

An Evaluation of Sexually Transmitted Infection Case Management in Health Facilities in 4 Border Provinces of Cambodia

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Background: Cambodia has reported the highest prevalence of HIV in the general population in Asia. Sex work and high sexually transmitted infection (STI) prevalences are thought to be major contributory factors.

Goal: The goal of this study was to assess standards of STI care through a survey of public sector health facilities in 4 border provinces of Cambodia.

Methods: Healthcare facilities providing STI care were identified. Interviews were held with healthcare providers and STI patients and a manual check made of the STI register and standard medical history forms for female sex workers (SWs) registered with the 100% condom use program. Clinical management was assessed for SWs, women with vaginal discharge, and men with urethral discharge. Advice about condom use, partner notification, STI and HIV education, and availability of STI drugs were reviewed.

Results: Seven percent of all patients seeking health care at health centers (HCs) had STI-related problems. Coverage of sex workers was high in 3 provinces. Drug stock outs, particularly cefixime, occurred at all levels of assessment. In STI clinics, almost all (99–100%) cervicitis and urethritis cases were diagnosed and treated correctly. In HCs with integrated STI services, according to national guidelines, cervicitis was diagnosed in 65% of women with vaginal discharge of whom 47% were diagnosed correctly, and in these, 88% were treated correctly. Sixty-six percent of SWs seen at STI clinics were diagnosed with cervicitis and 54% at follow up.

Conclusions: STI services should be expanded further to health centers not currently offering STI care. Overtreatment for cervicitis in both SWs at reattendance and low-risk women with vaginal discharge are continuing problems. The WHO/UNAIDS STI service indicator criteria had limited application for the assessment of SW services but were adapted for local needs. Attendance of SWs in designated STI clinics appears to be a useful indicator for the acceptability and efficiency of the current national STI program.

IN CAMBODIA, THE HIV epidemic escalated rapidly in the early 1990s to reach a national prevalence of 4%, the highest reported in Asia so far. By 1995–1996, the incidence was decreasing,¹ and in 2000, the urban antenatal HIV prevalence was 2.3%.² Despite the

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reduction in HIV prevalence, border areas with mobile populations are still at significant risk of HIV and are the target of community HIV prevention interventions.³

In neighboring Thailand, the introduction of an intensive 100% condom promotion campaign for female sex workers (SWs) and their clients and improved management of sexually transmitted infections (STIs) are thought to have contributed significantly to limiting the spread of HIV.⁴ Following a pilot project in Sihanoukville, a 100% condom use program was started in Cambodia in 1998 that is now being implemented throughout the country.⁵ This program targets direct or brothel-based sex workers (DFSW) who are registered with designated STI clinics and attend with an identifier card every month. Treatment and condoms are provided without charge. A condom-use working group (CUWG) meets monthly and updates a register of brothels and DFSWs. Attendance at the STI clinic is reported to the CUWG who follow up defaulters. Indirect sex workers (IDFSWs), a group that includes karaoke and massage parlor workers, do not strictly come under the 100% condom use program. A recent Behavioural Surveillance Survey (BSS) in sentinel groups showed that at the last episode of abnormal vaginal discharge, the respective proportions of SWs seeking treatment directly from a pharmacy and private doctor were 47% and 20% in IDFSW and 20% and 11% in DFSWs, respectively.⁶ Although the public sector appears a relatively popular option, the quality of care in this area in Cambodia is unknown.

Before the advent of HIV, STIs in Cambodia received little attention in the public health system. STI data in the Ministry of Statistics disease classification only included men and women with STIs, gynecology infections, and men with urethral discharge/genital ulcers until a more comprehensive classification using STI syndromes was started in 2000.⁷ This increased focus on STIs followed a study in 1996 showing that 39% of direct female sex workers (DFSWs) had chlamydial and/or gonococcal infections.⁸ More recently, a prevalence study in 2001 detected prevalences of 14% and 12%, respectively, for gonorrhoea and chlamydia in DFSWs but very low prevalences in women in the general population.⁹ National guidelines for STI services and STI prevention

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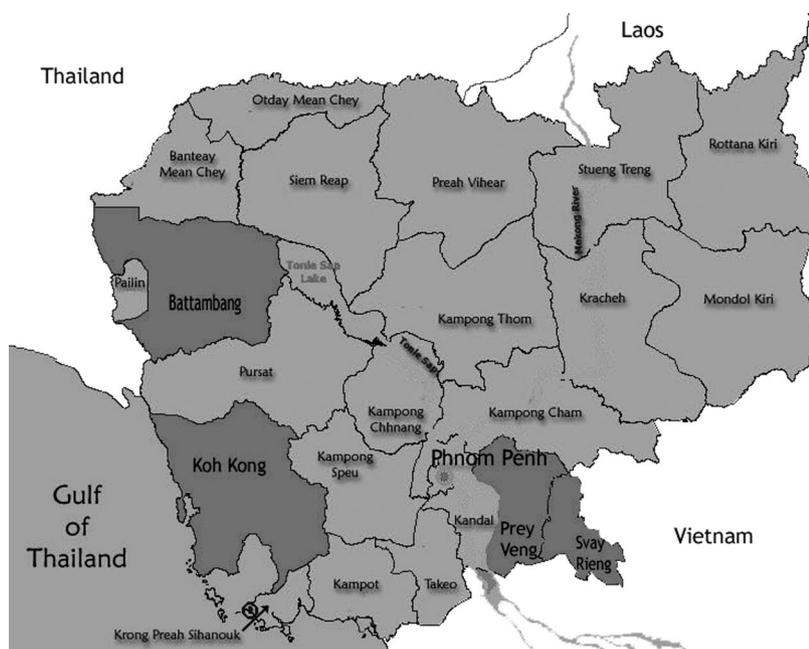


Fig. 1. Map of Cambodia showing provinces and border areas.

and care were published in 2001 and clearly identify the need to target SWs in STI clinics.^{10,11}

The importance of evaluating quality of care of STI services through indicators is recognized by the World Health Organization (WHO)¹² and UNAIDS, the latter suggesting 4 STI service indicators.¹³ However, there is still a need to adapt these generic recommendations to local situations in which alternative approaches may be both more realistic and better suited to target groups.¹⁴ This survey was therefore done to assess standards of STI care through a survey of health facilities in 4 border provinces of Cambodia.

Materials and Methods

The main objectives of the health facilities survey were as follows:

1. To assess strengths and weakness in availability of STI management, including reproductive tract infections (RTIs), and coverage of SWs as part of the 100% condom use campaign among sex establishments in the 4 provinces: Battambang, Svay Rieng, Prey Veng, and Koh Kong (Fig. 1).
2. To assess clinical management of vaginal discharge in women and urethral discharge in men (genital ulcers are uncommon in Cambodia).
3. To determine the proportion of health facilities attendees reporting with STI complaints who receive appropriate diagnosis, treatment, and advice about condom use and partner notification.
4. To identify problems and potential solutions in support components for STI case management, in particular, STI drugs and condom supply.

In addition, the following subobjectives were identified: a) to list healthcare facilities (HCFs) where STI case management is provided, and b) to identify training needs in STI case management.

Data Collection

The following data were collected during 3 weeks in July 2002:

1. An enumeration of HCFs in the 4 border provinces and to identify those providing STI care.
2. An interview with healthcare providers (HCPs) and STI patients.
3. A manual check of the STI register and Standard Medical History (SMH) forms that are completed whenever SWs registered under the 100% condom use program attend.

A list of STI health facilities registered in 2001 was used to identify sites for the field survey. All operational districts (OD), referral hospitals (RH), provincial AIDS offices (PAO), STI clinics, and health centers (HC) were included. In Cambodia, there are 20 provinces, each with their own referral hospital and 1 PAO. Overall, there are 76 ODs that cover health administrative districts. Services in HCs are defined under a Minimum Package of Activities (MPA) that includes, for example, the content of basic staff training, numbers of staff, and essential drug requirements.

In this study, the respective number of STI clinics (6) and referral hospitals (11) included in the survey were as follows: Battambang 1 and 4, Svay Rieng 1 and 3, Prey Veng 2 and 2, and Koh Kong 2 and 2, respectively. Twenty-five HCs with integrated STI services and 7 HCs without STI services were selected by random sampling. In each OD, 3 HCs were selected, 2 with an integrated STI service, that is an HC where staff were trained about STI syndromic management and had STI drugs and 1 without, except for 4 ODs where all HCs had an integrated STI service.

Interviews were conducted with the following: 1) STI service supporters: 4 PAO managers, 11 OD staff responsible for drugs; 2) STI care providers: 6 STI clinic managers, 11 RH staff working in the gynecology ward, and 32 HC staff; 3) 44 STI clients, in total 108 interviewees. Six questionnaires were developed for the following groups: PAO, STI clinic manager, OD chief, RH staff, HC

TABLE 1. STI Public Health Facilities and STI Care in 6 Provincial Clinics

STI Services	Province				
	Battambang	Svay Rieng	Prey Veng	Koh Kong	Total
			No.		
STI clinics for sex workers	1	1	2	2	6
Minimum package of activities' health centers	57	37	62	8	164
Minimum package of activities' health centers with integrated STI care	25	27	13	8	73
Referral hospital	4	3	7	2	16
Referral hospital with integrated care	1	1	0	0	2
STI laboratories	0	0	0	0	0
STI clinic staff	5	5	10	9	29
STI clinic staff trained in:					
Syndromic management	5	5	8	9	27
STI management with speculum and lab	3	0	0	1	4
Sex worker management	3	2	6	6	17
Laboratory	2	1	4	3	10

STI = sexually transmitted infection.

staff responsible for STIs, and STI clients. No interviewee refused to be questioned.

The accuracy of diagnosis and assessment of correct treatment was done by checking the STI register and review of the SMH forms for SWs. This information was not recorded in health centers without STI care services.

Data Collection Team

The following personnel were involved in the survey:

1. National interviewer team: Six interviewers from the National Centre for AIDS, Dermatology and STDs (NCHADS); 4 from the STI unit (2 groups in alternation) and 2 from the technical bureau were responsible for interviews in the field and data collection. Training was given for 3 days in interpersonal and observational skills, interview technique, data input, and in how to assess the quality of case management provided by HCP.
2. Provincial coordinators team: Two provincial coordinators per province were recruited from the PAO and were responsible for coordinating the field survey.

Currently, the national SW STI treatment algorithm uses risk assessment to make a diagnosis of cervicitis in the absence of laboratory backup. A positive risk assessment is defined as 2 or more positive answers to the following 4 criteria: mucopurulent discharge, deep pain during intercourse, more than 5 clients per day, and condom use with new clients. If a speculum is used, 1 of the following 4 criteria justify a diagnosis of cervicitis: yellow cervical discharge, yellow secretion on cervical swab (positive swab test), cervical erosion or bleeding, or deep pain on bimanual examination.

For other low-risk women, the national guidelines advise treatment for cervical infection with gonorrhea/chlamydia based on 1 report of either lower abdominal pain or having a symptomatic partner or 2 risk behaviors, including age less than 25, sexually active, more than 1 partner in the last 3 months, or a new partner in the last 3 months.

Results

Sexually Transmitted Infection Clinics

In the 4 provinces selected, 6 clinics had provided STI care since 1998. The numbers of STI clinics and STI trained staff are shown in Table 1.

The numbers of attendances in the provinces are shown in Table 2. It should be noted that at the time of the study, the 100% condom use promotion campaign had not been implemented in Battambang because of closure of brothels by the local authorities. Elsewhere, the SW attendance or coverage in the previous month in those registered by the local condom use working group was high: 95% in Koh Kong, 76% in Svay Rieng, and 55% in Prey Veng where one of the clinics was undergoing renovation.

STI commodities out of stock for longer than 1 week in the last 6 months included STI drugs in 4 of 6 STI clinics. These stockouts were mostly cefixime, erythromycin, or nystatin, and condoms in 1 clinic.

In STI clinics, cervicitis was diagnosed in 61 of 93 (66%) of SWs attending for the first time in the last month. This proportion decreased to 74 of 163 (54%) for follow-up visits. All cases diagnosed as cervicitis were treated correctly and all but 1 was diagnosed correctly (99%) according to the national protocol. Urethral discharge in men accounted for 81 of 345 (23%) new STI cases in the past month, and all were diagnosed and treated correctly.

Operational Districts and Health Centers

In the 4 provinces, 73 of 164 (44%) of HCs with a MPA have integrated STI services and see patients from the general population.

STI drugs were out of stock for longer than a week in the last 6 months in 5 of 11 ODs and 18 of 25 health centers with integrated STI care. In most cases, the shortages were cefixime, erythromycin, or nystatin. By contrast, only 2 of 22 health centers with integrated STI care had run out of male condoms for more than 14 days in the last 6 months. Two of 4 health centers without STI care had run out of condoms in this time.

Table 3 shows the characteristics of HCs visited with and without integrated STI care, the numbers of attendances and both the numbers of STI diagnoses and partners seen. The number of

TABLE 2. Clinic and Sex Worker Attendances, STI Diagnoses, and Treatment in 6 Provincial STI Clinics in the Last 6 Months

STI Attendances, Diagnoses, Treatment	Province				
	Battambang	Svay Rieng	Prey Veng	Koh Kong	Total
			No.		
Average monthly attendance in last 3 months					
Total attendances (M+F)	257	76	290	310	933
Females in general population	117	27	96	112	352
Sex workers (direct and indirect)	21	12	142	155	330
Registered sex workers					
No.	0	29	228	155	412
Actual attenders in last month	0	22 (76%)	126 (55%)	148 (95%)	296
STI cases in last month					
First visit	14 *	6	35	38	93
Follow-up visit	3 *	5	49	106	163
STI diagnoses and treatment					
All new STI cases in last month	99	49	42	155	345
Urethral discharge	24	13	8	36	81
Health centers out of stock of STI drugs					
>7 days in last 6 months	1	0	1	2	4

*At the time of the study, the 100% condom use campaign was suspended in Battambang so cases are in unregistered sex workers. STI = sexually transmitted infection.

attendances is also shown in Table 3. In 25 HCs where STI services were integrated, 763 of 10,293 (7.4%) of all new patients who sought care at HCs for any problem complained of STI symptoms, and STIs accounted for 171 of 2884 (5.9%) of follow-up attendances. Overall, 7% of all patients had STI-related problems. In the 7 HCs that did not have an integrated STI service, 286 of 3253 (8.8%) of all patients who sought health care at these HCs were considered STI cases.

Female STI patients comprised 552 of 763 (72%) of new STI

TABLE 3. STI Issues in Health Centers (HCs) With and Without STI Care

STI Issue	25 HCs With STI Care No. (%)	7 HCs Without STI Care No. (%)
Attendees/month		
All cases	13,177	3253
New cases	10,293 (78)	2896 (89)
Follow-up cases	2884 (22)	357 (11)
All STI cases	934 (7)	286 (9)
New STI cases	763 (6)	205 (6)
Follow-up STI cases	171 (1)	81 (2)
STI diagnoses in women		
STI cases	701	234
New cases	552	155
Follow-up cases	149	79
Vaginal discharge		
New cases	469	142
Follow up	115	76
Cervicitis		
New cases	305	74
Correctly diagnosed	144 (47)	—
Correctly treated	127 (88)	—
Urethral discharge		
New cases	137	89
Correctly diagnosed	82 (60)	—
Correctly treated	54 (66)	—
Partners of STI cases treated	107 (15)	—

STI = sexually transmitted infection.

cases that visited the 25 HCs with integrated STI care in the last month with vaginal discharge accounting for 469 of 552 (85%) of these. This proportion decreased slightly to 115 of 149 (71%) for follow-up cases. In the 7 HCs without an integrated STI service, vaginal discharge accounted for 142 of 155 (92%) of new STI cases in the last month. These cases were usually treated with metronidazole and nystatin under the national clinical and treatment guide for HCs with MPA.

In the 25 HCs with an integrated STI service, cervicitis was diagnosed in 305 of 469 (65%) of new vaginal discharge cases in the last month. Only about half the new cases of cervicitis registered, 144 of 305 (47%), were diagnosed correctly based on the national protocol. Among these, 127 of 144 (88%) were treated correctly, indicating that diagnostic aspects of cervicitis gave more problems than those relating to treatment. By contrast, in the 7 HCs without an integrated STI service, the proportion of cervicitis diagnosis was also high: 74 of 142 (52%), but it was not possible to assess if they were diagnosed and treated correctly.

Of the 701 women with STIs advised that their partners should attend, 107 (15%) partners attended at the 25 HCs with integrated STI care, whereas no contacts attended in the 7 HCs without integrated STI services.

In the 25 HCs with integrated STI care and the 7 without, the respective numbers of staff trained were basic STI course, 70 of 82 (85%) and 7 of 7 (100%); and STI refresher course, 28 of 82 (34%) and 1 of 7 (14%).

Referral Hospitals

At the referral hospitals, 5 of 19 medical staff interviewed working on the gynecology ward were STI-trained. In the last 3 months, only 3 of 153 (2%) of all gynecology admissions were the result of pelvic inflammatory disease (PID), suggesting that few STI cases are seen in a hospital setting.

Exit Interview With Clients

Forty-four STI patients (37 in health centers with STI care and 7 without), 12 of whom were SWs seen at STI clinics were interviewed after their consultation. Most were female (93%) who

had sought care for vaginal discharge. The respective proportions of those who said they had been educated by HCWs during their visit at STI clinics or HCs were, respectively, overall education 36 of 37 (97%) and 6 of 7 (86%), treatment compliance 35 of 37 (95%) and 5 of 7 (71%), partner notification 24 of 37 (65%) and 4 of 7 (57%), prevention methods 17 of 37, (46%) and 1 of 7 (14%), and condom use demonstration 16 of 37 (43%) and 1 of 7 (14%).

Discussion

This study has demonstrated a high volume of women with STIs/RTIs, attending not only designated STI clinics, but also health centers without integrated STI services. The coverage of DFSWs was high in 3 provinces but not in Battambang where the authorities had closed brothels. The quality of care in the 6 STI clinics, based on assessment of cervicitis and urethral discharge, appears to be excellent. However, there is a need to expand STI services to all health centers and ensure that STI drugs are available and staff are STI-trained.

Drug stockouts, particularly cefixime, were a problem. Although cefixime was included in the Essential Drugs List in 1998, supplies are sometimes unreliable. This may reflect a new drug-tendering system, and it is hoped that the appointment of a pharmacist at NCHADS will ease drug supply problems at the central level. Coordination between PAO and OD drug stores and the HC level should be improved by nominating a focal person at each level to monitor supplies.

We found that 65% of women with a vaginal discharge were diagnosed with cervicitis, supporting the belief that 1 of the more contentious STI issues in Cambodia is the overtreatment of women, including SWs, for cervicitis with drugs for gonorrhea and chlamydia. Although these indicators resulted in a considerable number of SW being retreated for cervicitis at reattendance, mainly because of positive swab tests, a recent survey showed prevalences of 14% and 12% for gonorrhea and chlamydia, respectively, in DFSWs.⁹ It would therefore seem reasonable to support overtreatment, but to what extent is unclear.

Overtreatment of low-risk women presenting with vaginal discharge is also an issue. The latest STI prevalence survey detected a low prevalence of 2.8% for chlamydia and no gonorrhea cases in women attending reproductive health centers.⁹ Healthcare workers reported unease in determining risk assessment in low-risk women mainly because of embarrassment in the latter about questions relating to sexual behavior. In addition, many women have lower abdominal pain, particularly on direct questioning. The reasons for this are unclear, but it may be that subjects felt that a positive response to this question would increase the chance of receiving medication. A study in Cambodia proposing a new set of behavioral questions, including inquiries on sexual activity and whether the partner is a womanizer, symptomatic, or frequently goes out, showed that cervicitis treatment could be reduced from 23% to 7.2% in low-risk women.¹⁵

STI training was identified early on as an area to be developed. Although STI training courses are held regularly, the investigators felt that updates should be held each year, not only for STI clinic staff and those in HC with integrated STI, care but also 1 staff member to monitor STI service delivery at HCs in each OD.

Few STI patients were referred to hospital. This suggests a low incidence of PID, 1 of the most important complications of gonorrhea and chlamydia. In this community, where many low-risk women have lower abdominal pain and receive treatment for cervicitis unnecessarily, many cases of PID will be treated early and not require hospital admission.

Although the majority of attenders were women, it was unclear whether they preferred male or female doctors. However, experienced nurses often do genital examinations and this seemed acceptable to most clients. The assumption that few men with STIs go to government clinics was not supported by our finding that 81 of 345 (23%) recent STI clinic attenders had urethral discharge.

Although the study sampled 4 provinces, it is uncertain whether these are representative of the country as a whole. However, the 4 provinces are sited diversely in the West, Southwest, and Southeast of the country. The numbers of clients interviewed in the exit studies was limited, but this method may not always be an accurate indicator if healthcare workers are aware their consultation skills are under direct assessment. The use of "mystery" clients has been tried in some settings, but this method of assessment is both difficult and expensive to achieve in rural areas and questionable ethically.

WHO and UNAIDS have devised a series of STI indicators to assess quality of care.^{12,13} The UNAIDS STI service indicators 1 to 3 are very similar to the original WHO P16 and P17 with the addition of referral for voluntary counseling and testing (VCT) and STI indicator 3 measuring STI drug stockouts lasting longer than 1 week in the preceding 12 months. Some countries have adapted features of the WHO/UNAIDS criteria, and that is what we did in this study for 3 of the 4 UNAIDS indicators to assess services for SWs.

STI service indicator 1 is the proportion of patients with STIs at selected healthcare facilities diagnosed and treated according to national guidelines of all STI patients at those centers. Currently, the main focus of STI care in Cambodia is directed at SWs with gonorrhea and chlamydia. We therefore chose correct treatment of cervicitis as an indicator, but also included urethral discharge in men, because there were more male attenders than anticipated initially. A very high proportion of cervicitis and urethritis cases (99–100%) were diagnosed and treated correctly in STI clinics. In HCs with integrated STI services, cervicitis was diagnosed correctly in 47% of whom 88% were treated correctly. The equivalent figures for men with urethritis were 60% and 66%, respectively. These data are, however, open to different methods of analysis. For example, should correct treatment imply the total number of cases with a cervicitis/urethritis diagnosis or the numbers with these conditions diagnosed correctly? Clearly, guidelines should be developed using field test experience and include published worked examples so that comparisons between different settings can be made.

STI service indicator 2 is the proportion of patients with STIs who are given advice on condom use and partner notification and who are referred for HIV testing. In our case, condom advice was defined as seeing a male condom use demonstration rather than a verbal discussion. Only 16 of 37 (43%) in STI clinics saw the demonstration, and it was thought that many clients were already familiar with condoms and did not warrant further demonstration. Partner notification advice in STI clinics was given in 24 of 37 (65%) a level that compares favorably with other studies in Africa.^{16,17} As VCT programs expand, referral for this activity will be included in further STI assessments.

For STI indicator 3, we chose the preceding 6 months rather than 12 to measure STI drug stockouts lasting longer than 1 week. We felt that supervision should occur at least on a 6-month basis, if not more often, so that potential problems would be identified in a timely manner.

In Cambodia, SW coverage would appear to be a useful indicator, at least in provinces with a 100% condom use program, and this survey showed high levels of attendance or coverage of registered SWs. However, indirect and informal SWs may not always be identified as such, although there is anecdotal evidence

that increasing numbers are attending designated STI clinics. Regular monitoring is now part of the STI surveillance system that allows analysis of retreatment rates. Further validation is needed to assess how often retreatment is given and what factors best predict repeat infection.

Although a significant number of studies evaluating the quality of STI care and STI services have been undertaken in STI clinic settings in Africa, there are few in Asia. One study in Madras, India, that did not mention either vaginal discharge syndrome or the management of SWs interviewed doctors in private and public clinics but concentrated mainly on male complaints.¹⁸ Although urethral discharge and genital ulcers in men are accepted as easier to treat than vaginal discharge syndrome in women, the standard of care was poor with only half reporting correct treatment for urethritis by the syndromic approach in that study. In the last Cambodian BSS survey, 45% of men with urethral discharge sought care from a pharmacy and 21% from a private doctor.⁶

This survey is the first to evaluate STI services in Cambodia. The study indicates that the Ministry of Health has acted rapidly to establish quality STI clinics for SWs at risk of HIV and there is a high uptake of services. This, coupled with the change of behavior and the 100% condom use program in Cambodia, are powerful tools to limit the spread of HIV. Future research should involve STI prevalence studies to determine both whether STI trends continue to decrease and to validate generic guidelines adapted locally. Finally, a continued commitment to what is working is needed. Cambodia is a good example of a country where political commitment has enabled a strong central office with a vertical program to direct STI and HIV control measures when primary healthcare facilities are still at an early stage of development.¹⁹

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