

RESEARCH

Open Access

Large-scale STI services in Avahan improve utilization and treatment seeking behaviour amongst high-risk groups in India: an analysis of clinical records from six states

Anup Gurung^{1*}, Prakash Narayanan¹, Parimi Prabhakar³, Anjana Das¹, Virupax Ranebennur¹, Saroj Tucker², Laxmi Narayana³, Radha R⁴, K Prakash⁵, J Touthang⁶, Collins Z Sono⁶, Teodora Wi⁷, Guy Morineau⁸, Graham Neilsen⁹

Abstract

Background: Avahan, the India AIDS Initiative, implemented a large HIV prevention programme across six high HIV prevalence states amongst high risk groups consisting of female sex workers, high risk men who have sex with men, transgenders and injecting drug users in India. Utilization of the clinical services, health seeking behaviour and trends in syndromic diagnosis of sexually transmitted infections amongst these populations were tracked amongst high risk groups. All clinic visits were recorded in the routine clinical monitoring system using unique identification numbers at the NGO-level. Visits by individual clinic attendees were tracked from January 2005 to December 2009. An analysis examining the limited variables over time, stratified by risk group, was performed.

Results: A total of 431,434 individuals including 331,533 female sex workers, 10,280 injecting drug users, 82,293 men who have sex with men, and 7,328 transgenders visited the clinics with a total of 2,700,192 visits. Individuals made an average of 6.2 visits to the clinics during the study period. The number of visits per person increased annually from 1.2 in 2005 to 8.3 in 2009. The proportion of attendees visiting clinics more than four times a year increased from 4% in 2005 to 26% in 2009 ($p < 0.001$). The proportion of STI syndromes diagnosed amongst female sex workers decreased from 39% in 2005 to 11% in 2009 ($p < 0.001$) while the proportion of STI syndromes diagnosed amongst high risk men who have sex with men decreased from 12% to 3% ($p < 0.001$). The proportion of attendees seeking regular STI check-ups increased from 12% to 48% ($p < 0.001$). The proportion of high risk groups accessing clinics within two days of onset of STI-related symptoms and acceptability of speculum and proctoscope examination increased significantly during the programme implementation period.

Conclusion: The programme demonstrated that acceptable and accessible services with marginalised and often difficult to-reach populations can be brought to a very large scale using standardized approaches. Utilization of these services can dramatically improve health seeking behaviour and reduce STI prevalence.

* Correspondence: agurung@fhipng.org
Contributed equally

¹FHI, India Country Office, India

Full list of author information is available at the end of the article

Background

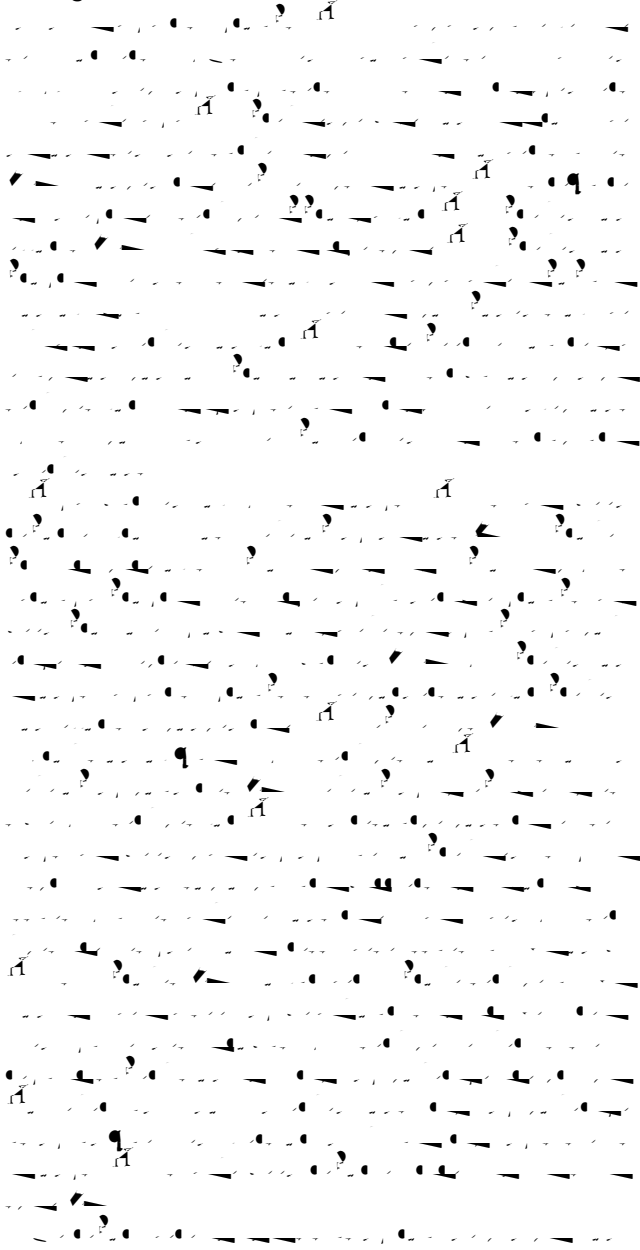


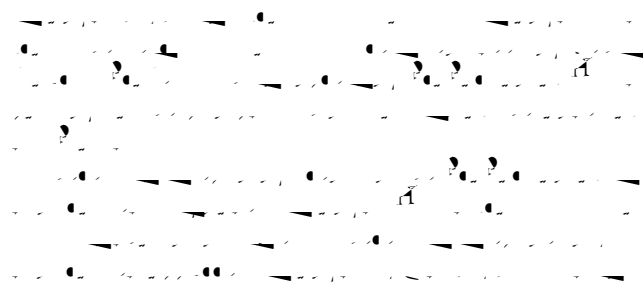
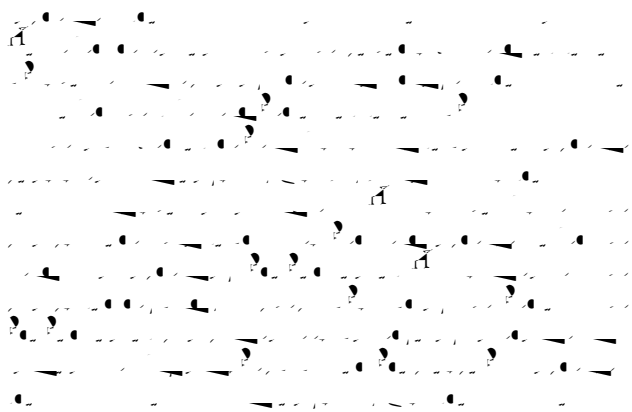
Table 1 Variables used from the individual tracking data

Area	Variable name	Definition	Remarks
Unique identifiers	IP name	Name of the lead implementing partner	
	Project name	Name of implementing NGO	830 records without project name were deleted during cleaning
	Registration date	Date of registration of HRG individual with NGO	4,500 records without registration date were removed from the master database
	ID number	Unique tracking ID entered in the registration file	55,000 records without ID number were removed from the master database during cleaning
	Target group	Target group defined by the typology of HRG, FSW, MSM, TG, IDU, clients and regular partners	200 records without target groups were grouped as others
	Sub target group (place of solicitation for FSW, self-identity for MSM)	Defined by the sub-population within the target groups of HRG: FSW - home-based, street-based, bar-based, brothel-based, lodge-based, highway-based. MSM - kothi, panthi, double decker, Transgender, clients/regular partners, IDUs	Re-grouped the local terminology to make this uniform
	Visit date	Date of current visit to the clinic	2200 records without visit dates were removed during cleaning of the data base
Demographics	Sex	Gender of the STI patient: male, female or transgender	
	Age	Age in completed years on the first clinic visit	
	Number of years in sex work	Number of years into sex work (recorded at the time of registration)	
	Number of clients	Number of clients in last week (recorded at the time of first visit)	
Clinic visits	Symptoms visit	STI symptoms visit, - reason for visit to the clinic was STI related symptoms	
	Regular STI checkup	STI check-up, - the individual does not complain of STI symptoms but receives genital examination which may include speculum or proctoscope examination and/or STI Treatment	
	Follow-up visit	STI follow-up, - the individual returned to the clinic within two weeks of last treatment for a review by the doctor	
	General visit	General health visit - visit for services other than STI related	
	First STI clinic visit	First STI visit to the clinic ever	
	Duration of symptoms (days)	Period the patient is suffering from current/longest running STI symptom	Information in actual days as well as in codes - was changed to codes
	Internal examination	Whether speculum or proctoscopic examination conducted during STI consultation	
Syndrome diagnosed	Vaginal cervical discharge	Female with vaginal or cervical discharge on examination	
	Genital ulcer disease	Female or male with genital or ano-rectal ulceration with or without blisters	
	Lower abdominal pain	Female has lower abdominal pain or tenderness, or cervical motion tenderness	
	Urethral discharge	Male with urethral discharge with or without dysuria	
	Ano-rectal discharge	Male with symptoms of tenesmus or if ano-rectal discharge seen on exam	Females with ano-rectal discharge were also recorded as such.
	Other syndromes	Other STI syndromes (e.g. inguinal bubo, genital warts, scrotal swelling, genital scabies etc.)	
	Asymptomatic	Asymptomatic treatment is given	
Treatment packs	None	Asymptomatic treatment is given	
	Coded in packs**	Specific drugs for specific syndromes as per clinical operating guidelines	

"K hi"
"Pa hi"
"D b e-dec e"

Da a ce i cl de

N



— — — — —
— — — — —

Table 5 Increasing health seeking by category of HRG 2005-2009 adjusted for age and typology

Category/variable	2005	2006	2007	2008	2009	p-value*
Internal examination						
% examined out of total visits						
FSW	10	28	42	48	53	<0.001
MSM	1	6	17	45	54	<0.001
TG	0.7	35	44	32	27	<0.001
Regular STI check ups						
% reported for STI check ups out of total visits						
All HRG	12	31	45	50	48	<0.001
MSM	22	46	57	59	53	<0.001
FSW	10	28	42	48	47	<0.001
TG	29	56	61	72	71	<0.001
Treatment seeking behaviour						
% reported within 2 days of onset of symptoms						
FSW with VCD [#]	7	13	20	22	32	<0.001
MSM with UD [§]	6	8	11	27	24	<0.001
IDU with UD	28	16	23	16	21	<0.001
TG with ARD	21	11	43	56	35	<0.001
Treatment seeking behaviour						
% reported within 3-7 days of onset of symptoms						
FSW with VCD	11	17	25	23	16	<0.001
MSM with UD	26	35	35	32	30	<0.001
IDU with UD	25	19	24	33	38	<0.001
TG with ARD	43	45	32	29	27	<0.001
Number of visits per year						
% reported per year						
FSW N=331,616 individuals made 2,11,727 clinic visits	2005	2006	2007	2008	2009	p-value *
1 to 2 visits per year	79	50	31	20	21	<0.001
2 to 4 visits per year	14	22	21	18	13	<0.001
More than 4 visits per year	8	28	48	62	66	<0.001
HR-MSM N=82,246 made 5,25,862 clinic visits	% reported per year					
1 to 2 visits per year	72	53	35	22	22	<0.001
2 to 4 visits per year	14	20	21	19	13	<0.001
More than 4 visits per year	14	28	44	59	65	<0.001
TG N=7,330 individuals made 38,613 clinic visits	% reported per year					
1 to 2 visits per year	63	53	29	21	29	<0.001
2 to 4 visits per year	16	17	17	17	17	<0.001
More than 4 visits per year	22	30	54	62	54	<0.001
IDU N=10,280 individuals made 23990 clinic visits	% reported per year					
1 to 2 visits per year	96	91	75	44	64	<0.001
2 to 4 visits per year	4	8	17	20	14	<0.001
More than 4 visits per year	0.1	1	8	37	22	<0.001

* p values matched for age & typology.

VCD Vaginal cervical discharge.

§ UD Urethral discharge.

€ ARD Ano rectal discharge.

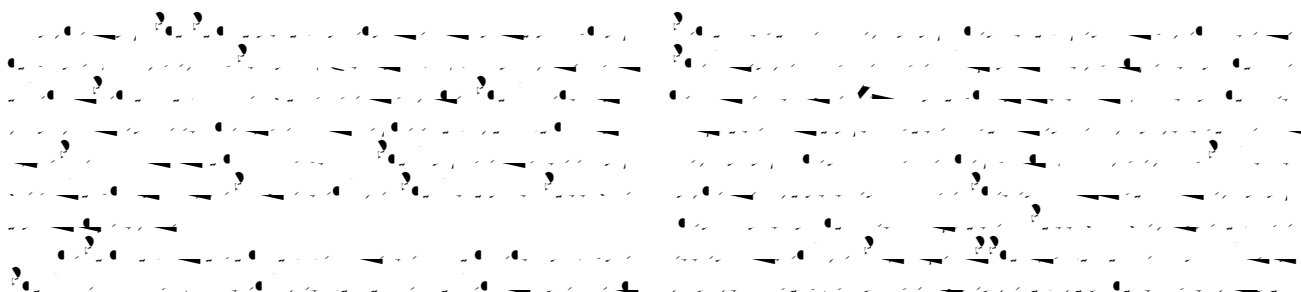


Table 6 Trends of STI syndromes diagnosed amongst clinic attendees: 2005-2009, adjusted for age and typology

Category	2005	2006	2007	2008	2009	Odds ratio*
No of syndromes diagnosed						
Percentage diagnosed out of total visits						
FSW						
VD (287,070)	30	24	16	12	10	0.7
GUD (11,913)	2	1	0.6	0.5	0.3	0.67
LAP (63,499)	10	6	4	3	2	0.63
Any STI [§] (353,699)	39	30	20	15	11	0.67
MSM						
UD (16,574)	6.6	6.2	4.7	3.3	1.7	0.67
ARD (8,638)	2	3.2	1.7	1.9	1.2	0.79
GUD (5,191)	3.4	2.2	1.3	1.1	0.5	0.63
Any STI [§] (30,242)	12	11	8	6	3	0.61
MSM Kothi**						
UD (6,964)	4.02	4.75	3.74	3.17	1.49	0.71
ARD (5471)	2.28	3.94	2.23	2.61	1.4	0.79
MSM Panthi ^{&&}						
UD (3,981)	25.55	15.68	8.55	3.95	2.2	0.48
ARD (764)	3.8	3.61	1.05	0.71	0.7	0.61
MSM Double decker ^{##}						
UD (4,201)	7.77	5.46	4.93	3.36	1.63	0.64
ARD (1,967)	1.58	2.62	1.39	1.8	1.01	0.81
TG						
Any STI (1,039)	0.2	0.2	0.2	0.1	0	0.92
IDU						
Any STI (6,267)	0.5	0.4	0.4	0.2	0.1	0.47

.....

Conclusions

Ack ledge e

This research was funded by the Bill & Melinda Gates Foundation. The views expressed herein are those of the authors and do not necessarily reflect the official policy or position of the Bill & Melinda Gates Foundation.

The authors thank the representatives of WHO-India, UNAIDS-India and National AIDS Control Organisation (NACO) for their insightful comments on the data at the working group meeting.

This article has been published as part of **BMC Public Health** Volume 11 Supplement 6, 2011: Learning from large scale prevention efforts findings from Avahan. The full contents of the supplement are available online at URL.

A h de ail

¹FHI, India Country Office, India. ²India HIV/AIDS Alliance, India. ³Hindustan Latex Family Planning Promotion Trust, India. ⁴Tamil Nadu AIDS Initiative, India. ⁵Karnataka Health Promotion Trust, India. ⁶Emmanuel Hospital Association, India. ⁷World Health Organization, Regional Office for the Western Pacific (Formerly with FHI, India Country Office. ⁸FHI, Asia Pacific Regional Office, Thailand. ⁹Independent Consultant (Formerly with FHI, Asia Pacific Regional Office, Thailand.

C e i g i e e

The authors declare that they have no competing interests.

Published: 29 December 2011

Refe e ce

1. National AIDS Control Organization: HIV declining in India: New infections reduced by 50% from 2000-2009: Sustained focus on prevention required. [http://www.nacoonline.org/upload/HomePage/NACO%20Press%20Release%20on%20HIV%20Estimates.pdf], Accessed 15 March 2011.
2. Indian Council of Medical Research and Family Health International: National Summary Report (December 2009), India Integrated Behavioural and Biological Assessment (IBBA), Round 1 (2005-2007). Indian Council of Medical Research and Family Health International, New Delhi; 2009 [http://www.fhi.org/NR/rdonlyres/ewxhge5nvpq2i4mjuo7vg2vnlzizq6rge7npe46jwrr2fwpjqp2v6lazzuj2oe7lundg7gxt haf/IndiaNSRIBBAfnI010710.pdf], Accessed 16 March 2011.
3. Dandona R, Dandona L, Gutierrez JP, Kumar AG, McPherson S, Samuels F, Bertozzi SM, ASCI FPP Study team: High risk of HIV in non-brothel based female sex workers in India. *BMC Public Health* 2005, 5:87.
4. Laga M, Alary M, Nzila N, Manoka AT, Tuliza M, Behets F, Goeman J, St Louis M, Piot P: Condom promotion, sexually transmitted disease treatment, and declining incidence of HIV-1 infection in female Zairian sex workers. *Lancet* 1994, 344:246-8.
5. Ghys PD, Diallo MO, Ettiègne-Traoré V, et al: Increase in condom use and decline in HIV and sexually transmitted disease among female sex workers in Abidjan, Côte d'Ivoire, 1991-1998. *AIDS* 2002, 16:251-258.
6. Steen R, Dallabetta G: Sexually transmitted infection control with sex workers: regular screening and presumptive treatment augment efforts to reduce risk and vulnerability. *Reprod Health Matters* 2003, 11:74-90.
7. Dore GJ, Brown T, Tarantola D, Kaldor JM: HIV and AIDS in the Asia-Pacific region: an epidemiological overview. *AIDS* 1998, 12(Suppl B):S1-S10.

8. UNAIDS: Country progress report UNGASS, India. 2010, 19-22[http://www.unaids.org/en/dataanalysis/monitoringcountryprogress/2010progressreportsubmittedbycountries/india_2010_country_progress_report_en.pdf], Accessed 15 March 2011.
9. Grosskurth H, Mwijarubi E, Todd J, Rwakatrare M, Orroth K, Mayaud P, Cleophas B, Buvé A, Mkanje R, Ndeki L, Gavyole A, Hayes R, Mabey D: Operational performance of an STD control programme in Mwanza Region, Tanzania. *Sex Transm Infect* 2000, 76:426-436.
10. Chandrasekharan P, Dallabetta G, et al: Containing HIV/AIDS in India: the unfinished agenda. *Lancet Infect Dis* 2006, 6:508-521.
11. Moses S, Blanchard JF: AIDS in South Asia: Understanding and Responding to a Heterogeneous Epidemic. Washington DC: The World Bank; 2006.

