi-gravida was 0.30%, second gravida was 0.24 %, third gravida was 0.16% and in fourth gravida it was 0.60%.
- At the state level, 50.39% of the belonged to the Third trimester followed by 33.5% belonged to the second trimester and 16% of respondents were belonged to the first trimester.
- Highest HIV prevalence (0.28%) was seen in respondents with First trimester.
- Government hospital/ANM/ASHA was identified as the major source of referral to ANC clinics, accounting for 60% of respondents, followed by self-referral (26%), and family/relatives/neighbour/friends (12%). Only close to 1.3% had been referred by private service providers at the state level. NGOs and ICTC/ART centres accounted for 0.4%off referrals totally.
- Referral from government service providers was higher in the districts of Perambalur (99.4%), Viluppuram (98.3%), and Ariyalur (93.6%).
- Highest HIV prevalence (9.9%) was seen in people referred by ICTC/ART Centre.
- At the state level, 65.1% of respondents reported to be currently residing in rural areas.
- The HIV Prevalence both in Urban and Rural was calculated as 0.27%.
- At the state level, the majority of the respondents (91.3%) were housewives.
- At state level, 3.7 percent of HIV prevalence was seen among the pregnant mothers whose occupations were reported as Domestic Servant and 2.1% were seen in Housewives category.
- At the state level, the spouses of ANC attendees accounting for more than one-fourths (25.7%) were skilled/semiskilled worker and the HIV prevalence among the ANC attendees was calculated as 0.26% whereas 0.5% of HIV prevalence was observed in Large business/self employed category followed by 0.4% of HIV prevalence in Local transport worker and also in Truck driver/Helper.
- At the state level, 5.4% of respondents reported that their spouses were migrants. The highest proportion of migrant spouses observed in Ramanathapuram(17.4%).
- HIV Prevalence among migrant was 0.26% and among non-migrants was 0.27.
- Majority of the ANC respondents reported being tested for HIV (85.31%)

Annexure 1 Site wise HIV Prevalence in Tamil Nadu from the year 2002-2017

S.No.	State	District name	SiteType	Sentinel Site	2002 (%)	2003 (%)	2004 (%)	2005 (%)	2006 (%)	2007 (%)	2008-09 (%)	2010-11 (%)	2012-13 (%)	2014-15 (%)	2016-17 (%)
1	Tamil Nadu	Ariyalur	ANC(U)	GH, Ariyalur		1.28	1.00	0.00	0.50	0.75	0.00	0.25	0.25	0.00	0.00
2	Tamil Nadu	Ariyalur	ANC(R)	PHC,Andimadam (New12)									0.25	0.25	0.00
3	Tamil Nadu	Chennai	ANC	Chennai_Institute of Obsetrics & Gynecology	0.50	0.00	0.00	0.50	0.25	1.00	0.25	0.00	0.75	0.25	0.50
4	Tamil Nadu	Chennai	ANC	St. Isabels Hospital			0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.75	
5	Tamil Nadu	Chennai	ANC 15 24	Chennai ANC 1524								0.54	0.50	0.00	0.75
6	Tamil Nadu	Coimbatore	ANC	Govt. Medical College hospital	0.50	0.75	0.50	0.75	1.00	0.75	1.00	1.75	0.50	0.25	1.50
7	Tamil Nadu	Coimbatore	ANC	Sheila Hospital			0.75	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	Tamil Nadu	Coimbatore	ANC(R)	GH, Pollachi		0.50	0.75	0.00	0.75	0.00	0.00	0.25	0.25	0.00	0.25
9	Tamil Nadu	Coimbatore	ANC 15 24	Coimbatore ANC 1524								1.75	0.00	0.50	0.25
10	Tamil Nadu	Cuddalore	ANC	Government Distt. Hq Hospital	0.25	0.25	0.50	0.25	0.00	0.00	0.25	0.50	0.25	0.75	0.25
11	Tamil Nadu	Cuddalore	ANC(R)	GH, Panruti		1.00	1.00	1.00	0.00	0.50	0.00	0.00	0.00	0.00	0.25
12	Tamil Nadu	Dharmapuri	ANC	Govt. Distt. Hq Hospital			1.25	0.75	0.50	0.00	0.25	1.75	1.00	1.75	0.50
13	Tamil Nadu	Dharmapuri	ANC(R)	FRU Harur			0.50	0.25	0.25	0.75	0.25	0.75	0.50	0.49	0.25
14	Tamil Nadu	Dharmapuri	ANC 15 24	Dharmapuri ANC 1524								0.25	0.25	0.25	0.25
15	Tamil Nadu	Dindigul	ANC	Government Distt. Hq Hospital	0.75	1.25	0.75	0.25	0.25	0.75	0.25	0.00	0.25	0.00	0.00
16	Tamil Nadu	Dindigul	ANC(R)	GH, Palani		0.25	0.75	0.75	0.50	0.00	0.25	0.50	0.25	0.25	0.25
17	Tamil Nadu	Erode	ANC	Govt. Distt. Hq Hospital		0.00	0.50	1.00	0.75	0.25	1.00	1.00	0.25	0.25	0.50
18	Tamil Nadu	Erode	ANC(R)	GH, Gobichettipalayam		0.25	0.50	0.25	0.75	0.50	0.00	0.00	3.00	0.25	0.50
19	Tamil Nadu	Kancheepuram	ANC	Govt. Distt. Hq Hospital		0.25	0.00	0.00	0.00	0.00	0.50	0.25	0.00	0.25	0.00
20	Tamil Nadu	Kancheepuram	ANC(R)	GH, Maduranthagam		0.25	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25
21	Tamil Nadu	Kanyakumari	ANC	Govt. Medical College Hospital, Nagercoil		0.00	1.00	0.00	0.00	0.00	0.00	0.50	1.00	0.00	0.00
22	Tamil Nadu	Kanyakumari	ANC	Jeyasekaran Hospital, Nagercoil			0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00

No.	State	District	Type	Site Name														
23	Tamil Nadu	Kanyakumari	ANC(R)	Govt. Hospital Padmanabapuram		0.50	0.00	0.25	0.50	0.00	0.00	0.00	0.00	0.27	0.25	0.00	
24	Tamil Nadu	Karur	ANC	Govt. Distt. Hq Hospital	1.00	2.75	2.00	1.25	0.50	1.00	0.25	1.00	0.25	0.00	0.00	0.00	
25	Tamil Nadu	Karur	ANC(R)	GH, Kulithali	0.50	3.25	0.25	0.50	0.25	1.00	0.25	0.25	0.00	0.00	0.00	0.25	
26	Tamil Nadu	Krishnagiri	ANC	ANC_Krishnagiri	1.50	1.00	1.00	1.00	0.50	0.00	0.75	0.50	0.50	0.25	0.25		
27	Tamil Nadu	Krishnagiri	ANC(R)	ANC_FRU Hosur (Krishnagiri)	1.25	0.58	0.50	1.25	1.75	0.00	0.75	0.75	0.25	0.75	0.25		
28	Tamil Nadu	Madurai	ANC	Govt. Madurai Medical College Rajaji Hospital	1.00	0.75	0.25	0.25	1.50	0.00	0.25	0.50	0.25	0.25	1.00	0.75	
29	Tamil Nadu	Madurai	ANC(R)	GH, Melur	1.26	3.70	1.00	0.25	0.00	0.75	0.75	0.25	0.25	0.25	0.00		
30	Tamil Nadu	Nagapattinam	ANC	Arthur Hospital				0.25									
31	Tamil Nadu	Nagapattinam	ANC	Govt. Distt. Hq Hospital	0.25	0.50	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.25	0.00	
32	Tamil Nadu	Nagapattinam	ANC(R)	Govt. Hospital, Mayiladuthurai		0.50	0.00	0.50	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
33	Tamil Nadu	Namakkal	ANC	Government Dist. HQ Hospital	4.01	5.76	2.50	3.50	3.00	3.25	1.00	0.50	1.00	1.00	1.00	0.25	
34	Tamil Nadu	Namakkal	ANC(R)	GH, Tiruchengode	0.50	0.75	0.00	0.50	0.75	0.25	1.00	0.50	0.00	0.00	0.75		
35	Tamil Nadu	Perambalur	ANC	Govt. distt. Hq Hospital	0.50	1.25	1.50	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00		
36	Tamil Nadu	Perambalur	ANC	PHC,Labbaikudikadu (New12)										0.00	0.00	0.00	
37	Tamil Nadu	Pudukkottai	ANC	Government Distt. Hq Hospital, Pudukkottai	0.25	2.00	0.75	1.00	1.25	0.75	0.25	0.50	0.25	0.00	0.25		
38	Tamil Nadu	Pudukkottai	ANC(R)	GH, Aranthangi	0.00	0.50	0.50	0.50	0.00	0.00	0.00	0.00	0.50	0.25	0.50		
39	Tamil Nadu	Ramanathapuram	ANC	Govt. Distt. Hq Hospital	0.50	0.75	0.00	0.25	1.00	0.00	0.00	0.00	0.00	0.50	0.25		
40	Tamil Nadu	Ramanathapuram	ANC(R)	GH, Paramakudi	0.50	0.50	1.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00		
41	Tamil Nadu	Salem	ANC	Govt. Mohan Kumarmangalam Med. College Hospital	1.50	2.00	0.75	3.00	4.25	1.00	2.00	0.25	2.00	1.00	0.25		
42	Tamil Nadu	Salem	ANC(R)	GH, Attur	0.50	1.25	0.50	1.50	0.25	0.00	1.00	2.76	0.50	0.50			
43	Tamil Nadu	Sivaganga	ANC	Govt. Distt. Hq Hospital	0.25	0.75	0.50	0.50	0.25	0.50	0.75	0.25	0.75	0.25	0.25		
44	Tamil Nadu	Sivaganga	ANC(R)	Govt. Hospital, Karaikudi		1.75	0.00	0.50	1.00	1.00	0.00	0.00	0.50	0.00	0.50		
45	Tamil Nadu	Thanjavur	ANC	Govt. Distt. Hq Hospital, Kumbakonam	3.25	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25		
46	Tamil Nadu	Thanjavur	ANC(R)	GH, Pattukkottai	0.50	0.50	0.00	0.75	0.25	0.00	0.00	0.00	0.00	0.00	0.00		
47	Tamil Nadu	The Nilgiris	ANC	Govt. Distt. Hq Hospital, Ooty	0.25	0.50	1.00	0.50	0.25	0.75	0.00	0.00	0.00	0.25	0.00		

No.	State	District	Site	Type											
48	Tamil Nadu	The Nilgiris	GH, Coonoor	ANC(R)		0.25	0.75	0.50	0.25	0.25	0.00	0.00	0.00	0.50	0.00
49	Tamil Nadu	Theni	Govt. Distt. Hq Hospital, Periyakulam	ANC		1.00	1.50	0.50	1.75	0.50	0.50	0.75	0.00	0.00	0.00
50	Tamil Nadu	Theni	GH, Cumbum	ANC(R)		1.50	1.25	0.75	0.50	2.00	0.00	0.25	0.00	0.00	0.25
51	Tamil Nadu	Thiruvallur	Govt. Distt. Hq Hospital	ANC		0.50	0.50	0.50	1.25	0.00	0.25	0.00	0.00	0.00	0.00
52	Tamil Nadu	Thiruvallur	GH, Thiruthani	ANC(R)		0.50	1.00	0.50	0.25	0.50	1.00	0.50	0.00	0.00	0.00
53	Tamil Nadu	Thiruvarur	Govt. Distt. Hq Hospital	ANC		0.50	0.25	0.00	0.00	0.00	0.50	0.00	1.26	0.25	0.25
54	Tamil Nadu	Thiruvarur	Govt. Hospital, Mannargudi	ANC(R)			0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	Tamil Nadu	Thoothukkudi	Govt. Medical College Hospital	ANC		0.77	0.50	0.00	0.25	0.25	0.75	0.00	0.25	0.25	0.00
56	Tamil Nadu	Thoothukkudi	GH, Kovilpatti	ANC(R)		0.75	1.00	0.25	0.25	0.50	0.00	0.25	0.00	0.00	0.00
57	Tamil Nadu	Tiruchirapalli	CSI Hospital	ANC			0.50	0.25	0.25	0.00	0.00	0.75	0.00	0.00	0.25
58	Tamil Nadu	Tiruchirapalli	Govt. Medical College Hospital	ANC		1.50	1.25	1.50	2.50	2.25	1.00	1.25	1.50	0.25	1.25
59	Tamil Nadu	Tiruchirapalli	GH, Manapparai	ANC(R)		0.75	0.50	0.50	1.25	0.25	0.25	0.25	0.00	0.00	0.25
60	Tamil Nadu	Tiruchirappalli	Tiruchirapaally ANC 15 24	ANC 15 24	1.25							0.50	1.00	0.50	0.25
61	Tamil Nadu	Tirunelveli	Govt. Medical College Hospital	ANC		2.25	0.25	0.75	0.25	0.00	0.00	0.25	0.75	1.00	1.00
62	Tamil Nadu	Tirunelveli	GH, Ambasamudram	ANC(R)		0.25	0.25	0.25	0.25	0.00	0.00	0.00	0.50	0.00	0.00
63	Tamil Nadu	Tirunelveli	Tirunelveli ANC 1524	ANC 15 24								0.75	0.00	0.76	0.75
64	Tamil Nadu	Tiruppur	Govt HQ hosp.Tiruppur (New12)	ANC	1.00								0.50	0.25	1.00
65	Tamil Nadu	Tiruppur	GH,Udumalaipattai (New12)	ANC(R)									0.00	0.00	0.00
66	Tamil Nadu	Tiruvannamalai	Govt. distt. Hq. Hospital	ANC		1.25	1.50	1.25	0.50	2.00	0.25	0.00	0.50	0.00	0.50
67	Tamil Nadu	Tiruvannamalai	Govt. Hospital_Vandawasi	ANC(R)	1.00		1.25	0.50	0.25	0.00	0.00	0.00	0.00	0.00	0.00
68	Tamil Nadu	Vellore	Vellore_Government Hospital	ANC		1.25	0.75	0.25	0.00	1.00	0.75	1.25	0.75	0.50	0.25
69	Tamil Nadu	Vellore	GH, Vaniambadi	ANC(R)		0.51	0.50	1.50	0.25	0.75	0.00	0.25	0.25	0.50	0.25
70	Tamil Nadu	Villupuram	Dist. Hq Hospital	ANC		1.00	0.50	0.50	0.25	0.25	0.00	0.50	0.00	0.50	0.00
71	Tamil Nadu	Villupuram	Dist. Hospital, Kallakurichi	ANC(R)		1.00	0.25	0.50	0.25	0.50	0.00	0.25	0.75	1.00	0.75
72	Tamil Nadu	Virudhunagar	Govt. Distt. Hq Hospital	ANC		0.00	0.25	1.00	0.00	1.00	0.25	0.00	0.25	0.00	0.50
73	Tamil Nadu	Virudhunagar	GH, Rajapalayam	ANC(R)		0.00	0.25	0.00	0.25	0.25	0.00	0.00	0.00	0.00	0.25