STD SERVCES FOR WOMEN AT TRUCK STOP IN TANZANIA : EVALUATION OF ACCEPTABLE APPROACHES

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SUMMARY

AIDS continues to be the commonest cause of death in Tanzania among those aged between 15 and 45 years. Both ulcerative and non-ulcerative sexually transmitted diseases have been identified as major co-factors in HIV transmission. Certain groups including long distance truck drivers and their sexual partners have been reported as having a disporportionate effect on the transmission dynamics of STD including HIV, in a population. In 1993 African Medical and Research Foundation decided to add an STD component to their HIV/AIDS prevention programme along the Tanzania-Zambia highway which had been targeting truck drivers and their sexual partners through peer education and condom distribution since 1989. A study to evaluate the acceptability and feasibility of four different approaches of delivering STD services, was conducted over a period of one year. The approaches for delivering STD services were: special STD services offered twice a week at a site and at hours of the women's choice, special outreach services once every three months, or STD services integrated into the nearest Primary Health Clinic. Drugs were provided at three of the four interventions. 1,330 women at seven truckstops, participated in the evaluation study. The women were generally satisfied with all approaches that included the provision of drugs. The most expensive and ineffective way of treating STD was by not providing drugs. These findings confirm the fact that it is feasible to provide STD services to women at high risk in HIV high transmission areas. These women would utilise STD services provided in a manner that suits them if mobilised and encouraged by their peer educators.

INTRODUCTION

Sexually transmitted diseases have been identified as major co-factors in the transmission of HIV. Both ulcerative and non-ulcerative STDs have been associated with HIV, with the increased risk of acquiring HIV while having a STD ranging from five-to ten-fold(1-4).

Effective STD treatment can shorten the period of infectivity during which an STD can be transmitted to susceptibles. Researchers from Mwanza, Tanzania, recently demonstrated a 42% decrease in HIV transmission after implementation of a simple intervention which improved the management of STDs(5).

Control of STDs in a community requires more than effective treatment of those who present to health services. Core groups such as sex workers, migrant workers and long distance truck drivers have a disproportionate effect on the transmission dynamics of STD in a given population(6,7). Rates of sexual partner change and prevalence of STD are much higher among core group members, ensuring an adequate supply of

susceptibles to maintain STD prevalence within the population(8). As a result, STD control efforts that focus on reducing the prevalence of STD in core groups are among the most effective means of lowering STD prevalence in the larger community(9). Outbreaks of both syphilis and chancroid in North America have been controlled by focused interventions targeting sex workers and their clients (10,11).

Promotion of condoms and prompt treatment of symptomatic clients are important strategies to successfully decrease both incidence and prevalence of STDs. However, STD case management is problematic in high - risk populations. Many women are asymptomatic, and risk assessment as it was evaluated among low - risk women is not valid for high - risk women. Epidemiologic treatment based on risk of exposure, analogous to the management of sex partners of STD patients, has been proposed as an alternative(10,11). There is little information available about the acceptability and feasibility of STD care services, both from the provider and the client point of view. The question whether it is better to integrate STD

services into primary health care or to set up special STD services for high - risk women has been discussed, but remains unanswered.

Since 1989, African Medical and Research Foundation (AMREF) has been implementing an AIDS prevention programme in the truck stops along the Dar es Salaam-Zambia highway in Tanzania. The project targets long - distance truck drivers, their assistants and sexual partners with peer education for behaviour change, condom promotion and promotion of appropriate STD care - seeking behaviour.

In 1993, AMREF with AIDSCAP decided to provide STD services to those living in and around the truck stops, targeting the female partners of the truck drivers in particular. Little was known, however, about which services would be acceptable to these women. A study was therefore conducted in 1993 to evaluate the acceptability and feasibility of four different approaches of delivering STD services to women at the truck stops. The secondary objectives of the study were to estimate the prevalence of STD among the women and to assess the feasibility of STD referral by peer health educators (PHEs). This paper reports the results of the study and discusses their programmatic implications.

MATERIALS AND METHODS

The intervention trial was conducted from July 1993 to May 1994 in the seven truck stops along the highway from Dar es Salaam to Zambia, integrated into an existing AIDS prevention project. At baseline the number of women at each of the seven truck stops was estimated, and six truck stops were randomly assigned to three STD delivery approaches. The seventh truck stop, with the largest population, was designated the control. The different approaches are summarised in Table 1.

Table 1

Approaches and the type of activities

Activity	First approach	Second approach	Third approach	Fourth approach (control)
General PHEs* activities	x	x	x	x
Provision of STD drugs	x	x	x	
Special STD services twice a week	x			
Outreach STD services 1 x 3 months				x
STD services integrated in PHC**			x	x

*PHEs = Peer health educators
**PHC = Primary Health Care

In the first approach, the local health care provider offered STD services to the women two days per week outside the normal working hours of the health facility. At one location, STD services were delivered at the health facility while at the second location, the women themselves chose the service delivery site. STD drugs were provided by the project.

In the second and fourth approach, STD services were integrated into the regular activities of the health facilities. Women consulted clinicians during the normal clinic hours together with other patients. The fourth approach was identical to the second except that no additional STD drugs were provided. The clinician treated STD patients during regular clinic hours using drugs that are routinely provided to other patients at the facility.

In the third approach, services were provided by a team of clinicians visiting two sites once every three months, providing STD diagnosis and treatment to the women at a chosen venue away from the health facility.

The local clinicians were trained for one week in STD case management, using the modified World Health Organization flowcharts (algorithms) and a simple risk assessment designed to identify women who had had unprotected sex with a new partner during the past month (Table 2). Symptomatic clients were treated syndromically, and those without symptoms were treated on the basis of the risk assessment.

Table 2

STD risk assessment flowchart

Q1. How many sex partners did you have in the past one week?
If more than one, ask question 2.
If one or less ask question 3.

Q2. Did you use condoms with all partners?
If yes, ask question 3.
If no, consider respondent at risk for cervicitis.

Q3. In the past month, have you experienced condom rupture?
If yes, consider respondent at risk for cervicitis.
If no, educate and discharge.

Table 3

Demographic characteristics of women living at truck stops

Demographic characteristics		
Age		
Mean age	27.3 years	
Duration of residence at truck stop	No. (1330)	%
Less than one month	49	3.7
One month- one year	286	21.5
More than one year	950	71.4
No response	45	3.1
Level of education		
None	283	21.3
Class 1 - 4	156	11.7
Class 5 - 7	842	63.3
Secondary	45	3.4
Higher education	4	0.3
Marital status		
Single	439	33.1
Married	310	23.3
Separated/divorced	212	15.9
Cohabiting	274	20.6
Others	95	7.1
Occupation		
Bar/guest house attendant	359	27.0
Bar/guest house/hotel owner	11	0.8
Petty trader	281	21.1
Local brew seller	628	47.2
Unemployed	22	1.7
Farmer	26	2.0
No response	3	0.2

Peer health educators (PHEs) who were already providing health education and promoting condoms at the truck stops were trained for one week in the application of the same risk assessment and in recognition of symptoms and signs of STD. The PHEs referred their risk - positive peers to the clinicians by issuing them a referral card.

Monitoring tools included the patient register, where the number of visits and number of referral cards received were recorded, and the PHE log book, into which the number of referral cards issued were recorded. Clinicians recorded the number of STD patients who came to the clinic with referral cards. This information was then analysed to calculate the following indicators:

(i) Clinic attendance per woman in each truck stop. The population of women in each truck stop was determined at the beginning and end of the study period. The average population was used as the denominator.

(ii) The proportion of women referred and attending compared to the total number of women (referred and not referred) attending the clinic.

(iii) The proportion of women attending out of the total number referred.

A survey was conducted 12 months after the STD services were established. All the women at each truck stop were registered and asked to participate in the survey. Those who consented were interviewed by one of a team of seven interviewers who used a questionnaire that included questions on sociodemographic characteristics, STD-related history, use and acceptance of STD services, mobility and sexual practices. All consenting women received a general and pelvic examination.

A high vaginal and two endo-cervical swabs were taken from a randomly selected sample of women, who were then directed to a team of laboratory staff who in turn performed direct saline wet mount preparations and took 5-10 ml of venous blood for field rapid plasma reagin (RPR) test (using RPR-nosticon kit by Organon Teknika bv, Boxtel, Holland) test for syphilis. The results of the wet mount microscopy and RPR test were provided to the clinical teams and used in making management decisions. After this, all identifiers were removed from the specimen, and the rest of the tests were anonymous and unlinked. Cultures of Neisseria gonorrhoeae were done in the field using Gonoline agar slides enriched with VX and VCAT, bioMerieux SA, Lyon, France), a modified form of Thayer Martin Medium. At the AMREF laboratory in Dar es Salaam, quantitative and qualitative RPR and Treponema pallidum Haemaglutination Assay (TPHA) (using TPHA-

nosticon kit by Organon Teknika bv, Boxtel, Holland) were performed. Also, Chlamydia trachomatis antigen were determined using Enzyme-linked Immunosorbent Assay (ELISA) (IDEIA Chlamydia, Dako Diagnostics Ltd, UK). HIV antibodies were determined using ELISAs (Vironostika HIV MIXT, Organon Teknika bv, Boxtel, Holland and Enzygnost Anti-HIV 1/-HIV 2, Behringwerke AG, Marburg, Germany). For discordant ELISA results and for confirmation of HIV reactivity, LiaTek HIV 1+2, (Organon Teknika bv, Boxtel, Holland) were done at the AMREF laboratory in Dar es Salaam.

Appropriate treatment was given on the same day to women with clinical and/or laboratory evidence of infection. On the third day, RPR results were given confidentially to all respondents, and those found positive were treated with benzathine penicillin 2.4 mega units and counselled on STD prevention.

All the laboratory results were linked to the questionnaire, coded and analysed using Epi-Info statistical package.

RESULTS

Demographic characteristics: A total of 1,330 women participated in the evaluation survey. Demographic characteristics of the women are presented in Table 3. The mean age was 27.3 years. Most of the women (71%) had lived at the truck stop for more than one year, 67% had more than class five education and only 23.2% were married at the time of the evaluation survey. Most were local brew sellers (47.2%), bar/guest house attendants (27%), or petty traders (21.1%).

STD prevalence: HIV prevalence was 50%, varying from 33% in site 6 to 68% in site 4. Syphilis serology was 24% among the 1,075 women tested. Both N. gonorrhoea and C. trachomatis prevalences varied significantly among the different sites. The overall prevalence rate was 12% for N. gonorrhoea and and 30% for C. trachomatis (Table 4).

Acceptability: A total of 1,730 consultations were attended in all seven sites during a period of one year. Service utilisation (the number of visits to STD services per woman at each truck stop) was highest for the first approach to service delivery (1.43), followed by the third (1.23), second (1.0) and fourth approaches (0.4) as shown in Table 6.

Table 4

STD prevalence by delivery approach

STD approach		HIV		Syphilis		N. gonorrhoeae		C. trachomatis		T. vaginalis	
		(N)	%	(N)	%	(N)	%	(N)	%	(N)	%
First Approach	Site 1	(107)	42.1	(112)	21.4	(92)	15.2	(94)	16.0	(99)	26.3
Second Approach	Site 2	(210)	66.7	(209)	32.1	(126)	8.7	(125)	52.0	(173)	22.0
	Site 3	(158)	36.7	(161)	28.6	(124)	16.9	(125)	13.6	(172)	33.7
Third Approach	Site 4	(200)	68.0	(202)	25.7	(102)	16.7	(99)	43.4	(211)	36.0
	Site 5	(119)	38.7	(123)	14.6	(98)	4.1	(99)	21.2	(107)	36.4
Fourth Approach	Site 6	(111)	33.3	(111)	11.7	(84)	7.1	(85)	34.1	(91)	17.6
	Site 7	(159)	44.7	(160)	22.5	(127)	15.0	(126)	27.8	(174)	31.0
Overall		(1064)	50.1	(1078)	23.7	(753)	12.2	(753)	29.9	(1027)	29.9

Table 5

PHE's performance on the risk assessment

Parameter assessed	n/N
1. Main risk score questions	
(a) Correctly asked all three questions	6/13
(b) Correctly asked two questions	3/13
(c) Correctly asked one question	0/13
(d) Asked no questions correctly	4/13
2. Correct scoring*	
(a) All 3 situations	0/9
(b) Two situations	5/9
(c) One situation	3/9
(d) None	1/9

*NB: Four could not be asked the necessary questions.

DISCUSSION

Analysis of the demographic characteristics of the women who participated in the evaluation survey indicates that the majority are young, unmarried and work as local brew sellers or bar/guest house attendants. These jobs put them in contact with truck drivers and their assistants, other travellers, and males from surrounding communities who come to enjoy life in these locations. STD prevalence among these women was found to be significantly higher than that reported for the general population (AMREF Truck Drivers' Project, unpublished data) confirming the impression that these

Table 6

Summary acceptability assessment for approaches

Indicator/year	First approach		Second approach		Third approach		Fourth approach	
Attendance to STD Clinic	553		628		457		92	
Average female population	387	(1.43)	625	(1.00)	371	(1.23)	247	(0.37)
No. of women satisfied	30		41		48		5	
No responded	36	(83%)	53	(77%)	49	(98%)	6	(83%)
No. referred by PHE who attended	223		190		360		59	
Total no. seen at clinic	553	(40%)	628	(30%)	457	(78%)	92	(64%)
No. referred and attended*	98		62		360		24	
Total numberReferred	126	(78)	150	(41%)	476	(76%)	36	(67%)

*Not all PHE had complete information on referrals. Where the denominator was not available, the numerator for that record was excluded from analysis

In evaluation survey, women were asked about their satisfaction with the different interventions. Generally, it was found that the women were equally satisfied with the three interventions (Table 6). Twenty women were not satisfied with the services rendered. Out of these, 13 gave their reasons why they were not satisfied. Nine women of the 13 said it was because they had not been cured.

From the registers, the proportion of women seen at the clinics from July 1993 to May 1994 who were referred by PHEs was analysed. The third approach had the highest proportion (78%) attendances, followed by the fourth (64%), the first (40%) and the second approach (30%) (Table 6).

The proportion of women referred for services who attended an STD service after referral was highest for the first approach (78%), followed by the third (76%), the fourth (66.7%) and the second approach (41. 3%) (Table 6).

Feasibility of PHE applying risk assessment: Of the 20 PHEs, 13 were available for an interview. When questioned about the risk assessment, only six of 13 PHEs were able to remember the three assessment questions; three of 13 PHEs remembered two of the three questions and four PHEs could not remember any of the three assessment questions. When three standardised situations were simulated, none of the PHEs could correctly interpret all the situations (Table 6).

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Table 7

Total cost per intervention and cost per patient treated in US$

Item	First approach	Second approach	Third approach	Fourth approach
Training of clinicians	533	533	533	267
Training of PHEs	460	552	644	276
Supervision	1,923	1,923	-	962
Outreach visits	-	-	2,308	-
Drugs	3,428	3,885	2,005	-
Total	6,344	6,893	5,490	1,505
Drugs/patient	6.2	6.2	4.4	-
Total cost/patient	6,344 = 11.5 553	6,893−11.0 628	5,490=12.0 457	1,505−16.4 92

Total cost per intervention and cost per patient treated: Simple calculations of the cost per intervention and cost per case treated are presented in Table 7. The total cost was highest for the second approach (US$6,893), followed by the first (US$6,344), and third approaches (US$5,490). As expected, the fourth approach was the cheapest (US$1,505). When the cost per patient fully treated was determined, the most costly approach was the fourth (US$16.4 per case), followed by the third (US$12 per case), the first (US$11.5 per case) and the second approach (US$11.0 per case).

The cost of drugs constituted more than 54% of the total cost in the first approach, 56% for the second approach, and 38% for the third approach

women are at extremely high risk of STD/HIV infection. The high variation in the prevalence of *N. gonorrhoea* and *C. trachomatis* among truck stops may be a reflection of the level of activity at the different truck stops. While some truck stops are becoming busier with increasing economic activity, others are declining and are no longer able to attract truckers to spend the night.

Clinic attendance per woman was taken as a measure of service utilisation. The services in the first and third approaches, which were offered outside health facilities or at times other than normal clinic hours, had higher rates of utilisation than those where the STD services were integrated into established health services. It may be necessary to provide safe and confidential options for STD services for vulnerable groups at high risk of STD/HIV. The way dispensaries and health centres are organised in many countries at the same socio-economic level as Tanzania does not provide the confidentiality STD clients require. Integrated STD services may therefore become unacceptable to high risk individuals.

Clients' level of satisfaction with STD services may be influenced by a variety of factors affecting the quality of services provided, including facility structure and providers' performance. There were no major differences in the standards of the premises used for STD service delivery in this study, apart from the increased privacy afforded by the first and third approaches. The first approach was the most accessible because it provided services at times specified by the women themselves as the most convenient. Drugs were provided in all except the fourth approach and the clinicians were trained equally for each of the four approaches.

The main reason given for not being satisfied with the services provided was not being cured of symptoms. Symptoms may persist even after treatment if complications such as chronic pelvic inflammatory disease have already occurred. Other reasons for continued symptoms may include lack of adequate supply of drugs and microbial resistance to first-line drugs. Programmes must ensure that STD drugs are provided in sufficient amounts and that second-line treatment for genital discharge and genital ulcer disease are provided at points where clients first come into contact with health services. Effective supervision is necessary to monitor activities and to ensure rational prescribing and adherence to treatment guidelines. *N. gonorrhoea* and *H. ducreyi* sensitivity patterns should be monitored periodically among high-risk "core groups".

When the cost per approach was calculated, drugs constituted a considerable proportion of the total cost for the first and second approaches. These findings are similar to those reported by Gilson *et al* (12), where salaries and drug costs were found to constitute 80% of a Tanzanian rural dispensary costs. Salaries were not included in the calculations for his study. Drug cost per patient was equal in the first and second approaches but cheaper in the third approach, probably as a result of more rational prescribing by medical personnel with a higher level of training than the clinicians implementing

the other approaches. The efficient drug utilisation in the third approach, however, did not affect the overall cost of this approach because supervision rather than drugs constituted the major cost item. More efficient drug utilisation in the first and second approaches could well reduce the overall costs of these approaches. In the fourth STD delivery approach, the poor cost performance is a reflection of low service utilisation.

More studies are needed to determine the preferred and feasible STD delivery approaches for different high-risk groups in various settings. We need to know whether the expressed preferences are permanent or temporary, and what factors influence these preferences. The success of urgently needed interventions to control STD in core groups such as the high-risk women in this study will ultimately depend on the acceptability of those services to the women themselves.

ACKNOWLEDGEMENTS

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