Conclusions The role of primary infection decreased as the HIV epidemic matured but could still account for a large fraction of new infections, especially if RRHIV/PI is above 10. Early on, its contribution depended on parameters of primary infections. Later on, its contribution also depended on the renewal of high-risk susceptible population, which fuels HIV incidence.

O1-S11.02 DETERMINANTS OF TIME TRENDS IN HIV PREVALENCE IN THE YOUNG ANTENATAL POPULATION OF KARNATAKA DISTRICTS

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Background In 2003, the Bill & Melinda Gates Foundation initiated a focused HIV prevention program (India AIDS Initiative: Avahan) among high-risk and bridge groups. We studied determinants of time trends in HIV prevalence among young (<25 years) antenatal (ANC) women caused by these intensive prevention intervention (IPI) program compared to non-intensive intervention (Non-IPI) program.

Methods Random intercept multilevel models were developed using logistic regression (xtmelogit command) to examine effects of IPI, program and district level variables on HIV prevalence among young ANC women. Data from annual sentinel surveillance of ANC women were used as individual level characteristics. Selected program and socio-demographic variables at district level were included as distal variables. Interaction between time and intensity of program intervention was assessed.

Results HIV prevalence in young ANC women decreased steadily from 1.4% to 0.77% from 2003 to 2007, and increased to 0.83% in 2008 (Adjusted OR (AOR)=0.59, (95% CI):0.45% to 0.77%). Rural (AOR=0.87, 95% CI: 0.76% to 0.99%) and literate women (AOR=0.76,95% CI:0.66% to 0.87%) had lower risk of HIV compared to urban and illiterate women respectively. Presence of major truck halt points (AOR=1.57,95% CI: 1.17% to 2.12%) in the district was associated with high risk of HIV. Higher age at marriage was associated with lower risk of HIV (AOR=0.85,95% CI: 0.78% to 0.93%). There was significant interaction between time and intensity of intervention. In the years 2006 and 2007, Non-IPI districts had a significantly higher risk of HIV compared to IPI districts (AOR2006=1.86, 95% CI: 1.18% to 2.93% and AOR 2007=2.25, 95% CI: 1.39% to 3.62%) respectively. Among the program variables regular contact with high risk group was associated with slightly reduced risk of HIV (AOR=0.998, 95% CI: 0.996% to 0.999%) see Abstract O1-S11.02 table 1.

Conclusion HIV prevalence in ANC population declined significantly in IPI districts from 2003 to 2008 compared to non-IPI districts in Karnataka. IPI had a definite impact on reduction of HIV prevalence in general population during 2006 and 2007. This coincides with the maturity of IPI during 2006 and 2007 along with the initiation of NACP-III in 2007. Learning from IPI might have influenced National AIDS Control Program-III implementation in non-IPI districts in Karnataka leading to similar effects in IPI and non-IPI districts in 2008. Improving female literacy and increasing the age at marriage would help favour reduction of HIV.

Abstract O1-S11.02 Table 1 Determinants of time trends in HIV prevalence in the young antenatal population of Karnataka districts

Individual/district level characteristics	Null model AOR (95% CI)	Random intercept model: % high risk group persons contacted regularly AOR (95% CI)
Fixed part of the model		
Constant	0.009 (0.0080 to 0.0114)	0.528 (0.097 to 2.8782)
Individual characteristics		
Year—2003 (Reference)		
2004		0.992 (0.7854 to 1.2521)
2005		0.804 (0.6287 to 1.0288)
2006		0.585 (0.4458 to 0.7681)
2007		0.418 (0.3109 to 0.562)
2008		0.585 (0.4475 to 0.7649)
Locality—Urban (Reference)		
Rural		0.867 (0.7581 to 0.9915)
Type of site—District headquarter (Reference)		
First referral unit—rural		0.784 (0.6904 to 0.8907)
Literacy—Illiterate (reference)		
Literate		0.759 (0.6622 to 0.871)
Type of intervention—IPI (reference)		
Non-IPI		0.871 (0.5578 to 1.361)
Programme variable		
% Contacted regularly		0.998 (0.9959 to 0.9999)
District level variables		
Mean age at marriage for girls (years)		0.848 (0.7773 to 0.9261)
Major truck halt points		1.573 (1.166 to 2.1212)
Interaction		
Year 2004 and Non-IPI		1.101 (0.7184 to 1.6887)
Year 2005 and Non-IPI		1.443 (0.929 to 2.2427)
Year 2006 and Non-IPI		1.856 (1.1769 to 2.9253)
Year 2007 and Non-IPI		2.245 (1.3902 to 3.6249)
Year 2008 and Non-IPI		1.098 (0.6477 to 1.8601)
Random part of the model		
District-level variance: total	0.1333 (0.0642 to 0.2767)	0.072 (0.0337 to 0.1530)

O1-S11.03 HOW MANY INFECTIONS ARE AVERTED BY BEHAVIOUR CHANGE AFTER EARLY HIV DIAGNOSIS & COUNSELLING OF MSM? ESTIMATES FROM A STOCHASTIC INDIVIDUAL-BASED MODEL

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Background A recent paper (Fox et al HIV Medicine 2009) reported that MSM in the UK significantly reduced their transmission-risk behaviour following HIV diagnosis and suggested that this could be effective in averting transmission during the highly-infectious primary infection stage. However, cost-effectiveness analysis is required to inform policy-making. To assess the effectiveness of early HIV diagnosis in MSM as a prevention strategy we quantified its potential impact in terms of transmission HIV events averted.

Methods We developed an individual-based stochastic transmission model to calculate the number of HIV-transmission events expected to occur from a cohort of recently-diagnosed MSM with and without the changes in behaviour that occurred post-diagnosis and counselling. The model incorporates different types of sex-act, patterns of condom use, and distinguishes between regular and casual partners.