THE EXPERIMENT
INTERNATIONAL JOURNAL OF SCIENCE AND TECHNOLOGY

USE OF PREVENTION OF PARENT-TO-CHILD TRANSMISSION (PPTCT) PROGRAMME DATA FOR HIV SENTINEL SURVEILLANCE (HSS) IN GENERAL POPULATION AT SUB-NATIONAL GEOGRAPHIC LEVEL IN INDIA

ABSTRACT

Background Human Immunodeficiency Virus (HIV) sentinel surveillance (HSS) among antenatal care (ANC) is used to monitor HIV trends in general population. Now information on HIV infection available from prevention of parent to child transmission (PPTCT) programmes. And it was used in this study with the following objectives

Objective 1.To study the HIV trends in the general population of the sub-national geographic level of the country i.e. the state. 2. To compare data of HIV prevalence estimates obtained from PPTCT and HSS in the state. 3.To find out the usefulness of PPTCT programme data for HIV surveillance at subnational level in the country.

Methodology The data of HSS and PPTCT programme were obtained from Chhattisgarh State AIDS Control Society (CGSACS), Raipur, Chhattisgarh. A list of Sites where ANC HSS was carried out during 2004 to 2008 was prepared. HIV prevalence and 95% confidence interval (CI) were estimated from antenatal attendees in PPTCT and HSS. Correlation coefficient of HIV prevalence in PPTCT and HSS was also according to the level of HIV test acceptance.

Results From Year 2004-2008, HIV test in sites (Block) of Bilaspur where both PPTCT and HSS were carried out. The mean and standard deviation (SD) of HIV positive Male & Female are (45.2 18.36), (20, 9.02). The mean & SD of HSS ANC & PPTCT are (22 ,9.02), (14.2, 21.04).Overall the correlation of HIV prevalence between PPTCT and HSS was quite high at district level (r=0.9, p<.05) which is statistically significant. The linear regression has been obtained between dependent variable PPTCT & independent variable HSS ANC .It is statistically significant (p < .o5) .

Conclusion HIV prevalence estimates among pregnant women in PPTCT program were similar to that of ANC HSS. Routinely collected PPTCT program data therefore has potential for providing reliable HIV trends at this sub-national level i.e. Chhattisgarh State.

Key Words ANC- Antenatal Care , CGSACS-Chhattisgarh state AIDS control society, HIV- Human Immunodeficiency Virus, HSS-HIV sentinel surveillance, PPTCT- Prevention of parental to child transmission.

INTRODUCTION

The HIV/AIDS epidemic is one of the world's most serious public health and social problems. India, the third largest economy in Asia and eleventh largest of the world. India has the second largest population around the globe [2] with more than one billion people, half of whom are adults of the sexually active age group. Moreover, the prevalence of HIV infection in India has been steadily increasing over the past few decades [3,4]. Thus, even with a small increase in India's HIV/AIDS prevalence rate thereby would imply a significant component of the world's HIV/AIDS burden. According to the data available from National Family Health Survey 3 (NFHS-3), during 2005-06, 2.5 million people in India are infected with HIV [5]. The first case of HIV infection was reported in Chennai in 1986 which has since spread to all states and union territories. At present, India has the third largest number of HIV & AIDS cases after South Africa and Nigeria. Sentinel surveillance conducted by the National AIDS Control Organization (NACO) shows that in the general population HIV prevalence is low (0.25-0.43%), but among high-risk groups, HIV prevalence is much more. In at least five states, HIV prevalence among injecting drug users (IDU) is even more than 10%, with a highest prevalence of 24% among IDUs are HIV positive in Maharashtra. Prevalence is also elevated among female sex workers and men who have sex with men [6]. Commercial sex workers

(CSW) and their clients are at the highest risk for HIV infection and transmission [4]. Certain states in India like Andhra Pradesh, Tamil Nadu, Maharashtra Karnataka, Nagaland and Manipur have been reported to have high number of HIV infected population in India [3]. With this view and above context the present study was carried out with following objectives.

Objectives

1.To study the HIV trends in the general population of the sub-national geographic level of the country i.e. the state. 2. To compare data of HIV prevalence estimates obtained from PPTCT and HSS in the state. 3.To find out the usefulness of PPTCT programme data for HIV surveillance at subnational level in the country.

Materials & Methods

A Retrospective study was carried out in Bilaspur district of Chhattisgarh In survey. Bilaspur district has ten blocks these are Belha, Pathariya, Mungeli, Takhatpur, Lormi, Kota, Gourella, Pendra, Marwahi, Masturi. The data of HIV Sentinel Surveillance (HSS) and PPTCT programme were obtained from Chhattisgarh state AIDS Control Society, Raipur, Chhattisgarh. A list of sites where ANC HSS was also conducted during 2004 to 2008 was prepared. In every year HIV Sentinel surveillance is done from October to December. During HIV Sentinel surveillance the survey was conducted in this phase. HIV prevalence and 95 % confidence interval were estimated from antenatal attendees in PPTCT and HSS. Correlation coefficient of HIV prevalence in PPTCT and HSS was also analyzed according to the level of HIV test acceptance. The statistical analysis was performed using SPSS software (version 17.0). All values are expressed in the form of frequency, percentages, mean and standard deviation and the chi square test and correlation coefficient were applied wherever necessary. Statistical significance was set at P =0.05.The linear regression has been found between dependent variable PPTCT & independent variable HSS ANC .It is statistically significant (p < .o5) .

RESULTS

The HIV/AIDS cases in Bilaspur district from year 2004 to 2008 is shown in table1. In this table there are 336 HIV cases registered from year 2004 to 2008.If we look registration of HIV cases according year it was growing.First of all in 2004 ,HIV cases were 24 (7.1%), in year 2005, 61 (18.4%), in year 2006, 79 (23.6%), in the year 2007, 77 (22.9%) and in the year 2008, there are HIV cases 95 (28.2%). Here we see that the maximum cases of HIV recorded in year 2008. Male 49 (63.7%) and Female 28 (36.3%) HIV cases were maximum registered in year 2007. The trends of HIV cases according year wise were increasing. The Mean and Standard deviation (SD) of HIV positive Male & Female are (45.2 $\pm$18.36), (22, $\pm$9.02) **(shown Table2)**

In the table 4, it is shown that number of female HIV positive cases according year wise have written under HIV sentinel surveillance survey for Ante natal care (HSS ANC). If we look registered female positive cases in year 2008 it was high. The prevention of parent to child transmission (PPTCT) was high in year 2008 i.e. 16 (57.1%). The test of significance Chi square(X^2) = 15.0, degree of freedom(d.f). =12 had been obtained by the software SPSS 11.5 version **(Table3).** The Means & Standard Deviations of HSS ANC & PPTCT obtained by SPSS 11.5 version are (22 , 9.02), (14.2, 5.54) **(Table2).**Another part of statistics, the correlation coefficient (r)=0.905 had been obtained**.(Table5)** It is significant. It means that if HSS ANC had increased, PPTCT was also increasing.
In the Figure1 it was shown that the HIV prevalence in blocks of Bilaspur district under HSS ANC. If we look that District Head Quarter had maximum prevalence i.e. 30%. In Marwahi and Pendra block had zero prevalence.

In the Figure2, it was shown that the HIV prevalence in blocks of Bilaspur district under PPTCT programme was shown. It was observed that Bilaspur city had high prevalence.

DISCUSSION AND CONCLUSION

In this study we have analyzed the year wise distribution of HIV cases. Based on this analysis a trend was observed according to which the HIV cases have been increasing from year 2004 to 2008. Similarly PPTCT (Prevention of parent to child transmission) was increasing year wise. The correlation between HIV sentinel surveillance for antenatal care (HSS ANC) &PPTCT (Prevention of parent to child transmission) is positive. It means that one had increased second was also increasing. Chhattisgarh state presents a low prevalence of HIV cases. In our study, we have found that there is no association between HSS, ANC &PPTCT, it means that both are independent. HIV prevalence estimate among pregnant women in PPTCT program were similar to that of ANC HSS. If we look year wise HSS ANC & PPTCT are increasing. Our recommendation is that we have to emphasize on control and prevention of HIV/AIDS.

REFERENCES

1. International Monetary Fund, World Economic Outlook Database, April 2012
2. Census of India, 2001: http://www.censusindia.gov.in/ accessed on Dec 21, 2007.
3. NACO. HIV sentinel surveillance and HIV estimation in India 2007: A technical brief Social morbidity of AIDS in high prevalence districts of Andhra Pradesh. New Delhi: Ministry of Health & Family Welfare; 2007.
4. National AIDS Control Organization: National Baseline High Risk and Bridge Population Behavioral Surveillance survey-2001 Part-I Female Sex Workers and their clients; NewDelhi; 2004. Available from:
   http://www.nacoonline.org/publication/4l.pdf,Accessed on April 15, 2006
5. International Institute of Population of Sciences and Macro International. National FamilyHealth Survey (2005-2006) (NFHS-3), Vol. I Mumbai: IIPS; 2007
6. UNAIDS.Epidemiological fact sheet on HIV and AIDS: India. 2008; available at:
   http://www.who.int/globalatlas/predefinedReports/EFS2008/full/EFS2008_IN.pdf, accessed on March 3, 2009.

Year	Male	Female	Total
2004	17(7.5%)	7(6.3%)	24(7.1%)
2005	41(18.1%)	20(18.1%)	61(18.4%)
2006	52(23%)	27(24.6%)	79(23.6%)
2007	49(21.7%)	28(25.4%)	77(22.9%)
2008	67(29.7%)	28(25.4%)	95(28.2%)
Total	226(67.2%)	110(32.8%)	336

Table1: Year wise (2004-2008) HIV Positive Cases in Bilaspur district

	HIV Positive Male	HIV Positive Female	HIV Positive Female registered in HSS_ANC	HIV Positive Female registered in PPTCT
Mean	45.20	22.00	22.00	14.20
Std. Deviation	18.363	9.028	9.028	5.541

Table2: The Mean and Standard deviation of HIV Positive Male and Female

	Value	(Df)degree of freedom	P value
Chi-square(x^2)			**p=0.241>0.05**
	15.0	**12**	**not significant.**

Table3: The Chi-Square Tests (x^2) between HIV Positive Male and Female

Year	HSS ANC	PPTCT
2004	7	5(71.4%)
2005	20	15(75%)
2006	27	20(74%)
2007	28	15(53.6%)
2008	28	16(57.1%)

Table4: Female HIV Positive Cases registered in Bilaspur District under HSS ANC from year 2004-2008

Correlations

		HIV Positive Female registered in PPTCT
HIV Positive Female registered in HSS_ANC	Pearson Correlation(r)	0.905
	P value	0.035<0.05 significant

Table5: The correlation coefficient (r) between HSS_ANC & PPTCT
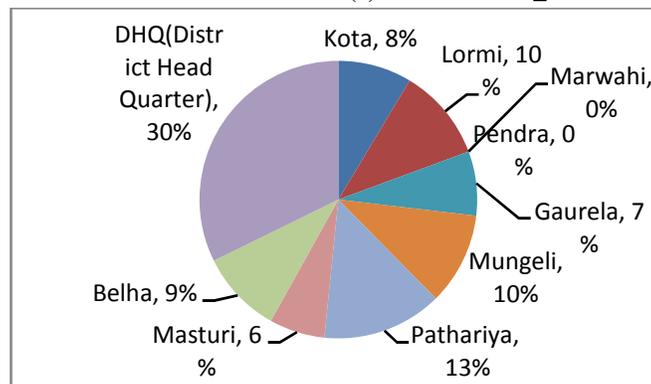

Figure1- HIV Prevalence in locality of District Bilaspur under HSS (HIV sentinel surveillance)
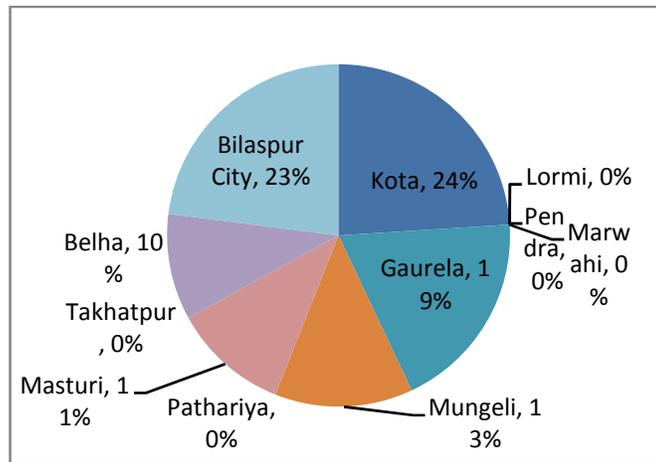
Figure2- HIV/AIDS prevalence in locality within district Bilaspur under PPTCT(Prevention of Parent-to-Child Transmission)

Sachin Pandey[1], Vijay Kumar Manwani[2], Arun Singh[3]

[1]Assistant Professor, Department of Community Medicine, Chhattisgarh Institute of Medical Sciences, Bilaspur, Chhattisgarh, [2] Assistant Professor, Department of Community Medicine, Chhattisgarh Institute of Medical Sciences, Bilaspur, Chhattisgarh, [3]Associate Professor, Department of Community Medicine, Rohilkhand Medical College & Hospital, Bareilly, UP.