Specific health services for sex workers: from theory to practice

Ghent University
Faculty of Medicine and Health Sciences

Specific health services for sex workers:
from theory to practice

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For all those who know that there are no simple solutions for complex problems

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Introduction

The emergence of the Human Immunodeficiency Virus (HIV) epidemic in the early eighties renewed interest in the health of sex workers, specifically as a group at risk for HIV. Specific health services for this target group, however, did not exist at the time.
The Department of Public Health and the Department of Bacteriology and Virology of Ghent University supported the initiative to fill this gap, and to set up new services aimed at promoting the health of sex workers, with particular attention to STI and HIV.

The general objective of this thesis is to show how this new approach to health services for sex workers developed from the early phase of assessment of the needs of the target group, through the process of setting up a real intervention, to the phase of the evaluation of the intervention.

In the first phase the scope of the STI/HIV problem in sex workers in Belgium was studied. The results of these studies are presented in chapter 1.
In the second phase the intervention targeted at sex workers (PASOP) was developed, and in chapter 2 the actual implementation of the PASOP project in Ghent, Belgium, is described, from its start untill the present. In chapter 3 the results of the European project EUROPAP are presented, showing the results of the cooperation of 12 EU countries in an effort to describe good practices for sex worker health services based on the experiences of all participating projects.
A further objective of the thesis was to evaluate the intervention for sex workers, and in chapter 4 several evaluation examples are presented.
Finally, we present a general discussion with conclusions and recommendations in chapter 5.

This thesis will not discuss the issue of morality. Theories of prostitution are often ideological discourses and reflect larger social and political processes (1). In many societies "sex for money" is morally unaccepted, and for this reason prostitution is marginalised and criminalised.
The basic approach of the work in this thesis is the acceptance of sex work as a reality and respect for the choice of individuals to engage in it. It follows the 'harm reduction model', emphasising the prevention of health and social problems. Today, this model is the basis for the approach of sex work in Flanders and The Netherlands (2).

The words 'sex worker' and 'prostitute' are both used, with a tendency to substitute the word 'prostitute', which has a negative connotation in many languages, in favour of the more neutral 'sex worker'. Prostitute is derived from the Latin word '*prostituere*', meaning to expose publicly or to sit or stand in a place.

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Chapter 1.3
Mak R, Plum J: Do prostitutes need more health education regarding sexually transmitted diseases and the human immunodeficiency virus infection ? Experience in a Belgian city. *Social Science and Medicine* 1991;**33**:963-966.

Chapter 3.2
Mak R. AIDS prevention for sex workers. Conclusions of the EUROPAP-project (AIDS-preventie voor prostituees. Conclusies van het EUROPAP Project.) *Tijdschrift voor Sociale Wetenschappen*, 1995;**40**,3:323-331.

Chapter 3.3
Mak R: Projects for sex workers in Europe. [Editorial]. *Genitourin Med* 1997;**73**:155-156.

Chapter 4.3
Mak R, Traen A, Claeyssens M, Van Renterghem L, Leroux-Roels G, Van Damme P. Hepatitis B vaccination for sex workers: do outreach programmes perform better? *Sex Transm Inf* 2003;**79**:157-159.

Chapter 4.4
Mak R, Van Renterghem L, Cuvelier C. Cervical smears and Human Papilloma Virus typing in sex workers. *Sex Transm Inf* 2004;**80**:118-20.

Chapter 4.5
Mak R, Van Renterghem L, Traen A. *Chlamydia trachomatis* in female sex workers in Belgium: 1998 - 2003. *Sex Transm Inf,* accepted for publication May 13, 2004.

Chapter 1
Pre-intervention period (1984-1990)

1.1 Introduction

Human Immunodeficiency Virus (HIV) evoked new attention for sex workers in the early eighties. They were seen as a risk group for HIV transmission and the further spread of the epidemic in the general population (1)(2)(3). Bavaria in Germany e.g. made quarterly HIV tests mandatory and HIV-positive sex workers had to stop working, risking prosecution and prison sentences (4).

Although female sex workers at that time did not play a major role in the transmission of HIV infection among the heterosexual population in the US and Europe, the potential clearly existed, given the high prevalence rates of STI and HIV in sex workers in Africa (5).

Condom use was considered as effective in the prevention of sexual transmission of HIV (6)(7).

In the past, sex workers received a lot of attention when STI such as syphilis and gonorrhoea could not yet be treated, as was the case in the pre-antibiotic era (8). In many countries sex workers were obliged by law to regularly present themselves to public health authorities in order to be checked for STI (9)(10)(11).

In Belgium these regulations were abandoned with the changes in law in 1948. Before 1948 local communities were responsible for public health, morality and public order (12). Under the new federal law only morality and public order were left to the local level. However, no specific public health activities were organised on a federal level.
So in 1984, with the appearance of the acquired immune deficiency syndrome (AIDS) as a new STI, no specific services for sex workers existed in Belgium.

In The Netherlands specific services for sex workers appeared earlier, from 1982. They were more related to street workers, often heroin users. The concept of a 'livingroom' project was developed, and the premises where health and social care were offered also served as a resting place for street workers, especially in bad weather conditions (13).

In a European Workshop in 1990 (14) the study group on prostitution formulated the following: "Good prevention needs to be individualised and directed to prostitutes. At the same time, AIDS prevention needs to be integrated into a global approach for the prevention of sexually transmitted diseases and also for the promotion of health in general. This global approach needs to take social, juridical and economic aspects of prostitution into account."

In Ghent there was a centre for family planning and STI (Centrum voor Seksuele Voorlichting), where some sex workers came for their sexual health, but many of them did not know of its existence. Starting from this centre, a first attempt was undertaken to contact the sex worker community and to determine HIV prevalence in 1985 (15). Out of 53 sex workers (31 Belgian, 22 non-Belgian), none was seropositive for HIV.

In 1986 the network of AIDS reference laboratories (ARL) was set up in Belgium. The main objective of the network was to optimise and standardise laboratory testing procedures for HIV and to monitor the AIDS and HIV epidemic in Belgium (16)(17). The Ghent ARL decided to fund epidemiological research to support future preventive interventions. At the time it was acknowledged that prevention was the only available tool in the so-called fight against AIDS.

In 1989 the Gay Service Research Project (GSRP) studied HIV related knowledge, attitudes and practices in the gay population in Flanders (18)(19)(20)(21).

In 1988 and 1989 the PASOP (Project AIDS Sociaal Geneeskundig Onderzoek Prostituees) study took place. PASOP means take care, watch out. From the very beginning, this study tried to build up a relation of confidence with sex workers, in order to lay a foundation for future intervention projects.

In chapter 1.2 and chapter 1.3, the results of this study will be presented, in which 154 female sex workers (FSW) in and around Ghent were interviewed about their knowledge, attitudes and practices in relation to the risks of STI and HIV infections in their work. Most (123) were tested for HIV, HBV, HCV and syphilis.
In chapter 1.2 the study focuses on the results of STI screening and testing behaviour. In chapter 1.3 more emphasis was put on where they obtained their information on AIDS, what practices they believe are safe in relation to HIV infection and on condom use.
All women who participated in this study received a letter with the main conclusions of the study as feedback.

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1.2 Human Immunodeficiency Virus (HIV) infection, sexually transmitted diseases and HIV-antibody testing practices in Belgian prostitutes

R MAK, J PLUM, L VAN RENTERGHEM

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Abstract

From December 1988 to April 1989, 154 female prostitutes in and around Ghent, Belgium, were interviewed about their knowledge, attitudes and practices in relation to the risks for sexually transmitted diseases (STD) and human immunodeficiency virus (HIV) infection in their profession. Thirty four women worked as window prostitutes, 120 picked up their clients in bars, clubs and saunas. Blood samples were taken from 123 women. One (0.8%) was seropositive for HIV1, 19 (15.4%) had Hepatitis B core antibodies (anti-HBc), eight (6.4%) showed markers of syphilis. None of them were Hepatitis B antigen (HBsAg) carriers. Hepatitis C antibodies (anti-HCV) were present in the serum of three women (2.4%). Overall STD seroprevalence was higher in the group of window prostitutes than in the group of club prostitutes. One woman admitted intravenous drug use.
Former testing for anti-HIV antibodies had been performed in 102 (66.5%) respondents, of whom 84 (82.3%) were tested in the year preceding the interview. In 74.5% of the cases these tests were requested by the women themselves.
These results suggest that HIV infection is not yet prevalent in non-intravenous drug using prostitutes in Ghent, but that this situation may change considering their high rates of past STD. Window prostitutes are at higher risk than club prostitutes. Testing for HIV seems to be common practice, most at the request of the women themselves. Health education should discourage the notion of testing as an alternative to using condoms.

Introduction

By 30 September 1989, 563 cases of AIDS were diagnosed in Belgium, of which 287 were residents (= more than 5 years living in Belgium), and 276 were non-residents (= less than 5 years living in Belgium). The number of seropositives is estimated to be around 20,000, of which 4920 (Sept '89) have been identified (1). Male to female ratio is 6.3:1 in AIDS patients and 4.3:1 in seropositives, which illustrates the importance of heterosexual transmission.
Since no vaccine or curative treatment is yet available, these figures are bound to rise in future years. This emphasizes the need for health education on safe sex as the only feasible method of prevention. It should reach in particular all the people who engage in risk behaviour for sexually transmitted diseases.

In Belgium the health education campaign for the prevention of HIV infection was merely aimed at the general population (1987). Since risk behaviour is more prevalent in the 'risk group', the need for health education specifically directed towards these groups is obvious. Health education aimed at a specific target group requires several conditions: access to and acceptance by the group, knowledge of the characteristics and the language of the group. Prostitutes were the target group of this project. A prostitute was defined as a woman who offers her body to promiscuous sexual intercourse especially for payment (The Concise Oxford Dictionary). Difficult access to this group is one of the main problems, which is explained by the many illegal aspects of the profession in Belgium. Every action initiated by public services is considered as suspect by the group.
The aim of this study was to overcome these problems, to contact the women, assess actual behaviour and risks in order to create a base for future intervention. A small pilot study with 40 women in 1986 (2) showed the feasibility of our approach.

Methods

In order to be accepted by the group and to find access to the group, our team included two contact persons. One worked as a transvestite and the other is a female social worker who worked with prostitutes for many years.
During their first visit, the contact persons tried to motivate prostitutes to take part in the study. They were asked to recruit colleagues for participation (snowballing). The initial and subsequent contacts took place at the prostitute's workplace during her working hours.
After consent, the prostitute was interviewed by the contact person by means of a questionnaire. In the same week the contact person introduced the doctor, who took a blood sample on the spot and invited the respondents to discuss with him all their questions on the issue of STD and AIDS. Relevant health education material was handed out during this visit.
Testing was done anonymously. A code number was given to the woman when the blood sample was taken and if she wished, she could phone the doctor to get her results. In case of positive tests, the doctor would not counsel through the telephone, but referred the woman to an appropriate health centre. For the research group itself, it was therefore not possible to identify the respondents.
The questionnaire contained questions on knowledge of STD and AIDS, mobility (number of different work addresses), sexual habits, condom use, social factors, HIV testing, history of STD and personal opinions on prostitution. The interviewers used a language adapted to the respondent.
Anti-HIV1 and 2 antibodies were detected with commercial ELISA tests (Enzygnost anti-HIV1 + 2). Sera with a positive or borderline result were retested with an ELISA and confirmed with a Western Blot (WB)(Dupont de Nemours). A serum was considered positive for HIV antibodies when both core proteins and envelope proteins of the virus reacted in the Western Blot.
For syphilis screening a combination of two tests was chosen: VDRL, a flocculation test with a non-treponemal antigen (DIFCO) and TPHA, a *Treponema pallidum* haemagglutination test (FUJIREBIO INC). When one of the screening tests was positive or borderline a third test

was done: FTA ABS, an immunofluorescence test (BIOMERIEUX). For Hepatitis B surface antigens (HBsAg) and antibodies (anti-HBs) as well as core antibodies (anti-HBc) were screened. For these tests we used a commercial ELISA (ORGANON). All tests were performed following the manufacturer's instructions. For Hepatitis C we used an enzyme immunoassay for antibody to hepatitis C virus manufactured by Ortho Diagnostic Systems with recombinant antigens from Chiron Corporation. Statistical tests were performed with the SPSSPC+ V2-0 package (Microsoft).
A letter with the most important results and some related health education messages was sent to the participants of the study as feed back.

Results

In total 240 persons were actually approached by our team, of whom 156 (64%) collaborated. Eighty four persons (36%) refused and no data are available on them. They were mainly window and club prostitutes. Most women who refused did not give any specific reason. Statements like: I am not interested or I have no time were reflections of a general atmosphere of suspicion.
Since only a very limited number (n=2) of the contacted persons were male, the paper deals only with results from female prostitution (n=154).
From 123 (79.9%) women a blood sample was taken. The principal investigator, who took all blood samples personally, checked for traces of current intravenous drug use on the respondents' bodies. Only one woman had evidence of current use, and admitted intravenous drug use. Tests for HBsAg, anti-HBs, anti-HBc, anti-HCV, VDRL, TPHA, FTA Abs and anti-HIV1 and anti-HIV2 antibodies were performed (table 1).

Table 1: Serologic markers for HIV, Hepatitis B, Hepatitis C and syphilis in female prostitutes in Belgium (n=123)

Disease	Test	Number positive tests	Percentage of total	95% C.I.[a]
HIV	Anti-HIV1	1	0.8%	0.0%-2.4%
	Anti-HIV2	0	0%	0.0%-1.4%
Hepatitis B	HBsAg	0	0%	0.0%-1.4%
	Anti-HBs + anti-HBc	18	14.6%	8.2%-21.0%
	Anti-HBc alone	2	1.6%	0.0%-3.8%
	Anti-HBs alone	4	3.3%	0.0%-7.1%
Hepatitis C	Anti-HCV	3	2.5%	0.0%-5.0%
Syphilis	VDRL/TPHA/FTA	2	1.6%	0.0%-3.8%
	TPHA/FTA	6	4.9%	2.1%-9.0%

a CI = confidence interval

One woman (0.8%) had antibodies to HIV1. She is from West Africa. She left her country in 1988 and had been working in Belgium as a club prostitute for 6 months. Seromarkers for Hepatitis B were found in 24 women (19.5%). Two women (1.6%) had active or recently treated syphilis, and six women (4.9%) had markers of past syphilis.

Thirty one (20.1%) women refused to have a blood sample taken, mostly because they were previously tested by their own physician. Since there was no significant difference between this group and the women who accepted blood sampling regarding previous testing for HIV and the other characteristics in the study, both groups were joined for further analysis.
In our study group we describe two different subgroups, window prostitutes and club prostitutes. Window prostitutes attract their clients mainly while they sit behind a window of a little bar, situated in the city centre or along the main roads to neighbouring towns. The interaction with the client is shorter and more directly oriented to sexual acts.
Club prostitutes are not visible from the streets. They create a more general atmosphere where drinking is important, and sexual acts need not always take place. In table 2 we describe a number of social characteristics of both groups.

Table 2: Characteristics of window prostitutes and club prostitutes in Belgium (n=154)

	Window prostitutes (n=34)	Club prostitutes (n=120)	p-value
Mean age (SD[a])	34.5 (7.4)	34.5 (7.6)	NS
Mean years of prostitution (SD)	6.6 (6.1)	7.3 (6.6)	NS
Mean age of school leave (SD)	17.6 (6.5)	15.9 (3.5)	NS
Mean number clients/week (SD)	18.8 (11.9)	12.7 (7.9)	<0.001
% STD-markers (n=100%)	34.6% (26)	17.2%(93)	<0.05
Condom use: % yes to question[b] (n=100%)	27.3% (33)	45.2% (115)	<0.05
Belgian nationality	19 (55.9%)[c]	90 (76.3%)[d]	<0.05
Other European nationality	10 (29.4%)[c]	15 (12.7%)[d]	<0.05
North African nationality	3 (8.8%)[c]	10 (8.5%)[d]	NS
West and Central African nationality	2 (5.9%)[c]	3 (2.5%)[d]	NS

a Standard deviation
b (do you ever have sex with a client without condom? Yes/no)
c (% of total window prostitutes)
d (% of total club prostitutes)

In the group of window prostitutes we find a higher number of clients, more STD seromarkers, more condom use with clients and more prostitutes with a foreign nationality. In club prostitution there are more Belgian women.
We examined the relation between STD markers (any test positive for anti-HIV antibodies, HBsAg, anti-HBc, VDRL or TPHA) and age, years in prostitution, age of leaving school, number of clients, condom use and type of prostitution in a stepwise multiple regression analysis (table 3, p. 12).

Table 3: Relative influence of 6 variables on STD-markers* in a stepwise multiple regression analysis in Belgian and other European prostitutes in Ghent (n=107)

Variable	beta	T	SIG T
Variables in the equation (P IN <0.10):			
Age	0.265	2.73	0.008
Type of prostitution (window=1, club=0)	0.237	2.24	0.028
Number clients/week	- 0.180	- 1.70	0.091
Variables not in the equation:			
Years in prostitution	0.066	0.52	0.60
Condom use (yes=0, no=1)	0.024	0.24	0.81
Years of schooling	- 0.001	- 0.01	0.99

Multiple R = 0.35 F = 4.48
R^2 = 0.13 Signif F = 0.006
*STD markers: any of anti-HIV antibodies, HBsAg, anti-HBc, TPHA positive = 1, none of them positive = 0.

To avoid possible inclusion of perinatally transmitted HBV markers in the model, we excluded the African women from this analysis. Age was the strongest predictor for STD seromarkers. The type of prostitution was the second predictor. The third factor derived from our data was the number of clients, in a reverse relationship. The more clients mentioned, the less likely are STD seromarkers and vice versa. Professional condom use was not selected as a predictor for STD markers, nor the amount of years in prostitution and the age of leaving school. Former testing for HIV had been done in 66.5% (n=102) of the respondents. There was no difference between window and club prostitutes. In table 4 time of last test and reasons for testing are shown.

Table 4: Characteristics of testing for HIV in a group of window and club prostitutes previously tested for HIV (n=102)

Time of last HIV test:	N	Percentage
Year before interview[a]	84	82.3%
Two years before interview	14	13.7%
Three years before interview	4	3.9%
Total	102	100%
Reasons for having a HIV test:		
I want to protect myself	90	88.2%
I want to protect others	80	78.4%
I asked for it myself	76	74.5%
The doctor advised me to	28	27.5%
I needed an operation	9	8.9%

a interview 1989

In the majority, 82.3%, the last test was performed in the year before the interview. In 74.5% the test was performed at the request of the woman herself. In 61.6% the general practitioner performed the test, in 19.2% the hospital, and in 18.2% the gynaecologist. Seventy-three (71%) women said they felt safer after a test. Sixty women (59%) mentioned at least to one client that they had been tested, while in 40 cases (26%) at least one client asked the woman

whether she had been tested. Clients of club prostitutes asked this question significantly ($p<0.01$) more often than clients of window prostitutes.
When asked whether an HIV test on a three monthly basis would be advisable for prostitutes, 80% agreed, and 84% found it a good idea to test clients in the same way.
Information on other STD was obtained orally by the interviewers, who were not medically trained. Only 100 women gave an answer, of which 21.0% had a history of STD. Treatment was given by a general practitioner in about half of the cases, and by a gynaecologist in the other half. About 75% of them were aware of the woman's profession in the sex industry. Further information obtained in the interview on STD was not considered reliable.
Of the tested women, 78 (64%) phoned for the results, including the seropositive woman, who was counselled and referred to a specialised centre.
There was no difference in schooling and STD seromarkers between the women who phoned and those who did not. Significantly more calls came in from women who worked longer as a prostitute ($p<0.05$), who had Belgian nationality ($p<0.01$) and who worked in clubs instead of behind windows ($p<0.05$).

Discussion

Many studies of prostitutes have been made on women in prisons, STD clinics, or in centres specifically dealing with prostitutes (3 – 7). The problem of selection exists in all these studies. We tried to overcome selection problems by choosing a recruitment system through contact persons, and by going to the women instead of asking the women to come to the research centre. Another advantage of this approach is the development of confidence between the contact persons and the respondents, which may lay a base for future intervention projects. The visit of the doctor gave ample opportunity to discuss several issues that were raised in the interview session, such as multiple testing for HIV.
We estimate the total number of club and window prostitutes in our area (about 500.000 inhabitants) at approximately 500 women. In most places, two or more women work together. Some bars and clubs refused to collaborate, before our team members were able to explain the purpose of the study, which reflects the suspicions entertained. We finally contacted about the half of the population under study, geographically well spread, and of them 64% collaborated. We consider this sample to be fairly representative, though it remains difficult to define the total population when dealing with prostitution.
Intravenous drug use could not be excluded, but there are no arguments to assume a high level of use in our study population.
HIV prevalence in our study was in accordance with other studies among non iv-drug using prostitutes in Europe and the US (8). The prevalence of seromarkers for Hepatitis B and syphilis, were similar to those reported from Antwerp in Belgium (9). From these data we conclude that HIV-infection is not yet prevalent in non-intravenous drug using prostitutes in Belgium, but that this situation may change considering the rates of STD seromarkers found, which are higher than in the general population in Belgium.
The two persons with anti-HBc alone may be in the window phase of the infection, or are low responders for anti-HBs. The persons with anti-HBs alone may be vaccinated. The vaccine is easily available on the Belgian market. We did not verify this with the respondents.

The most important route of transmission for HCV is through intravenous drug use or the transfusion of blood and blood products (10). The three women with HCV from our study did not report blood transfusions. Since in this study the possibility of past intravenous drug use may not be excluded, we cannot decide whether intravenous drug use or sexual transmission was responsible for HCV.
We describe two types of prostitution and examine their relation to the prevalence of STD seromarkers. In this analysis we did not consider African prostitutes. The probability that they had perinatally transmitted HBV cannot be excluded. In Belgian and other European prostitutes we consider seromarkers for HBV to be mainly transmitted through sexual contact, although previous intravenous drug use could not be excluded. From the stepwise multiple regression analysis we conclude that window prostitution is an independent risk factor for getting a STD. The number of clients shows an inverse relationship with the risk of getting a STD. Reported condom use with clients was not significantly related to STD risk. Window prostitutes might be more at risk, not because they use less condoms, or have more clients, but because their clients belong to a higher STD risk group themselves. So was the issue of AIDS significantly less often raised by their clients in comparison to the clients of the club prostitutes. Future research should therefore also be focussed on the client.
Information on STD was difficult to objectivate without proper testing. Not medically trained, the contact persons did not feel confident in STD history taking.
The amount of women who tested for HIV at least once is surprisingly high: 102 (66.5%). Antwerp reports 57% of 83 women (9). Testing has apparently become the norm is this population in Belgium. For 74.5% it was the woman herself who requested the test, which means that it is not the doctor who imposes testing for this group of people. If asked whether testing is useful for prostitutes, 80% gave a positive answer, in accordance with their actual behaviour. More than 88% said: "I want to protect myself". Sixty percent of the women sometimes tell their clients that they are tested. We consider this attitude as a possible danger in the prevention of STD and HIV. If the importance of testing tends to be overemphasised, some women may not feel the need for condom use as strongly as necessary. The argument of a negative test may be used by the client to refuse the use of a condom.
Our study shows a low prevalence of HIV in non drug using prostitutes in Belgium, a relatively high level of STD seromarkers, and a tendency for multiple testing for HIV. Health education messages should clearly discourage the notion of testing as an alternative for using condoms.

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1.3 Do prostitutes need more health education regarding sexually transmitted diseases and the HIV infection? Experience in a Belgian city

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Abstract

From December 1988 till April 1989 154 women who worked in clubs (120) and behind windows (34) in and around Ghent, Belgium, were interviewed about knowledge, attitudes and practices regarding Sexually Transmitted Diseases (STD) and Human Immunodeficiency Virus (HIV) infection in their professional life. Television scored best (98%) as a source of information for AIDS. A leaflet posted in every door in 1987 was mentioned in 60%. Less than half the women gave more than 7 correct answers on 11 questions about safety of sex techniques. Intercourse with condom, the sexual act mostly done, was considered safer than deep kissing, masturbation and even massage. In 10 to 20% of the professional sex contacts no condoms were used, which leads to 1000 to 4000 unprotected contacts every week in the sex industry in Ghent (population 500,000). Condom use with the private partner is exceptional. Proposals for condom use almost invariably come from the women themselves instead of from their clients. We conclude that up till now health education efforts to prostitutes and their clients were not sufficient and that they should be intensified.

Key words: prostitution, health education, AIDS

Introduction

Health education to promote safe sex is considered a major tool in the prevention of the spread of the HIV-infection. The health education program should be adapted to the target group to which it is directed. Without knowledge of the characteristics of this target group, health education may fail. The target group of this study is prostitutes. Prostitutes as a group have always been blamed as transmitters of STD (1). The arrival of HIV infection as a new STD boosted the attention for this 'risk group'. A great variety of prostitutes exist (2), which emphasizes the need for research into these groups before an adapted health education program can start.
The aim of this study was to elucidate some characteristics of the prostitute population in and around Ghent, and to build a relationship of trust, to prepare future intervention.

Methods

From December 1988 until April 1989 two contact persons visited 240 club and window prostitutes at their working place and tried to motivate them to collaborate in the study. They used no selection criteria. After consent, they interviewed them using a questionnaire with items on knowledge of STD and AIDS, mobility (number of different work addresses), sexual habits, condom use, social factors, HIV-testing, history of STD and personal opinion on prostitution. The interviewers used a jargon adapted to the respondent. No formal identification of the respondent was required. On a second visit they introduced the doctor who took a blood sample on-site and discussed the value of testing for HIV, the importance of prevention and any questions from the women regarding STD and HIV. Relevant health education material (with addresses of local organizations) was handed out, together with free condoms and lubricants. Serology was carried out as described elsewhere (3). A code number, identical to the one on the questionnaire and the blood sample was given to the woman, who could, if she wished, phone the doctor for the results of the tests. After the first analysis of the most important results, we prepared a short report for the respondents as feedback.
Statistical tests were performed with SPSSPC + V2.0 (Microsoft).

Results

In total, 154 women, working in clubs (120) and behind windows (34), were interviewed. Their main characteristics are given in table 1.

Table 1: Characteristics of prostitutes in the study (n=154)

	x (SD)[a]
Mean age	34.5 (7.5)
Mean years in prostitution	7.1 (6.5)
Mean age of leaving school	16.1 (3.4)
Mean number of clients/week	14.1 (9.3)
Nationality	**N (%)**
Belgian	111 (72.1)
Other European	25 (16.2)
North African	13 (8.4)
West and Central African	5 (3.2)

a SD = Standard deviation

Only one woman out of 123 tested had antibodies to HIV1, 16.2% had naturally acquired antibodies to HBV and 6.5% had markers for syphilis.
Television, mentioned by 98.7% of the sample, scored best as a source of information for AIDS (Table 2, p. 18).

Table 2: Sources of information about AIDS for prostitutes

	Percentage
Television	98.7
Colleagues	80.0
Newspapers	75.5
Clients	72.4
Radio	70.1
Doctors	63.5
Leaflets through postbox[a]	60.3

a Part of the Belgian national campaign in April 1987

A leaflet in their postboxes, which formed part of the Belgian national information campaign in 1987, is found lowest placed on the list, with 60.3% of the respondents recalling it. In Table 3 we list the knowledge of the respondents about the safety of some techniques.

Table 3: Knowledge of prostitutes about safety of sex techniques in relation to HIV-infection (11 questions)

Are the following sex techniques safe (no risk), unsafe (definite risk) or doubtful (risk not sure)?	Safe n(%)	Unsafe n(%)	Doubtful n(%)
Massage	124 (80.5)	10 (6.5)	20 (13.0)
Masturbation	114 (74.0)	31 (20.1)	9 (5.8)
Deep kissing	85 (55.2)	49 (32.0)	19 (12.4)
Intercourse without a condom	0	153 (99.4)	1 (0.6)
Intercourse with a condom	128 (83.1)	14 (9.1)	12 (7.8)
Cunnilingus	40 (25.6)	84 (54.5)	30 (19.5)
Anilingus	29 (18.8)	84 (54.5)	41 (26.6)
Anal intercourse with a condom	70 (45.5)	63 (40.9)	21 (13.6)
Anal intercourse without a condom	2 (1.3)	142 (92.2)	10 (6.5)
Fellatio without ejaculation in the mouth	40 (26.0)	94 (61.0)	20 (13.0)
Fellation with ejaculation in the mouth	14 (9.1)	135 (87.7)	5 (3.2)

Intercourse with a condom is regarded as the safest technique, followed by massage, masturbation and deep kissing. More than 50% of the respondents considered oral sex in all forms unsafe.

If we consider massage, masturbation and deep kissing to be safe, oral sex without ejaculation in the mouth, vaginal or anal sex with a condom, cunnilingus and anilingus to be safe or doubtful and all others to be unsafe, and add all the respondents' correct answer to the 11 questions, we find that less than half of the women had more than 7 answers correct (Table 4, p. 19).

Table 4: Number of correct answers to 11 questions about safe sex techniques

Number	Frequency	Percentage	Cumulative percentage
3	2	1.3	1.3
4	5	3.3	4.6
5	17	11.1	15.7
6	24	15.6	31.4
7	31	20.3	51.6
8	29	19.0	70.6
9	22	14.4	85.0
10	16	11.8	96.7
11	5	3.3	100.0
Total	*153*	*100.0*	*100.0*

There is no correlation (r=0.117) between the number of sources of information indicated and the number of correct answers.
In Table 5 the actual sexual behavior with clients as reported by the women is shown.

Table 5: Professional sexual acts as reported by respondents (n=149)

Type of sexual act	Frequency Often N (%)	Frequency Sometimes N (%)	Frequency Never N (%)
Masturbation	82 (55.0)	62 (41.6)	5 (3.4)
Coitus without a condom	32 (21.5)	55 (36.9)	62 (41.6)
Coitus with a condom	90 (60.8)	38 (25.7)	20 (13.5)
Anal coitus without a condom	2 (1.3)	24 (16.1)	123 (82.6)
Anal coitus with a condom	4 (2.7)	29 (19.6)	115 (77.7)
Oral sex with ejaculate ingested	16 (10.7)	51 (34.2)	82 (55.0)

Intercourse with a condom and masturbation are techniques mostly used. When asked about the sexual act with the last and penultimate client (Table 6, p. 20), intercourse was carried out with more than 60% of the clients, and this in 10% without a condom.

Table 6: Reported sexual act with last and penultimate clients

What kind of sex did you do with your last client? (n=137)	N (%)	What kind of sex did you do with your penultimate client? (n=133)	N (%)
Coitus	84 (61.3)	Coitus	86 (64.7)
with condom	73 (86.9)	with condom	76 (88.4)
no condom	11 (13.1)	no condom	10 (11.6)
Masturbation	41 (29.9)	Masturbation	38 (28.6)
Fellatio	6 (4.4)	Fellatio	2 (1.5)
Anal sex	1 (0.7)		
Other	5 (3.6)	Other	7 (5.3)
Were there questions about AIDS?		*Were there questions about AIDS?*	
Yes	26 (18.8)	Yes	20 (15.0)
No	111 (81.0)	No	113 (85.0)

In 15-20% of the client contacts the subject of AIDS was raised.
Less than 10% of the respondents sometimes use a condom in their private life.
When we cross-tabulated actual sexual behavior with the answers to questions about safety of sexual techniques, vaginal intercourse with a condom was carried out more in the group of women who consider this technique as safe ($p<0.005$), than in other groups. For oral sex this relation was not significant, nor for masturbation and anal sex.
More than 80% of the prostitutes suggests using a condom "always". Only 7.3% of the clients "always" ask for a condom, about 50% "sometimes" and 13% "never". The reaction of the clients according to the women is illustrated in Table 7.

Table 7: Clients' reaction to proposal to use a condom (n=129)

	Never N (%)	Sometimes N (%)	Mostly N (%)	Always N (%)
He wants to pay less	90 (70.3)	34 (26.6)	4 (3.1)	0
He says he will go elsewhere	38 (29.4)	82 (63.5)	7 (5.4)	2 (1.6)
He says he has no diseases	13 (10.1)	61 (47.1)	41 (31.8)	14 (10.8)

The most prevalent reason to refuse a condom is the clients' statement that he has no diseases, followed by the threat to go elsewhere.
Forty-three percent of the women think that they are able to see whether a client has a venereal disease, e.g. when they wash him. In Table 8, p. 21 some opinions about AIDS are listed.

Table 8: Some opinions about AIDS (n=154)

	No N (%)	Yes N (%)	Don't know N (%)
Do you think AIDS is more prevalent in prostitutes than elsewhere?	105 (68.2)	21 (13.6)	28 (18.2)
Do you think prostitutes should be tested every three months?	23 (14.9)	124 (80.5)	7 (4.5)
Do you think seropositive prostitutes should stop working?	29 (18.8)	117 (76.0)	8 (5.2)
Do you think clients should be tested regularly?	11 (7.1)	130 (84.4)	13 (8.4)
	More	*Less*	*Same*
Do you think that you have more, less or the same risk to get AIDS in comparison to other prostitutes?	18 (11.7)	59 (38.3)	77 (50.0)
Do you think that you have more, less or the same risk to get AIDS in comparison to the average population?	23 (14.9)	52 (33.8)	79 (51.3)

The majority (79.5%) of the respondents would be prepared to cooperate in a future project aimed at prostitutes, but no woman wanted to start such a project herself. Removal of the illegal aspects of their profession was favored by 140 (89.7%) of respondents.

Discussion

To judge whether a sample is representative in a population like prostitutes is difficult, since the total population is not known. We only contacted club and window prostitutes and we estimated their number in the area (500,000 inhabitants) at 500 women. Of them, we contacted about a half, and 64% collaborated.

By working through contacts in whom the women had trust, we tried to avoid selection bias, as found if studying women in prisons or STD clinics.

Television was the most important source of information on AIDS. The leaflets of the national campaign in Belgium, distributed a year and a half before the interview, were mentioned by 60% of the women. The information in Ghent was given only in Flemish, while more than a quarter of the women have a foreign nationality, and speak French or English. Television, however, is broadcast in five different languages.

Despite all the information given until now, a considerable part of the respondents, who work professionally in the sex industry, were not clear about safe sex techniques. Remarkable is the result that intercourse with a condom scored safer than massage and masturbation. Women who consider intercourse with a condom as safe applied this technique more often than others. We explain this finding as a result of the emphasis put on the selection of one loyal partner or using a condom in education for health messages to prevent AIDS. Information on other sexual techniques is often scarce. Future messages should be more explicit about the safety of many alternative sex techniques. Emotional involvement and power in the prostitute-client interaction may, however, have implications for the acceptance of certain techniques, such as deep kissing, which is safe, but mostly avoided by prostitutes. Vaginal intercourse without a condom during professional sex contacts was still widespread in our group. When we assume that 10-20% of the contacts that take place are without a condom, then there are about 1000-4000 (based on 1000 women with 10-20 contacts a week, including women in escort services, home workers, street walkers etc.) unprotected paid sex contacts in Ghent and its surroundings every week. Spread of STD and, more slowly, HIV-infection may easily follow this road.

The misconception that STD may be recognized at sight was widely spread in our group, and shows a lack of basic knowledge of STD. The use of condoms in private lives was exceptional, although there they run a high risk of STD (4,5). The initiative to have sex with a condom was almost completely in the hands of the women. Clients would hardly ever propose condoms, and gave many reasons not to use one. Since male to female transmission of HIV is more efficient than female to male, it is more likely that a client infects a prostitute than vice versa (6). Health education actions directed to the population of clients are of equal importance as actions directed to prostitutes. "It takes two to tango". Interesting are the opinions in Table 8. Most women do not think that AIDS is more prevalent in their professional group, and many estimate their risk to be lower than the risk for other prostitutes or for the general population (unrealistic optimism?). Tests for HIV are very popular, and if a woman should have a positive test, the majority would not allow her to continue working. We doubt if this is a realistic approach and would strongly argue against frequent testing for HIV, since a false feeling of safety may be the result. We think it is better to counsel a seropositive woman intensely on safe sex techniques than to try to force her to stop working in the sex industry, since there is a great risk that she will go underground. Clearly our group still needs explicit information about the risks of the profession. Use of classical information sources, such as TV and radio, has its limits and health education through personal contact should be the next step. The women expressed their will to cooperate in future preventive activities, in close collaboration with them.
Early in 1991 a drop-in center for prostitutes opened its doors right in the middle of the red light district, named PASOP, after the study just described. PASOP means 'be careful'.

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Chapter 2
Intervention period PASOP: 1990-present

2.1 Introduction

In chapter 1 we described how women were in favour of an intervention specifically targeted to them, but they did not want to start such an initiative on their own.
A logical step was therefore to actually set up an intervention targeted at sex workers aiming to bring preventive health services closer to them. It was named after the study described in chapter 1: PASOP. PASOP means take care, and the philosophy of the project was: we respect the choice of someone to work as a sex worker, but our advice is to 'take care'.

Based on the findings of the PASOP-study, on the experiences of working in the sexual health clinic and on discussions with sex workers, the intervention adopted some basic principles. The intervention was:

1. Complementary to existing services: the project would refer to existing care whenever possible and would avoid to accept the role of general practitioner for sex workers.
2. Specific: the offered services were related to sex work, e.g. it would refer to a GP for a upper respiratory tract infection.
3. Focused on prevention: the curative sector in Belgium was well developed, but prevention, in particular for sex workers, not.
4. Focused on outreach: experience in the sexual health clinic learned that the majority of sex workers would not take the initiative to come to a centre for prevention.
5. Multidisciplinary: in the sexual health clinic the medical doctor already worked closely together with the social worker for most problems. In the sex worker project the same collaboration was kept. The social worker was always together with the doctor during outreach. Gradually the role of a nurse became more important, especially after the start of the HBV-vaccination programme, and today the nurses play an important role in the team.

The contact persons made contacts with the sex workers through systematical visits of the working places, explaining the aims of the interventions and handing out health education materials. The intervention started from the contacts made in the study phase. Slowly but surely sex workers themselves were involved in recruiting new contacts.

The basic idea of the intervention could be summarized as: the provision of sex work specific occupational health services (1).

PASOP published its statutory text in 1990 (2). In December 1990 it opened a 'drop-in' centre in the middle of the Red Light district of Ghent.

We can describe four phases in the history of the project. The first phase was the creation of the basic project of PASOP, the second was the hepatitis B vaccination programme, the third was the mobile team project and finally, the fourth phase with a 4-year contract with the Flemish Ministry of Health. In the background of the local project, the European link to EUROPAP (chapter 3) played an important role.

2.2 Basic project (1991)

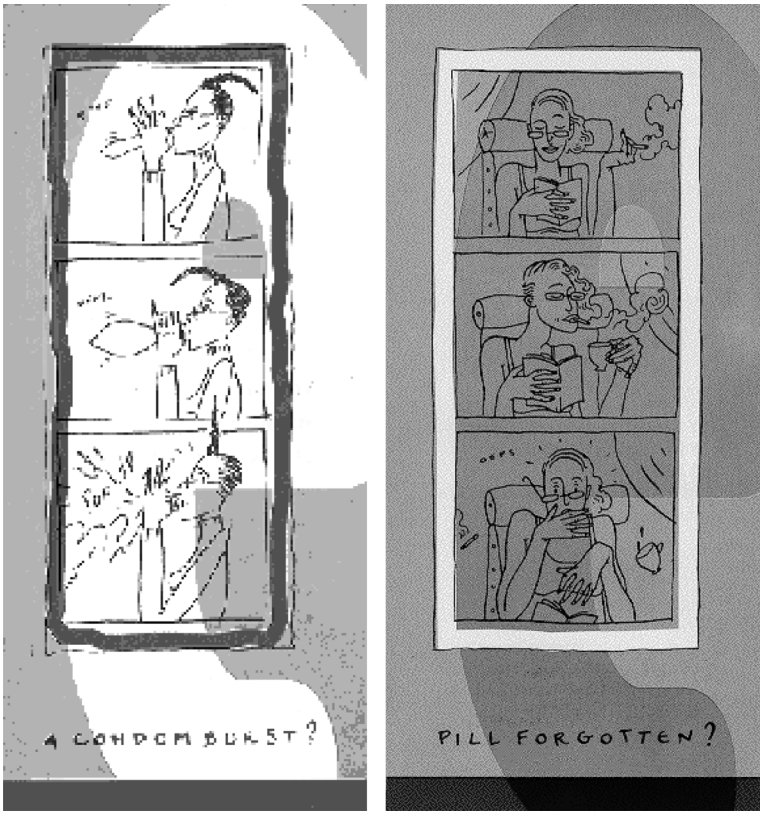
The physical basis from where all activities and future projects started is a two-room (since 2000: 4-room) studio in the 'Glazen Straat', known in Ghent for its concentration of window prostitution. One room is called 'livingroom', furnished as such to avoid a clinical atmosphere. One room is the consultation room, with a gynaecological chair, a microscope, specula and transport media enabling the doctor to take smears for STI and cervical cancer. The other two rooms contain administration and supplies.
There is a shower and a little kitchen where soup and coffee can be prepared. Four times a week the centre is open for four hours with someone from PASOP present.

In 1991 the project was supported by the Flemish Community in the framework of a decision of the Flemish Government of 31 July 1991 for health promotion.
Three projects were described:

1 DISTRIBUTION OF HEALTH EDUCATION MATERIAL AMONG SEX WORKERS

The main brochure distributed in the project was the Dutch booklet: "Safe sex at work", produced by the STD foundation in The Netherlands and adapted to the local situation in Flanders by PASOP and PAYOKE.
Other materials were leaflets about what to do in case of condom failure, what to do in case of forgotten contraceptive pills and about the importance of health insurance.

Examples of health education materials:



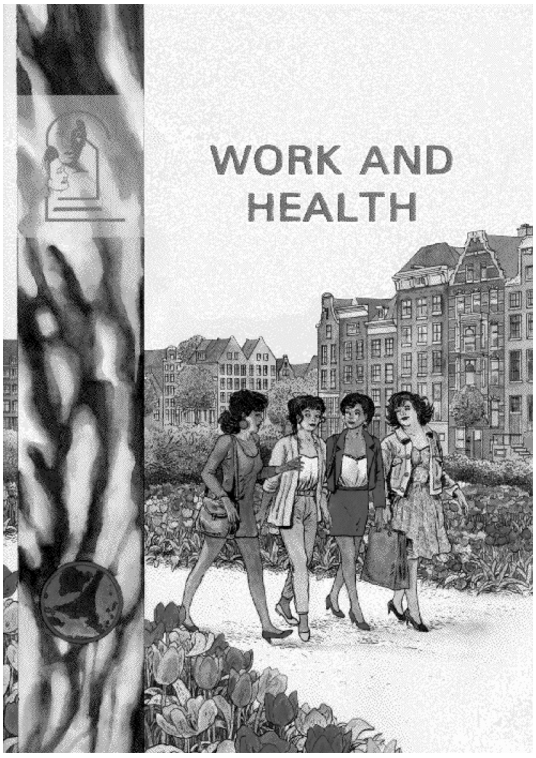
2 ASSESSMENT OF SEX WORKER HEALTH NEEDS

Based on former research (chapter 1.2 and 1.3) a new questionnaire was constructed.
The aim of this interview was to evaluate some ideas about safe sex and to compare these with 1988, and to stimulate discussions with the sex workers about safe sex, professional risks and problems experienced.
In comparison with 1988 the situation did not change much. Condom use during work seemed well accepted, but not in private life. Still one quarter had no health insurance. HIV tests were often performed.

3 HEALTH EDUCATION FOR FOREIGN SEX WORKERS

The objectives of this action were: assessing needs specific for foreign sex workers, optimising and further developing contacts between women and existing care, optimising targeted and job-specific health education and improving working conditions with a negative health impact.

Example of health education materials for foreign sex workers (3):



2.3 Hepatitis B vaccination campaign 1992-1994

In 1990 the Department of Public Health and the Laboratory for Bacteriology and Virology applied for funding in the framework of the 'impulsprogramma AIDS 1991-1995', launched by the federal government. The aim of this programme was to stimulate AIDS research in Belgium. The application was granted for the project called HBV vaccination for prostitutes. Five objectives were formulated for the project:

1. To evaluate activities aimed at the prevention of unsafe sex techniques by sex workers through the follow-up of HIV serology, STI and sexual behaviour over a specific period.

The problem with measuring HIV is its low incidence. To show a significant change would mean testing a lot of people. Another problem is the period between infection and diagnosis, which may last several years. Measuring STI incidence would be a better indicator of behavioral change. Incidence of some STI is higher (e.g. *C Trachomatis*), and the incubation period is shorter. Gonorhoea would be a good indicator, but its incidence dropped significantly in the last decennium (4). Asking sex workers themselves is the most direct method to measure behavioral change, but the problem here is validity of data, and the risk of getting socially desirable answers.

2. To evaluate a hepatitis B vaccination campaign for sex workers in the light of a possible future vaccination for HIV.

Even if a vaccine for HIV would be developed, difficult access to the group may hinder its actual deliverance. The experience with the HBV vaccination programme will then be useful, not in the least because of the creation of access to the group.

3. To increase the number of HBV vaccinated sex workers.

Whatever the results of other research questions, increasing the number of vaccinated people will benefit the group and constitute a real action offered to sex workers.

4. To evaluate existing health care for sex workers.

In the early nineties, no specific attention was paid to sex workers. Many of them did not reveal their sex work and if they did, existing care often focussed on HIV testing, instead of offering a broad range of sexual health. The question was to what extent existing services served the needs of sex workers.

5. To bring personal preventive actions to a group that is difficult to reach.

Since prevention is the cornerstone of HIV/STI care, the research programme should take advantage of the contacts created by the HBV vaccination programme to deliver health education materials and to discuss personal risks for all aspects of sexual health.

The HBV vaccination programme started from the PASOP drop-in centre in the window prostitution area of Ghent. This created a relation of trust, since PASOP was serving the interest of sex workers and no identification of sex workers was required. PASOP had already developed a network of contacts that showed interest in the vaccination.
Before starting the vaccination, a theoretical schedule was constructed to balance the demand for vaccination and the available input of medical personnel (one full-time nurse, and a part-time medical doctor). Five contacts were foreseen for each individual who accepted to take part in the programme. Contact 1 concerned serology for anti-HBc, anti-HBs, HBsAg and, with consent, syphilis (VDRL, TPHA) and anti-HIV, an optional gynaecological check-up with a cervical swab and a smear for cervical cancer. Contacts 2, 3 and 4 concerned a first series of three vaccines and contact 5 concerned a booster vaccination after a year, with serology and gynaecological check-up.
The project started from the existing network of PASOP, but tried to contact others through visits to bars and clubs, and through telephone contacts with sex venues that advertised in newspapers and periodicals. An area with a radius of 40 km from Ghent was covered. In the course of the project sex workers contacted PASOP themselves to participate in the vaccination programme.
In the first contact the principles of the programme were explained, health education materials distributed, and the women could decide whether or not to join.
When blood tests were taken, the principle of informed consent was applied. Special attention was paid to avoid pressure from others, e.g. the employer. All communication was therefore only possible directly with the participant. The blood of those who wanted to participate in the HBV vaccination campaign, but refused HIV testing, was pooled and tested after the study and after removal of all identification.
Those who wanted a gynaecological check-up were offered one, with a cervical swab for *N gonorrhoea, G vaginalis,* thrush and *C trachomatis* and a smear for cervical cancer. This examination could be done at the workplace, always in presence of a nurse, or at the PASOP centre.
To ensure anonymity, the project worked with a code number. Work place, date of birth and artist name were used to link the test results to the right person. Results were only given personally. No other people had access to the results.
With a small questionnaire the collaborators assessed the relation with existing care, HIV testing behaviour and some demographics.
The results of this programme were presented in a final report (5) and in a later publication (see chapter 4.3).

2.4 The 'mobile team' project: 1996-2001

Based on the experiences of the Hepatitis B vaccination programme, we further developed the concept of a 'mobile team' and gained financial support from the authorities, in particular the Ministry of Health of the Flemish Community, and since 1998 the City of Ghent and the Province of East-Flanders.
The objectives of this project:
A new model of services for sex workers is in operation aiming for 400 different women in sex work in and around Ghent to:

- Have a yearly smear for STI and cervical cancer screening
- Use a water-based lubricant together with the condom
- Know a place where they can talk openly about job-related social and health problems
- Know what to do in case of condom failure

Candidates for HBVvaccination received a complete set of vaccinations.
To reach these targets, a mobile team like in the HBV vaccination programme was set up, consisting of a contact from PASOP, a social nurse and, if necessary, a doctor. The team departed from the basic project and visited the network of 120 working places set up over the past years. Part of the network was situated in the centre of Ghent (40%), others in the rest of the city and along the main connecting roads (40%).
The team visited the work place at the increasing request of sex workers. The team planned a three-monthly visit of the network. They made use of health education materials developed earlier. Through the use of an anonymous checklist they evaluated the objectives. If necessary, the team delivered curative services, but it referred as many sex workers as possible.

2.5 Fourth phase: four-year contract with the Flemish Ministry of Health (2002-2005)

Based on the results of the mobile team project a new application was submitted to the Ministry of Health. In the contract with the Ministry, a set of targets and indicators were formulated in order to better evaluate the evolution of the work. As these are a good example of how to evaluate the project, the results of the targets and indicators for 2003 are described in chapter 4.2.

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Chapter 3
EUROPAP

3.1 Introduction

In 1992 an application was sent to the European Union in the framework of its HIV/AIDS prevention programme (DG V). The project was called EUROPAP (European Intervention Projects AIDS Prevention for Prostitutes) and initially 11 EU countries took part. Most of these had already participated in a concerted European action in 1990 (DG XII) (1).
The objective of this new action was to describe a model of intervention based on the experiences of projects actively involved in health for sex workers. Successively, three contracts were executed by the Department of Public Health of the Ghent University with the author of this thesis as the coordinator.

Contract 1
Agreement SOC 93 201250 (93CVVF1-030-0): "European intervention projects AIDS prevention prostitutes (EUROPAP)".

Objectives

- To support, develop and extend preventive interventions for prostitutes in order to reduce the risk of HIV and other sexually transmitted diseases
- To evaluate these interventions using a common methodology to be developed
- To develop a protocol for setting standards of such interventions which could be used across the Community
- To develop proposals for establishing a network of participating centres in the Community

Contract 2
Agreement SOC 95 200578 05F02 (95CVVF2-014-0): "European intervention projects AIDS prevention prostitutes 1995 (EUROPAP 1995)".

After assessment of the results of the first phase of the EUROPAP project funded by the Commission in 1993, the Commission identified the need for prolongation of the work begun in the first phase and will support this second phase.
This second phase will involve Sweden in addition to the same participating countries as in the initial work (Germany, Italy, Ireland, France, Spain, Portugal, United Kingdom, Belgium, The Netherlands, Greece and Denmark).

Objectives

- To support, develop and extend preventive interventions for prostitutes in order to reduce the risk of HIV and other sexually transmitted diseases, using the conclusions of EUROPAP 1994
- To describe models of good practice for HIV/STD prevention and support services for prostitutes
- To strengthen the international network and to assist in training of workers through bilateral visits of project personnel

- To exchange health educational materials, with the creation of a central library of existing materials to which project managers could have access

Contract 3
Agreement SOC 96 201428 (96CVVF2-024-0): "European intervention projects AIDS prevention prostitutes (EUROPAP)".

The Commission will support the creation of a European network for HIV/STD prevention for prostitutes resulting from the merge of two networks already existing and supported by the Commission: EUROPAP (Belgium) and TAMPEP (Netherlands). This merge will permit to optimise the impact of the implemented prevention activities through the implication of centres from all Member States.

Objectives
- To support, develop and extend preventive interventions for prostitutes, in order to reduce the risk of HIV and other sexually transmitted diseases,
- To strengthen the international network and to offer the opportunity for training staff and exchange experience,
- To further develop TAMPEP's methodology for migrant prostitutes, and to implement its outcome in the network of EUROPAP,
- To establish a European database on HIV prevention for prostitutes,
- To develop previous work on HIV/STD preventive interventions through more detailed work on 10 topics related to prostitution and HIV, by organising expert groups: involvement of sex workers, migrant prostitutes, Intravenous Drug Using (IVDU) prostitutes, clients, legislation, media and prostitution, data collection, mobile units, male and transsexual prostitutes.

It is important to note that the network aimed to bring together the experiences of people from various disciplines. From each country a fieldworker was invited together with a health professional. Medical doctors, sex workers, social workers, representatives of sex worker activist groups, public health workers, sociologists and nurses worked together to develop the recommendations of EUROPAP. In this way the group hoped to come up with realistic conclusions that could be endorsed by all actors in the field of prostitution.

In chapter 3.2 and 3.3 the conclusions of the programme are presented.
Chapter 3.2 is further elaborated in the book produced by the EUROPAP group (2).

After the coordination of the Ghent University, the Department of Epidemiology and Public Health, Imperial College School of Medicine took over, with Dr. Helen Ward and Dr. Sophie Day as coordinators from 1998 until 2003. EUROPAP 1998-2003 produced two main publications, Hustling for Health (3), which was prepared in the 1997 programme and Practical Guidelines for Delivering Health Services to Sex Workers (4).
“Hustling for Health, developing services for sex workers in Europe” offers a snapshot of various guidelines, projects and interventions from around Europe. Drawing directly from the

experience of sex workers, Hustling for Health is a practical guide which promotes health and safety in the sex industry through better access to good services. The guide was produced in 1998, by a Network of projects in health care, social services and the sex industry in 16 European countries. It describes innovative programmes of peer education, outreach, and health promotion schemes for different groups of sex workers, clients and managers in the sex industry. Hustling for Health is available in English, Danish, Dutch, Finnish, French, German, Greek, Italian, Portuguese, Russian, and Spanish.

'Practical guidelines for delivering health services to sex workers' are meant for health and social workers who have had formal training in health issues, or developed practical experience through their work, and who deliver health care and health promotion services to sex workers. In general, they should be considered as complementary to existing text books, trying to add topics specific for the health of sex workers.
A panel of international experts developed the guidelines: Lucie Van Mens, The Netherlands, Elena Kabakchieva, Bulgaria, Justin Gaffney and Helen Ward, UK, Alexandra Chaveiro, Portugal, and Heidrun Nitschke, Germany. A recent Dutch publication, 'Handbook STI-prevention in prostitution (5)', served as a useful example. Where possible, published literature was used to support the recommendations. Rudolf Mak, Belgium, was the reporter of the expert group, and editor of the final text, with support of Martine Claeyssens, Ans Traen and An Mortier of the NGO PASOP, Belgium.

The website of EUROPAP is still active and presents all relevant publications. It is however not sure if it will be maintained in the future, since no new funding for EUROPAP was foreseen in 2004.

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3.2 AIDS-prevention for sex workers Conclusions of the EUROPAP Project

BY
RUUD MAK[1]

Translated from:
Tijdschrift voor Sociale Wetenschappen, 1995;40,3:323-331.

Summary - AIDS-prevention for prostitutes. Conclusions of the EUROPAP project[2] - The EUROPAP (European Intervention Project AIDS Prevention for Prostitutes) project run in 1994, aimed at evaluating existing AIDS-prevention projects in eleven countries in Europe, and wanted to use the results for the description of standards to which projects should answer. The coordination of EUROPAP was done by the University of Ghent, Department of Public Health. In this article a summary is presented of the outcome of the first year. It is based on the final report of EUROPAP, in which each country presents an overview of the domestic situation. The main conclusions were: laws and policies that obstruct prostitutes' use of health and social services and restrict their control over their working conditions should be reviewed and repealed. Existing health services do not fully cover the needs of all sex workers in any European country, and therefore full consideration should be given to the development and provision of specific services. Such specific services need stable and continued funding in order to establish a relation of trust with prostitutes, and to provide services to an ever-changing, mobile and hard-to-reach group. Initiatives should be carried out with the close collaboration of the prostitutes themselves. Networking between AIDS-prevention projects for prostitutes in Europe has helped us to determine which projects are successful in promoting safer sex in prostitution.

INTRODUCTION

The EUROPAP (European Intervention Project AIDS Prevention for Prostitutes) project (phase 1) ran from September 1993 till February 1995. The coordination was in the hands of the Department of Public Health, Ghent University. The project was partly financed by the European Union, in the programme: "Europe against AIDS". Eleven countries took part in it[3].

1. Dr. Ruud Mak is staff member of the Department of Public Health, Ghent University. He was the coordinator of the EUROPAP project
2. This contribution is based on the final report of EUROPAP
3. Local coordinators were respectively: for Belgium (Christ'l Praats, vzw Payoke, Antwerp), for Denmark (Marianne Hogsborg, Anne-Marie Worm, Kobenhavns Venereaklinik, Copenhagen), for France (Anne Serre, Isabelle De Vincenzi, Centre Européen pour la surveillance épidémiologique du SIDA, Institut de médicine et d'épidémiologie africaines et tropicales, Hôpital National de Saint-Maurice, Paris), for Germany (Maya Czayka, Madonna, Bochum), for UK (Margaret Casey, Academic Department of Public Health, St. Mary's Hospital Medical School, London), for Greece (Anastasia Roumeliotou, Helen Kornarou, Athens School of Public Health, Athens), for Ireland (Deirdre Foran, Mary O'Neill, AIDS/ Drugs Coordination Unit, Baggot Street Hospital, Dublin), for Italy (Pia Covre, Comitato per i Diritti Civili Delle Prostitute, Pordenone and Paolo Lamarca, Vittorio Agnoletto, LILA - Lega Italiana per le Lotta contro l'AIDS, Milan), for Portugal (Jacinta Azevedo, Jorge Cardoso, Irena Santos, Centro da Saude Da Lapa, Lisbon), for Spain (Maria-José Barahona, Pilar Estebanez, Medicos del Mundo, Madrid), for The Netherlands (Thérèse Van der Helm, GGD Amsterdam and Lucie van Mens, STD-foundation, Utrecht).

In each country a local coordinator was responsible to reach the objectives. These objectives were: the support, development and extension of preventive actions for prostitutes to restrict the risk of spreading AIDS and other sexually transmitted infections; to evaluate these actions with a common methodology; to develop a protocol with standards to which actions in Europe should adhere; to elaborate proposals to set up a network of participating centres in Europe. Based on the work of the local coordinators and discussions in the general meetings in Ghent, the group arrived at a number of general conclusions regarding the factors influencing safe sex at the work place in a positive or a negative sense. Further they extensively discussed the organisation of services for prostitutes, more particularly regarding health and AIDS-prevention.

1 THE LAW AND PROSTITUTION

Laws and policies that obstruct prostitutes' use of health and social services and restrict their control over their own working conditions should be reviewed and repealed.

Undoubtedly the everyday life of a prostitute, including the way she or he works, their personal safety, earnings, and contact with the police, is influenced by the laws on prostitution and the way they are applied. In most European countries prostitution itself is not illegal; however, the practice of prostitution is effectively rendered illegal through restrictions on organising, advertising and living off the proceeds of prostitution.

The exact wording of the law varies between countries in Europe and there are often disputes over exactly what is legal and what is not. In addition, the way in which the laws are enforced varies widely across Europe, within countries and over time. In general, however, those who are responsible for HIV prevention in prostitution have found that many of the laws on prostitution are a barrier to the practice of safer sex. The following are examples of how this may work in practice.

Laws demanding mandatory testing and mandatory registration create barriers to health care for sex workers.

Greece had the most strict regulations regarding registered prostitutes, with mandatory medical screening twice a week. As a result, most sex workers avoided registration, which made them liable for prosecution. All health care facilities and HIV prevention activities for prostitutes were limited to those who are registered. This is ineffective in public health terms: in Athens approximately 400 women are registered, while an estimated 5,000 more prostitutes are not registered.

In Germany, approximately 50,000 sex workers are registered and are regularly seen by the health services, as required by the laws to combat venereal diseases. However, according to recent estimates a further 150,000 people work in prostitution. Registered prostitutes often complain about the impersonal attitude and approach of health care workers, which undermines confidence and, with it, good medical care.

Laws excluding people who are infected with HIV from working as prostitutes may be counter-productive in HIV prevention work.

In some countries legal measures may be introduced to try and prevent HIV-positive people from working in prostitution. As a result prostitutes will avoid testing, or hide their serostatus.

HIV prevention projects should advocate an open and trusting approach in which prostitutes can openly discuss seropositivity.
Many prostitutes who are HIV infected will continue to need to work; prevention projects can help to ensure that they work safely, i.e. practice safer sex, if they are able to discuss openly the options available to the sex worker, including alternatives to prostitution, which may be preferable for health reasons. However, if HIV-positive prostitutes do continue to work, there is only a small risk of transmission of HIV to a client providing a condom is used. This highlights the importance of education work with clients so that they too take responsibility for risk reduction.

Laws and regulations relating to soliciting should not promote unsafe working conditions for prostitutes.
In most European countries soliciting (publicly attracting the clients' attention) is not allowed. The enforcement of the laws against soliciting, however, varies, not only between countries, but also within countries and over time. In many cases, this may lead to unsafe working conditions, as illustrated by the example of Ireland. In this country, soliciting of both client and prostitute is an offence, and since 1993 the police may also force a person suspected of loitering in a street to leave. This has had the effect of reducing negotiation time with the client. As one woman says: "before you only had to look out for the clients, now you are looking out for the Gardai (Irish police) as well". It has become more difficult to avoid dangerous clients.
If a woman is charged with an offence she may incur heavy fines which force her to work extra hours to earn money to pay the fine. The role of intermediaries (pimps) becomes more important, providing protection and paying bail. In some countries, the possession of condoms is used as evidence of soliciting. It is clear that these laws form a serious barrier to creating conditions conducive to safe sex.

Laws that forbid living on prostitutes' earnings may lead to unsafe working conditions.
Another common feature in European law concerning prostitution is the notion of procuration, with "living off prostitutes' earnings" being an offence. There are examples where use of this law has made it more difficult for prostitutes to work safely. In Paris this law was used to close down apartments and hotels in the traditional prostitution district around rue St. Denis. Sex workers were forced to move to the outskirts of town where they were more isolated and where working conditions were more dangerous.
These laws also reinforce the social isolation of prostitutes, making it difficult for them to live with an adult who may be charged with procuration and living off the earnings of a prostitute. These laws, denying prostitutes any workers' rights as both prostitute and employer have to deny their business relationship, necessarily criminalize the relationship between a prostitute and a brothel owner. In Germany, for example, this means that some sex workers have no right of access to social and medical services.

Local regulations concerning prostitution should not have negative consequences for safe sex conditions.
Local regulations can have a major effect on how prostitutes work, and also how HIV prevention projects work with prostitutes. For example, they may be used to move prostitutes from

one area to another, making it more difficult for outreach workers to maintain contact with sex workers. In Paris the media reported a high prevalence of HIV among prostitutes working in the Bois de Boulogne; this was followed by a local regulation prohibiting cars from stopping along certain roads in order to prevent clients picking up prostitutes. An HIV prevention project worked from a bus in this area, but they too were subject to these regulations and prevented from parking, and less able to promote safer sex or distribute condoms. In Germany, most cities have zones where prostitution is prohibited, and areas of tolerance, where prostitution is found in super brothels and eros centres. Only certain sex workers are tolerated, and those who do not fit in, such as migrant workers or drug users, are expelled to isolated areas, where working conditions are more dangerous and access to health services and prevention projects may be more difficult.

Harm reduction programmes for injecting drug users should not be hampered by the enforcement of repressive laws.
Many injecting drug users, male and female, work as sex workers to fund their drug habit. The need to earn money for drugs can often override the desire to practice safe sex. Many clients are aware of this and will attempt to purchase sex for less money, sometimes without a condom, leading to risks for the prostitute and client. Programmes to reduce the risk of HIV need to provide clean injecting equipment and also drug treatment, including the use of methadone as a substitute, with the aim of breaking the vicious circle of sex work for drugs. Some countries have legal obstacles to this kind of programme, which makes the work of HIV prevention projects more difficult.

Any law preventing access to health care and prevention programmes should be repealed.
All European countries have strict immigration regulations for non-Europeans. Many people, however, enter these countries illegally. With no work permit and facing the constant risk of arrest and expulsion, many can only survive as sex workers, often in the worst conditions. Projects for sex workers should be able to contact these people, and to ensure their access to health care, without any interference by the police.

2 HEALTH AND SOCIAL SERVICES FOR PROSTITUTES

There is a low prevalence of HIV in female prostitutes who do not inject drugs.
Given that HIV may be sexually transmitted, the assumption was made that prostitutes were at greater risk of contracting HIV because of their multiple sexual partners. It was also assumed that prostitutes could be instrumental in spreading HIV to their clients and thus play a major role in transmitting the virus into the heterosexual population. In most European countries this view is still widely held. However, research in a variety of countries has shown that prostitute women in Europe who do not inject drugs do not have a high prevalence of HIV, and most prostitutes report high levels of condom use with their clients. Other research has shown that injecting drug users, women from endemic areas and male prostitutes have a higher HIV prevalence.
The ability to practice safer sex in prostitution is influenced by a range of factors, such as demand by clients for unprotected sex, urgent need for money, alcohol abuse, homelessness,

ignorance, lack of resources, younger age, etc. It is not possible to separate high and low risk sex workers and people may move between the two risk groups. Projects that promote safer sex in prostitution will be of benefit to sex workers and those they have sex with, and therefore barriers to health care and health promotion for prostitutes, the clients and other sex partners, should be minimized.

General health services in Europe do not fully meet the needs of sex workers
The organisation of health care varies considerably across Europe. Some countries provide a national health service, with free access for all citizens (UK, Denmark, Portugal, Ireland, Spain), some have a private medical system (Belgium) and others provide a mixture of the two (The Netherlands, Greece, France). The organisation and funding of sexually transmitted disease services is similarly varied: in the UK, Denmark, Ireland, Spain, and in the main cities of The Netherlands and France, there are dedicated genito-urinary medicine clinics. In countries such as Portugal and Belgium most sexually transmitted diseases are treated by private general practitioners, gynaecologists, dermatologists and urologists. In Germany and Greece public health officers are responsible for enforcing laws to combat venereal diseases, and for organising sexually transmitted disease services for registered prostitutes.
We have identified two main obstacles to health care for sex workers.

- Some prostitutes do not qualify for health services. This applies in some countries where sex workers are not entitled to social security as their work is not recognised. In Germany and Belgium the health care system is only available to employees or self-employed workers who pay taxes which make them eligible for social security; prostitutes generally lack this official status. In Denmark and Spain this applies only to Social Welfare, not health care. People with no residence permits are similarly excluded.
- The health system is not appropriate for sex workers. This is a complaint common to all the country reports. Staff in clinics and hospitals are often reported as having a negative attitude towards prostitutes and prostitution. As a result sex workers may avoid health services, or, if they do attend, do not disclose their work to the health staff. Health care workers are often ignorant about prostitution and the specific problems prostitutes may face. Many prostitutes would prefer to have treatment anonymously, i.e. without having to provide official documentation, because they fear that their doctor will inform other state agencies about their prostitution. Many men and women working as a prostitutes have had bad experiences with "official" institutions, and therefore distrust "official" health and social services. Further constraints include unsuitable opening hours; for example, clinics may be shut during the hours that prostitutes would like to use them. Health promotion in general, and sexually transmitted disease and AIDS prevention in particular, are often not emphasized in existing health care services, where the emphasis is more on cure.

Existing health services do not fully meet the needs of all sex workers in any European country, and therefore consideration should be given to the development and provision of specific services.
In the light of this discussion of existing health care, it is clear that to optimise access to health care special attention should be paid to the provision of health care and health promotion for prostitutes. In most countries in Europe this need has already been identified. One of the objectives of EUROPAP was to learn from the services that have emerged all over Europe. The

country reports include detailed descriptions of major projects. Based on these reports, and discussions with all the local co-ordinators, a number of important requirements for successful services have been identified:

Anonymity and confidentiality: as long as the taboo in society on sex work remains, and repressive laws apply to sex workers, services should offer confidentiality for those who wish it. In some first line outreach projects, anonymity may even be preferable, e.g. when dealing with illegal residents.

Involvement of sex workers: projects for sex workers should work with the participation and involvement of sex workers. Projects should provide sex workers with training in health promotion (peer education) and related activities. It may take time to build a team of prostitutes and non-prostitutes, but a combination of their skills is important in developing appropriate services for sex workers.

Skills of staff: projects should organise adequate staff training, particularly by sex workers. Staff should be informed of occupational risks and problems in sex work. They should understand the working and living conditions of prostitutes, and be aware of potential difficulties with managers and brothel owners.

Attitude of staff: anyone working in a project should have a non-judgemental attitude to sex work. If prostitutes want to leave prostitution they will indicate that and ask for appropriate support. In general, however, prostitutes will come with a specific problem, which should be dealt with appropriately, without the prostitute receiving a lecture on why s/he should leave prostitution.

Adequate payment of all staff, including peer educators: providing services and health promotion is a professional activity, and should be adequately paid and recognised.

Free of charge: contrary to common belief, many prostitutes are often in financial difficulty. If they require health care, lack of money should not hinder access. Some sex workers in some countries may prefer to pay for services. A project should be flexible and make arrangements in close consultation with the prostitutes themselves.

Outreach: project staff should be able to go to the prostitutes themselves. This may be done on foot from appropriately located premises, or with a bus or a van (e.g. in Madrid and Paris), others may have a mobile team which visits bars and clubs up to 40 kilometres from the project's base (e.g. Ghent), and some may operate with street workers (e.g. Brussels).

Solid infrastructure: whether based in a drop-in centre or a mobile bus, projects should supply high quality materials reflecting their aim of providing quality services.

Appropriate health education materials: sex work has its own characteristics and dynamics. Risk reduction strategies are also specific, and health education material needs to reflect them. For example, the Dutch STD Foundation has developed a safe sex brochure for sex workers which has been translated into English and French for use in Belgium. A comic strip about safe sex, from the same organisation, exists in Spanish, English, French, and Greek.

Extension to remote areas: projects should attempt to reach prostitutes in more remote areas. As indicated before, a country's policy towards prostitution may result in the movement of prostitutes out of town. Outreach work should not be limited to inner cities.

Attention to all forms of sex work: sometimes a project is directed only at a selected population of prostitutes, e.g. drug using street workers. In most areas, however, other forms exist, each with its specific needs and characteristics. Examples include occasional prostitutes, trans-

sexuals, and transvestites. In many countries the lack of initiatives with male prostitutes was noted. Projects should attempt to identify these different groups and develop appropriate work for all groups.

Attention to all sex workers: it is clear that contact with migrant prostitutes requires knowledge of their language and culture. People with appropriate language and knowledge will be important in establishing contact and trust with different groups of prostitutes.

Attention to other people involved in prostitution: prostitution is a social phenomenon involving prostitutes, clients, managers, police and other state functionaries. Interventions should not focus solely on the sex workers themselves. For example, health promotion may be facilitated by work with the managers of clubs and brothels, or through work with clients. Police will often be present in prostitution areas. Projects should create a neutral position in relation to all these interested parties. Balancing the interests of all players in and around the sphere of prostitution demands a very sensitive and careful approach.

Building links with existing services: prostitute projects will vary in the extent of services they can provide themselves. Some will offer clinical services, drug treatment, social support and counselling. Others will be more restricted to, for example, distributing condoms and providing advice and support. In general, it will not be possible for project staff to meet all the needs of the prostitutes, therefore it is important that good links are made with other available services in the area. Parallel services should in general be avoided, and only organised if existing services are clearly insufficient to meet the needs of sex workers. For example, in some cities it is more appropriate to co-operate with existing services for injecting drug users (needle exchange, drug replacement), especially where the prostitute population contains many non-drug users. Collaboration with existing sexually transmitted disease services may be successful, as in Portugal, although even this project hopes to provide some medical services on-site in the prostitutes' drop-in centre.

Building links with other specific prostitute services: most prostitute areas have their own characteristics, and the organisational model of a service may not be generally applicable to other areas. Nevertheless, there are many common experiences between different projects, and close collaboration between projects would be useful. Joint forces may also be needed to convince public authorities of the importance of good access to care for prostitutes.

HIV prevention in a broad perspective: projects are often set up to work specifically on the prevention of HIV. However, issues around HIV are not always the priority for a prostitute, and other problems may be more pressing. Where a service focuses on HIV prevention alone, they may have difficulty establishing credibility, and their HIV prevention work will not reach the target group. HIV prevention should, therefore, be placed in a wider context, taking into account other needs of sex workers.

Pilot phase for new projects: the start of a new project in an area where no projects existed before remains a difficult task. It is important to select appropriate project staff, provide training, secure funding, assess needs, network with existing services and establish the trust of the prostitutes. Preliminary research should be undertaken, in close collaboration with the sex workers of the area, to determine the best way to organise the project before, for example, attempting to rent premises or a mobile van, or employing several staff.

Evaluation: a project should build in evaluation from the beginning. This will enable a project to check whether the proposed targets are reached on one hand, but can also show oth-

ers if the project delivers good work. In particular funding agencies should have a good view on the dynamics of a project. Both staff of the project as sex workers should be involved in the evaluation process.

Continuity of funding: when we review the conditions for a good project it becomes evident that short term funding is a severe constraint. Almost all the local co-ordinators reached the same conclusion. Clearly, security of employment of staff, ability to plan in the medium and long term, and continuity are important in the provision of a high quality service. In addition, prostitutes are often a dynamic and mobile population, making continued interventions essential. HIV prevention for prostitutes is a continuous activity.

3 RESEARCH AND PROSTITUTION

Research in prostitution should benefit sex workers, not universities.
The emergence of AIDS resulted in an increase in scientific research on prostitution related matters. This research was not always carried out in the interest of prostitutes, but yielded interesting publications and a scientific career for the researcher. Many projects experienced how sex workers were reluctant in answering long questionnaires in research. We prefer action research leading to real interventions where necessary, in collaboration with sex workers and project staff.

4 PROSTITUTION AND PUBLIC OPINION

Lack of information and understanding of important issues related to sex work often lead to wrong conclusions
Public opinion and the media often influence the way existing legislation on prostitution is applied in practice. Sometimes prostitution is approached looking for sensation, sometimes with real interest. Lack of information and understanding of important issues related to sex work often lead to wrong conclusions. For example, in England a project organised a public hearing with local inhabitants to discuss hinder caused by prostitution. The final conclusion of the debate was that 'the best way to do something against hinder was to promote the interest of sex workers, instead of fighting the symptoms". In countries such as Italy and Portugal prostitution is strongly stigmatised, and disapproved based on morality. The result can clearly be seen in the image of prostitution in the press.

5 CONCLUSION

The first EUROPAP project started the debate on aids-prevention for prostitutes well and led to real actions in many countries. Early 1995 the EU approved the continuation of the project with as objectives: further development of evaluation, further collation of health education materials, and exchange of project personnel.

3.3 Projects for prostitutes in Europe [Editorial]

DR. RUDOLF MAK, MD, DIP.VEN.

(published in Genitourinary Medicine 1997;73,3:155-156. [Editorial])

The control of sexually transmitted diseases (STD) in prostitution is considered as an effective public health intervention, especially in high prevalence areas (1). Although the prevalence of STD and HIV in European prostitutes is considerably lower than in the developing countries, factors such as migration and IV-drug use create a very dynamic situation where the characteristics of prostitute populations in Europe may change over a short time period.
Control of STD in prostitution is a complex matter, and is not only influenced by the organisation of health services, but also by the way prostitution itself is organised in society, by the law and its enforcement.
Safe sex should be the norm in a prostitute-client contact, but as long as this objective is not achieved, public health interventions are needed. Control of STD in prostitution may be the responsibility of non-specific general health services, or it may include targeted interventions for prostitutes.
In their excellent review in this issue of the journal (p 161) Sophie Day and Helen Ward describe three main models of targeted public health intervention for prostitutes: a first strategy working through mandatory screening and registration of sex workers, a second strategy providing accessible and appropriate services wanted by sex workers themselves and a third strategy giving sex workers a central role in health promotion.

As co-ordinator of the EUROPAP/TAMPEP programme (European Intervention Projects AIDS Prevention for Prostitutes/Transnational AIDS/STD Prevention among Migrant Prostitutes in Europe, co-financed by the European Union in its DG V 'Europe against AIDS' programme) I would like to discuss if these models are actually put in practice in Europe, and what lessons could be learned. This is the objective of EUROPAP/TAMPEP, now joining all 15 EU Member States. In each of these, a 'local co-ordinator' is responsible for the creation of a national network of existing specific services targeted to prostitutes. In this way, a maximum amount of first hand information can be gathered in collaboration with those who work in STD/HIV-prevention for prostitutes on a daily basis.

The first model with registration and mandatory screening and treatment, can still be found in Greece and Germany. Today, 400 registered and 50 non-registered sex workers are seen at the STD Clinic in Athens (2), the only clinic providing services to sex workers. However, health promotion and health care hardly reach the other estimated 5,000 non-registered sex workers, who are illegal and subject to arrest by police.
In Germany (3) registration in most federal "lands" is the responsibility of health services under the law to combat venereal disease. About 50,000 persons are registered, but the actual number of people in prostitution is estimated to be much higher. Registered sex workers often complain about the impersonal attitude and approach of healthcare workers, which under-

mine confidence and, with it, good medical care. The motivation of clients to use condoms may be lowered in contact with 'officially controlled' prostitutes.

The second strategy, attempting to promote access to sex workers, by providing appropriate services that they want, is more widely spread in Europe. These services are mostly linked to non-governmental organisations, and are only recently established. The Netherlands has the longest tradition, and some projects have been sustained successfully for more than 10 years, often in good relation with governmental services (4).

The third strategy in its pure form is rare, and most services of this kind are embedded in projects applying the second strategy. In France (5), some projects have a strict rule of composing a team of 50 % (ex-)prostitutes and 50 % non-prostitutes. Further prostitute self help organisations providing health promotion services are found in the UK (6), Italy (7), and Germany (8).

In some countries, however, targeted interventions for sex workers have no strategy for health promotion at all. In Sweden (8) governmental social services for prostitutes have the objective of encouraging sex workers to enter 'rehabilitation' programmes and to give up prostitution. The promotion of condom use and other prevention activities are not included in their task, although these services do outreach work and are in contact with many sex workers. Projects like these can be found in other countries as well, often linked to churches or other religious institutions.

In many areas in almost all countries in Europe, we find no targeted services and prostitutes need to rely on existing health and social services. Staff in these services are often reported to have a negative attitude towards sex workers. Healthcare workers may be ignorant about prostitution and the specific problems prostitutes face. As a result, sex workers avoid discussing their professional risks, and the conditions to talk about prevention are unfavourable. In a study in Belgium almost 50 % of the sex workers indicated that they did not disclose their prostitution to their own doctor or gynaecologist. In the same study, it was found that only 0.9 % of the group (n=349) was vaccinated against Hepatitis B in the existing health system (9).

Where existing services are not appropriate, which is virtually the case all over Europe, there is a place for targeted services. Designing one model that would fit all European countries does not seem feasible. The organisation of health services, public opinion, the budget for public health in general, a country's policy and its laws, and the socio-economic situation are all important background factors that have to be taken into account when setting up targeted services for sex workers.

The EUROPAP/TAMPEP group is elaborating guidelines that could help initiatives for setting up new services. Prior assessment of needs, and, from the very beginning, close involvement of sex workers from the area where the project will be active, are basic elements in a model that combines strategy two and three. Other key concepts are pilot phase, collaboration with existing services, attitude and skills of staff (non-judgmental, knowing the occupational risks of sex work, and understanding the working and living conditions of sex workers), confidentiality, proper location (in the prostitution area), outreach activities (project staff should

know and visit the work places), adapted health education materials (directly linked to occupational risks), and long term planning and funding.

Most existing sex work projects are financed on a short term basis, often exclusively through HIV prevention budgets, and their future is very unsure. Does this mean that they do not do a good job? Why is it so difficult to convince decision makers at national and local levels to support projects for sex workers? In a recent debate with politicians someone stated: Do all these projects not stimulate a tolerant climate for prostitution, leading to normalisation of sex work? We do not want that, do we? This view, which is prevalent among decision makers, partly explains the reluctance of politicians in Europe to take responsibility for health promotion among sex workers. In my view, we should not mix personal moral views with public health initiatives. Organising proper care for sex workers, intravenous drug users, or other groups does not imply any moral judgement. It does not stimulate trafficking, nor child prostitution. It is more a matter of strategy. Does one believe in repression and control, as mirrored in strategy one, or does one believe in reinforcing people's abilities to make responsible choices, whatever these may be? Ward and Day state that punitive legislation is widely recognised as ineffectual. However, in many European countries it is still the basis of thinking for policy initiatives.

Another reason for the failure to support sex worker projects may lie in the difficulty in evaluating its actions. Setting up evaluation procedures comparing intervention and non-intervention groups is hardly feasible in practice. An immediate reduction in HIV incidence may be seen in high prevalence areas, but not in Europe. Other end points may be registered, such as other STD, condom use and failure rates, contact with health care, and success of Hepatitis B vaccination campaigns. In EUROPAP/TAMPEP, this issue received a lot of attention and, in the guidelines for setting up projects, the importance of built in evaluation tools is stressed.

When we consider prostitution on a European scale, other factors influence the organisation of prevention of STD as well. Increased imbalance in socio-economic conditions, social inequalities, and a general climate of intolerance towards prostitution create an increased mobility of sex workers, bringing together men and women from many nationalities in one area. The central objective of the TAMPEP group (10) is to work with migrant sex workers from different cultural backgrounds. Through cultural mediators and peer educators, good communication between project staff and sex workers is ensured.
At the same time initiatives to organise health promotion and proper STD care towards sex workers in eastern European countries, which lack these facilities today, seem sensible.

In conclusion, as long as general health and social services in Europe are not considered appropriate by sex workers themselves, targeted interventions in close collaboration with them are needed. These targeted services should be complementary to existing services, and help them to improve their quality of work. Many prostitutes have already found their way to proper health and social services, and do not need specific interventions. Others, however, have problems in relating to existing services, and they will benefit most from targeted interventions. In the study in Belgium, significantly more women who did not reveal their profession to their doctor accepted the project's offer for free STD screening (9).

In many European cities targeted interventions do not exist. Public health authorities should assess the needs for such services, and stimulate them where needed. A nationwide network of sex worker projects should continue to discuss how to organise a broader general health structure where each sex worker can openly discuss health hazards and social problems in relation to prostitution, without fear of rejection.
On a European level, the necessity of information exchange between the national networks is underlined by the very international character of prostitution itself.

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Chapter 4
Evaluation of the intervention

4.1 Introduction

Evaluation can be defined as a critical assessment of the degree to which services fulfil stated goals and the first step is to clarify the aims of the service (1). In chapter 2 the evolution of the project was described, leading to a list of targets and indicators. These are now an intricate part of a contract with the funding authorities, and they can serve as an example of how evaluation can be made operational in this context. In the annual report of PASOP (www.pasop.info) the list of indicators is carefully followed, giving a good picture of the evolution of the project over the years. In chapter 4.2 we present the results of the project for 2003.

In the sister organisation Gh@pro in Antwerp the same set of indicators is used, enabling us to collate data, and to make comparisons between different regions and settings.

Another way of evaluating the project is to analyse the results of the different fields of action and to compare these with existing services.

In chapter 4.3 the results of the HBV vaccination programme are presented and a comparison is made between the performance of the existing health services, mirrored in the HBV vaccination coverage of sex workers at first contact with the intervention project and the performance of the intervention, measured by the results of two vaccination schedules (0, 1, 2, 12 months and 0, 1, 6 months).

The prevalence of certain health problems in the target group in comparison with a control population will also assess and evaluate the need of an intervention.

In chapter 4.4 the results of cervical cancer screening of the sex worker population were compared with those of a control group matched for age from the general population.
In a sub-study 99 samples from the sex worker population were typed for HPV and compared to a control group matched for age from the general population.

In chapter 4.5 the results of the Chlamydia tests are discussed. Over a 6-year period (1998-2003) 950 different persons were tested (1643 tests) and the results were compared with other populations.

Finally, economic aspects of the intervention should be discussed, in order to justify the input of public spending.

In chapter 4.6 we discuss some economic aspects of the PASOP project.

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4.2 Results targets and indicators PASOP 2003

In the contract with the Ministry a set of targets and indicators were listed enabling us to monitor the project over the years. They were constructed in close collaboration with both partners in the contract. The same set of targets and indicators are used by the sister organisation Gh@pro in Antwerp.

The evaluation of the intervention is of the observational type, and is meant to monitor the organisational performance. Since many factors may influence the results (e.g. police actions closing working places, decrease or increase of number of sex workers in general), the outcomes of the indicators should not have financial implications for the organisation, but only be used to further develop it.

Team members of PASOP use different means of registration, from diaries to pre-printed registration sheets. All data are finally brought together in one database, which can be consulted and controlled by all members. Each sex worker has a unique identification number to which all data are linked. Many of them are seen by different team members, and at that occasion the validity of the data are checked.

In this chapter we give the results of PASOP for 2003.

Translation of PASOP 2003: annual report to the Flemish Community

Target 1
To build and extend contacts and collaboration with the target group, in order to gain maximal access with preventive actions into the different working places.

- *Indicator 1*: number of effective contacts with the target group

There were 2235 contacts with 683 different sex workers. These contacts took place at the working place (83.9%), at PASOP (9.8%), by telephone (4.6%), at the consultation room near the Citadelpark (1.4%) or at another location (0.3%). In 13.8% of these contacts the sex worker took the initiative; PASOP initiated the other contacts, often for the vaccination or screening programme follow-up.

- *Indicator 2*: description of the number, type and location of the visited and identified working places

In total 219 different working places were visited, of which 50 were new to PASOP. In 2003 19 known working places turned out to be closed.

Contacts with new working places mostly developed because women who knew us from other working places contacted PASOP themselves.

Working place	Number	Percentage
Window	87	39.7
Private	81	37.0
Bar	43	19.6
Sauna/massage institute	5	2.3
Escort	3	1.4

Location	Number	Percentage
Near PASOP	64	29.2
Elsewhere, city of Ghent	39	17.8
Elsewhere, outside Ghent	116	53.0

There was no contact in 2003 with 55 known working places, because the sex workers did not contact us themselves and because the PASOP team did not have time to take the initiative. It concerned mostly private places in and outside Ghent, and bars outside Ghent.

- *Indicator 3*: descripion of target group according to sex, age, nationality, type of sex work, mobility and other relevant data.

Of the 683 different sex workers who were reached, 663 were women, 19 men and one transsexual.
There were 327 (47.9 %) sex workers new to PASOP and 356 (52.1%) were already known.

Working places: (N = 683)

	Number	Percentage
Bar	233	34.1
Private	215	31.5
Window	167	24.5
Sauna/massage parlour	48	7.0
Park	10	1.5
Escort	9	1.3
Unknown	1	0.1

Nationality: (N = 683)

	Number	Percentage
Belgian	393	57.5
French	112	16.4
African	82	12.0
Eastern European	33	4.8
North African	23	3.4
Western European	16	2.3
Asian	12	1.8
South American	12	1.8

Age: (N = 555)

	Number	Percentage
18-20 years	36	6.5
21-29 years	268	48.3
30-39 years	179	32.3
40 years and older	72	13.0
	Number	Percentage

Target 2
To inform about and to stimulate the use of condoms and correct lubricants.

- *Indicator 4*: number of persons correctly using condoms and lubricant, following the correct strategy after condom failure

Correct use of condom and lubricants

	Total	Persons new to PASOP	Persons known to PASOP
Never	136 (29.4%)	91 (41.9%)	45(18.3%)
Sometimes	80 (17.3%)	33 (15.2%)	47(19.1%)
Mostly	187 (40.4%)	79 (36.4%)	108(43.9%)
Always	60 (12.9%)	14 (6.5%)	46(18.7%)
	N= 463	N= 217	N=246

Chi-square 37.90 P<0.001

Correct strategy for condom failure

	Total	Persons new to PASOP	Persons known to PASOP
No	260 (58.3%)	175 (83.3%)	85 (36.0%)
Partly	138 (30.9%)	26 (12.4%)	112 (47.5%)
Yes	48 (10.8%)	9 (4.3%)	39 (16.5%)
	N= 446	N=210	N=236

Chi-square 102.33 P<0.001

Target 3
To inform about and stimulate the use of a contraceptive to prevent unwanted pregnancies.

- *Indicator 5*: number of persons following correct strategy for contraception

	Total	Persons new to PASOP	Persons known to PASOP
No contraconception	125 (28.3%)	87 (44.6%)	38 (15.4%)
Correct strategy	316 (71.7%)	108 (55.4%)	208 (84.6%)
	N= 441	N= 195	N= 246

Chi-square 45.56 P<0.001

Among the women who did not use contraception, 17 wished to conceive; the use of a morning after pill was explained to them in case of condom failure at work. The others were advised to use a back-up contraceptive besides the condom and in most cases the project provided them with a prescription for a contraceptive pill or an injectable depot-progestative.

In the group of women with the correct strategy, 231 (73.1%) use the pill, 21 (6.6%) the injectable pill, 18 (5.7%) an IUD, 12 (3.8%) a subcutaneously implanted progestative, 4 (1.3%) the Novaring^{R}, 17 (5.4%) women underwent a sterilisation, 6 (1.9%) women had a hysterectomy and 7 (2.2%) women were in the menopause.

Target 4
To inform about the available health and social services and to give guidance in relation to job-related problems and health.

- *Indicator 6a*: number of contacted persons who received information

All persons in contact with PASOP for the first time in 2003 (327) received information about PASOP's own available health and social services.

- *Indicator 6b*: description of qualitative and quantitative aspects of the information

Every new person received an oral overview of the principles and possibilities of the project. Along with the explanation, the project gives an information booklet and a set of health education materials about hepatitis B, pill use, condom failure, STD in general and a comprehensive text about safe sex at work. These materials are available in Dutch, French and English. A simple comic is added to these materials for those who have reading difficulties. The health education package also includes a water-based lubricant.
Sometimes sex workers who already received these materials ask for a new set.

- *Indicator 7*: number and content of therapies in relation to the total amount of contacts

In 74.2% of the contacts, the target group takes the opportunity to discuss certain issues or ask for help.

	Number of contacts	Percentage
STD/HIV	297	17.9
Psychosocial	277	16.7
Health in general	231	13.9
Working conditions	211	12.7
Contraception	177	10.7
Condom failure	176	10.6
Pregnancy	57	3.4
Quitting sex work	39	2.4
Financial problems	32	1.9
Use of drugs	27	1.6
Physical violence	26	1.6
Administrative problems	23	1.4
Abortion	14	0.8
Housing	14	0.8
Juridical problems	11	0.7
Other	46	2.9
	N= 1658	100

Target 5
To refer to a doctor or other institute for health or psychosocial problems related to the job.

- *Indicator 8*: number of referrals in relation to total amount of contacts

Number referrals	Problem	Service
18	General health	General practitioner (GP), specialist
12	STD/HIV	Specialist, GP
8	Psychosocial	Ambulant mental health, psychotherapy, crisis intervention
7	Physical violence	GP, specialist, victim support service
5	Abortion	Abortion clinic
3	Financial	Social services, accountant
3	Contraconception	GP, gynaecologist, family planning
2	Pregnancy	Gynaecologist, GP
2	Administration	Accountant
1	Use of drugs	Drug services
1	Housing	Social housing
1	Quitting sex work	Municipal social services
2	Legal advice	Solicitor

Two persons were accompanied to a housing agency and to a specialised centre for HIV, since the barrier to go alone was too high.
The number of refered contacts was 3.0% of the total (65 of 2235).

- *Indicator 9*: number of persons knowing a doctor or institute other than PASOP, where sex workers can go for health or psychosocial problems related to the job.

	Total	Persons new to PASOP	Persons known to PASOP
Knows a place	116 (22.1%)	39 (15.8%)	77 (27.8%)
Does not know a place	408 (77.9%)	208 (84.2%)	200 (72.2%)
	N= 524	N= 247	N= 277

Chi-square 10.92 P<0.001

Target 6
To organise a proper health offer adapted to job-related risks, with emphasis on prevention, especially screening for STI and vaccination for hepatitis B

- *Indicator 10a*: number of women accepting an annual check-up with smear and STD-screening, in relation to the total contacts.

For this indicator we first give the results of the interview with women, and then the number of tests performed.

Interview: do you have an annual check-up?

	Total	Persons new to PASOP	Persons known to PASOP
Yes	208 (49.2%)	56 (31.8%)	152 (61.5%)
No	215 (50.8%)	120 (68.2%)	95 (38.5%)
	N= 423	N= 176	N= 247

Chi-square 36.32 P<0.001

Performed tests:

	STD screening blood	Chlamydia PCR urine	Culture	Cervical smear
Number of tests	1662	391	157	145
Number of persons	348	316	137	126
New persons	200	180	57	52
Known persons	148	136	80	74
Total contacted persons	683	683	683	663 (women only)

- *Indicator 10b*: number of vaccinated persons in relation to the total number of candidates after screening.

In total 198 new persons were screened for hepatitis B, and 139 among them were candidates for vaccination. Natural immunity was found in 16 persons and 43 persons had already received a vaccination. Of these, 21 received their vaccination during adolescence in France, 12 persons received it on the occasion of a professional risk, three persons for other reasons, five persons did not remember an earlier vaccination and only 2 persons were vaccinated as sex worker.

Of the 139 candidates for vaccination, 85 received a first vaccine, 57 already a second, 19 a third and two a fourth vaccine. One cannot measure the success of the programme by this data, since some candidates still have to start in 2004, while others still have to complete the schedule. The first half-year PASOP used the 0-1-2-12 schedule, later it switched to a schedule of three vaccines (0-1-6 or 0-1-4) in the framework of research with other Belgian sex work organisations.
For 69 persons, who started with the vaccination in 2002, the schedule was continued in 2003.

The development of targets and indicators proved very helpful in the annual reporting process to the Government. The development in time can easily be measured, and compared to sister organisations.

4.3 Hepatitis B vaccination for sex workers: do outreach programmes perform better?

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Abstract

Objectives: to assess to what extent hepatitis B vaccination of sex workers in Ghent (Belgium) is successful within the context of the existing health services and to compare this with alternative approaches such as outreach programmes; to compare two HB vaccination schemes in the outreach programme for sex workers.
Methods: testing all first contacts (n=1096) in the outreach programme for HBV-markers assessed success of HB vaccination in routine services. The performance of the outreach service was measured by counting the number of sex workers who started HB vaccination in the programme. The HB vaccination schemes were assessed by analysing the number of persons completing the vaccination.
Results: naturally acquired HBV was found in 11.9% of 1096 sex workers (0.6% HBsAg), and 7% were vaccinated in existing services. In contrast, HB vaccination using outreach methodology was able to achieve higher vaccination rates: among non-immune sex workers 82.8% received the first dose of vaccine, and 71.5% the second. If given one month later, 67.9% received the third dose, in contrast to 47.9%, when given 6 months later.
Conclusions: existing services are not successful in vaccinating sex workers for HBV, in contrast to specifically targeted outreach services. Shorter intervals between vaccine doses gave better compliance.

Key words: hepatitis B, vaccination, sex workers, outreach programmes, Belgium

Introduction

Sex workers are among the high-risk group of persons with multiple sex partners and both the Viral Hepatitis Prevention Board (VHPB) and the US Centre for Disease Control and Prevention recommended that strategies aimed at vaccinating and changing behaviour in high-risk groups must continue [1][2]. Also in the European guideline for the management of Hepatitis B infections sex workers are considered as a high-risk group for Hepatitis B, which should be vaccinated [3].
The objective of this study is to assess to what extent HB vaccination of sex workers in the larger Ghent (Belgium) area is successful in the light of these recommendations. The actual vaccination status is reflecting the efficacy of existing health services to vaccinate this group. These data are confronted with the results of an outreach programme wherein we have administered vaccines according to the 0, 1, 6 months and 0, 1, 2, 12 months scheme.

Methods

The success of HB vaccination for sex workers in the existing health services was assessed by analysing the history of immunisation and the HBV marker status of sex workers who entered a HB vaccination programme aimed at sex workers in the larger Ghent area, with 1.000.000 inhabitants, and an estimated sex worker population of 1.000. The HB vaccination programme is embedded in a broader effort, which also encompasses other health issues and psychosocial problems related to sex work.

At their first contact with the outreach programme all sex workers were informed about the professional risk of HBV infection, and those who consented were tested for HBV markers (HBsAg, anti-HBc, anti-HBs). Sex workers who reported a history of vaccination were offered a test for anti-HBs to estimate the need for a booster dose. Those with an incomplete history of vaccination, and those with an antibody level of less than 10 IU/L received recombinant hepatitis B vaccine, 20 μg/dose, to complete their scheme or as a booster. Those with no history of vaccination and no HBV-antibodies were offered a full vaccination scheme.

From September 1992 till March 1995 vaccines were administered according to scheme 0, 1, 2, 12 months (scheme 1) and from March 1995 till February 2000 the vaccination scheme was 0, 1, 6 months (scheme 2). Because a first analysis of the compliance of both schemes showed a better compliance for scheme 1 [4], this scheme was re-introduced as of February 2000.

The outreach vaccination programme aimed at contacting all sex workers in all professional settings in the area, such as windows, bars, clubs, saunas, escort services and private addresses. In the area studied, street work did not occur and intravenous drug using sex workers were rare. In the beginning, project workers identified work places searching the streets and analysing publicity from sex workers in the local news papers. Later on sex workers often contacted the project team themselves.

In the programme a medical doctor and a social nurse visited the workplaces of the sex workers. They discussed professional risks, handed out prevention materials (a guide on safe sex at work, leaflets about condom breakage, lubricants) and offered free screening for STI (*Chlamydia trachomatis,* gonorrhoea, syphilis, HIV), a cervical smear and free vaccination against hepatitis B. Psychosocial or legal problems related to sex work could be discussed.

Anonymity was guaranteed. The sex worker received a unique code number, and her date of birth was registered, as well as her location and professional name. The project workers took the initiative for follow-up visits. The sex worker was asked to contact the programme if she changed workplace. If she failed to do so, she was often lost to follow-up, unless the team could pick her up in another workplace. Test results could only be discussed on a personal basis with the project team, and whenever necessary, referral was made to regular health services.

Results

From September 1992 to December 2000, 1096 sex workers entered the programme. Most sex workers (1072, 97.8%) were women. Age ranged from 17 to 66 years (median 28 years). Most sex workers were of Belgian nationality (61.7%), followed by French (13.2%) and North

African (9.9%). All types of sex work are represented, but most sex workers were found in clubs and bars (easily identifiable from outside by colourful lights), were window prostitutes or worked in private houses (advertising telephone numbers in local newspapers).
The distribution of nationality, workplace and age group did not change substantially over the years.
Naturally acquired HBV was found in 11.9% of all sex workers at first contact with the programme, and 0.6% was positive for HBsAg. None of these tested positive for HBeAg. Isolated anti-HBs was found in 7.0%, and we assume that this is the result of vaccination. Most of the subjects received HB vaccination as a student, or during a national vaccination programme. The latter was the case for the French sex workers. The number of subjects presenting with isolated anti-HBs increased over time. Only 11 sex workers, which is 1.0% of the entire study population, received HB vaccine because of being a sex worker. Of the 1096 subjects, 888 or 81.1% were not protected against HBV. This figure evolved from 86.0% in the early nineties to 75.0% in the late nineties.
The number of naturally acquired HBV infections is largely influenced by the women's nationality. Sub-Saharan Africans showed HBV-markers in 55.9%, Eastern Europeans in 26.1%, and North Africans in 18.5%. In Belgian sex workers HBV seroprevalence is very low (5.3%) and very few turned out to be vaccinated (4.4%). This is in sharp contrast to the French sex workers, of whom 20.0% were vaccinated. In the age group of 18-20, 35% (14/40) of the French women were vaccinated, whereas only 1.2% (1/85) of the Belgian women were. For the age group of 21-24 the results were 23.5% (8/34) against 6.3% (9/144) and for the older age groups 10.1% (7/69) against 4.5% (20/444).

Table 1: HB vaccination coverage of sex workers in the outreach programme in Ghent, Belgium.

	N candidates	1st vaccine	2d vaccine	3d vaccine		4th vaccine
		Month 0	Month 1	Month 2	Month 6	Month 12
Scheme 1 (0,1,2,12 months)	414 (100%)	354 (85.5%) [a]100%	314 (75.8%) 88.7%	281 (67.9%) 79.4%		184 (44.4%) 52.0%
Scheme 2 (0,1,6 months)	474	381 (80.4%) [a]100%	321 (67.7%) 84.3%		227 (47.9%) 59.5%	
Total	888	735 (82.8%)	635 (71.5%)			

a follow-up doses as percentage of first dose

In Table 1 HB vaccination coverage rates for the two vaccination schemes used in the outreach programme are shown. In total 414 sex workers received scheme 1, and 474 scheme 2. Overall, 82.8% of the eligible sex workers started with a first vaccine dose and 71.5% received the second dose. For the third dose an important difference between scheme 1 and scheme 2 is observed due to the timing of that dose. While in scheme 1, 67.9% received the third dose at month 2, in scheme 2 only 47.9% received the third dose at month 6. The fourth dose of scheme 1 was administered in 44.4% of the subjects.

Discussion

The sex worker population in this study is considered as representative for the majority of sex workers in Belgium. Inner city street sex workers, who can be found in Brussels, Antwerp and Liège, were not included. They form a numerical minority, but receive most of the media attention.

The risk of acquiring HBV in sex work will depend on the immunity of the sex worker and the HBV-prevalence of clients. This risk is relatively low in Belgium, which is reflected in the low prevalence of HBV-markers in the sex worker population (comparable with the prevalence in the general population [5]), but this may change over time (change of characteristics of male immigrant population). We believe therefore that sex workers in Belgium should be immunised against HBV, following international recommendations.

This study clearly shows that regular services in Belgium do not succeed in implementing the international recommendations regarding HB vaccination in sex workers. Hardly any sex worker, irrespective of the country of origin, received a vaccination because of their sex work. The European Network for HIV/STD prevention in prostitution [6] highlighted two main obstacles, which could explain this low coverage rate in sex workers. Firstly, some sex workers do not qualify for 'government supported' health services and this particularly applies to migrant sex workers, many of whom reside illegally in a country. Secondly, the organisation of most health care systems is not always compatible with the life style and social status of sex workers. Staff in clinics and hospitals is often reported as having a negative attitude towards sex workers. As a result of this and the general taboo on sex work, sex workers are reluctant to use health services and, if they consult, do not disclose their 'work' to the health care providers. In our outreach project over 50% of the sex workers said that they did not wish to reveal their profession to their treating physician [7]. In most countries sex workers operate clandestinely, a situation that impedes their access to health services [8]. A further obstacle to the access of health services is the high mobility of sex workers. They are often not working in their home area and regularly change workplaces. In search for anonymity some sex workers prefer not to work in their own country. This phenomenon is observed in many border areas in Europe [9]. Another obstacle for HB vaccination may be the cost of the vaccine. In Belgium the cost for three vaccine doses amounts to approximately 100 EURO, and is not covered by social security.

If the main impediments to HB vaccination are non-identification of the risky behaviour and difficult access of health services, the logic approach seems then to bring the services towards the sex workers, through outreach programmes [10]. The sex worker does not need to explain his or her professional activities any more to the health care worker, who immediately has a realistic picture of the working characteristics and conditions. HB vaccination is not high on the sex workers' priority list and one cannot expect them to spend much money, time and effort in their search for vaccination.

The results of our study demonstrated the feasibility of the outreach programme.

In Belgium, with no specific STD-services, the outreach service is NGO-based. In countries with regular STD-services, with free access and vaccines available at no cost, such as the UK, outreach services may be linked to these services, to overcome the constraints just described [11].

When comparing two vaccination schemes, it becomes clear that short intervals between consecutive vaccine doses greatly improve the compliance in this particular group. The number of women having received at least three doses in the 0,1,2,12 months group is 67.9%, in contrast to the 47.9% in the 0,1,6 months group. The reason for the decline in compliance is the high mobility of sex workers. Many will only work for a few weeks or months in the same workplace, and move then to another place or another area, and cannot be traced anymore by the project workers.

The number of women who completed the 0,1,2,12 scheme was a little lower from those completing the 0,1,6 scheme. Apparently, those working in the same place for 6 months, are likely to be found 12 months later, and most sex workers are lost between month 2 and month 6. Therefore we decided to shift from the 0,1,6 scheme operational from March 1995 till February 2000 back to the 0,1,2,12 scheme initially used since 1992. The development of new hepatitis B vaccines, with shorter intervals or less doses, would greatly improve the compliance in this population. We acknowledge that the use of historical controls to compare the two schemes is not optimal. Sex worker populations may change over time, influencing the results of the programme. Implementing two different schemes in one sex worker population will however introduce operational problems, and may create misunderstanding in the target population. One might select an intervention area, and a control area, but the mobility of sex workers may interfere with this approach.

The study shows the potential impact of national HB vaccination programmes on HBV prevention in this particular high-risk group as is demonstrated by the occurrence of anti-HBs in the French sex workers, of whom 20.0% were anti-HBs positive, whereas only 4.4% of the Belgian sex workers had anti-HBs. Especially in the younger age groups the number of vaccinated sex workers was much higher for the French than for the Belgian. France started an adolescent immunisation programme in 1994, with catch-up immunisations for older age groups, backed up by a strong media campaign [12].

As shown by the serological findings in the French women, universal vaccination programmes may progressively make specific actions towards sex workers and other risk groups redundant. However, today this is not yet the case. In our survey 71% of the French sex workers were not yet immune. Furthermore, certain subgroups such as migrant and illegal sex workers, and those coming from countries without universal HB vaccination as well as older sex workers, still need a targeted approach. Future vaccine developments, such as a vaccine against oncogenic HPV [13] and in particular against HIV, will again challenge existing health services and warrant novel approaches such as outreach for subgroups at high risk.

One should not forget that HBV is but one of the many problems sex workers are confronted with. They equally are at increased risk of HIV and other STI which cannot be prevented by vaccination and which are often not curable. Violence [14] and high psychosocial stress need to be addressed as well. We recommend a comprehensive approach to all these problems, of which HB vaccination may take a central role, as a practical example of how sex workers can protect themselves against occupational risks. Developing targeted services for sex workers will complement existing general health services [15] as long as the taboo on sex work is present in society and the health and psychosocial risk of sex work is not recognised as such.

Authors: Rudolf Mak is the principal investigator, Ans Traen and Martine Claeysssens are his colleagues working in the sex worker outreach programme, Lieve Van Renterghem performed and interpreted the tests, Geert Leroux-Roels and Pierre Van Damme were involved in the redaction of the article.

Key messages

1. Sex workers in Belgium are not well protected against Hepatitis B either by natural immunity, or existing vaccination practices in the regular health services.
2. Outreach services specifically targeted to sex workers achieved a high success rate for HB vaccination
3. Shorter intervals between doses of vaccine are associated with better compliance in this particular risk group

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4.4 Cervical smears and Human Papilloma Virus typing in sex workers

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*(Published in Sexually Transmitted Infections 2004;**80**:118-20)*

Abstract

Objectives: Sex workers are at increased risk for sexually transmitted infections (STI), human papillomavirus (HPV) and hence cervical cancer. In Belgium screening for cervical cancer starts at the age of 25, and is at three-yearly intervals. The aim of this study is to assess risks for abnormal cervical smears and HPV in sex workers and decide whether the current screening policy is sufficient for them.
Methods: In an outreach programme for sex workers results of 653 smears sampled between 1992 and 2001 were analyzed, and compared to a control group matched for age from the general population in 2001. Separately, 99 consecutive samples were typed for HPV and compared to an equal control group, matched for age. Smears and typing were performed according to current techniques.
Results: In the sex worker group 2.6% were diagnosed with AGUS/ASCUS, 15.6% with LSIL and 2.9% with HSIL, and in the control group results were 1.4%, 2.9% ($p<0.001$) and 0.6% ($p<0.001$) respectively. When only considering those under 25 years, 24.4% should have further follow-up. Of the sex workers, 77.4 % were positive for one or more types of HPV (55.9% for high-risk HPV), in comparison to 27.6% of the control group (14.3% for high-risk HPV) ($p<0.001$). In high-risk HPV samples more LSIL and HSIL were found.
Conclusion: Abnormal smears and high risk HPV were significantly more prevalent in sex workers than in controls. Current screening policy would miss many sex workers with an abnormal smear who should be referred for further follow-up. We propose to screen sex workers when they enter prostitution regardless of their age.

Key words: cervical cancer screening, human papilloma virus, sex workers, Belgium, outreach

Introduction

Human papillomavirus (HPV) is sexually transmitted and causally related to cervical cancer [1], and sex workers are therefore at increased risk for cervical cancer. Results of earlier studies showed a higher prevalence of abnormal smears and high-risk HPV in sex workers [2]. In most European countries screening starts at the age of 25, with exception of the Netherlands and Finland, where the starting age is 30, and UK, with screening from 20 years of age [3]. In Belgium a programme for organized screening has been set up for the Flemish region - promoting one cervical smear every 3 years for women aged between 25 and 64 years [4].

The aim of this study was to assess the prevalence of abnormal smears and HPV in sex workers in Belgium, and to decide whether the recommended screening policy for the early detection of cervical cancer and its precursors is adequate for this specific group of women.

Methods

In the outreach programme PASOP, targeted at all sex workers in the region of Ghent (1.350.000 population), the health team offers screening for STI, a cervical smear and vaccination against hepatitis B. In this analysis the results of the cervical smears of 653 different women tested for the first time in the programme from 1992 till 2001 were used. From 1992 till 1999 the cervical smear was conventional (N=474), but from 2000 it switched to liquid-based (N=179). Thin-layer cervical slides were prepared with the robotic AutoCyte PREP^{TM} System according to the manufacturer's instructions. An equal number of controls were selected from the routine screening data of 2001 from the Ghent University Hospital (serving the population in the same area as where the sex workers were recruited), matched for age, using liquid-based smears. Smear results were classified as negative for intraepithelial lesion or malignancy, atypical glandular cells of undetermined significance (AGUS)/atypical squamous cells of undetermined significance (ASCUS), low-grade squamous intraepithelial lesion (LSIL) and high-grade squamous intraepithelial lesion (HSIL) according to the Bethesda classification [5].

Separately from the routine cervical smears, we performed HPV-typing on 99 consecutive cervical samples in the screening programme of 2001 to estimate the prevalence of different HPV genotypes. We chose 99 controls from the general population, matched for age, who were routinely screened at the Ghent University Hospital in the same period. Samples identified as HPV positive, based on a reverse hybridisation assay, were genotyped. HPV amplimers were identified simultaneously as one of 25 high or low oncogenic risk types, or, if no hybridisation to any probe, assigned as 'x' [6].

We analysed the results of the cervical smears of the samples with HPV-typing.

The differences in prevalence of smear results and high-risk HPV in sex workers and controls were statistically evaluated with the χ^2 test.

Results

Population characteristics

The sex worker population (mean age 28.1 years, standard deviation 7.7 years, range 17 - 58 years) included 258 (39.5%) young women under 25. All professional classes took part, except for street workers (not active in this area). The nationality of 60.5% was Belgian, 14.4% French, 5.2% other Western European, 7.6% sub-Saharan African, 7.4% Northern African, and other 4.4%. The subgroup for HPV-typing had the same characteristics.

Cervical smears

The sex worker population is significantly different from the control group.

Table 1: Smear results for 653 sex workers and 653 age-matched controls in Belgium (1992-2001)

Smear result	Sex worker (N=653) % (95% CI)	Control (N=653) % (95% CI)	OR (95% CI)	P
Negative for intraepithelial lesion or malignancy	78.9% (75.7%-82.0%)	95.1% (93.4%-96.8%)	0.85 (0.68-1.06)	0.13
AGUS/ASCUS	2.6% (1.4%-3.8%)	1.4% (0.5%-2.3%)	1.90 (0.80-4.67)	0.11
LSIL	15.6% (12.8%-18.4%)	2.9% (1.6%-4.2%)	6.18 (3.65-10.56)	<0.001
HSIL	2.9% (1.6%-4.2%)	0.6% (0.1%-1.2%)	4.86 (1.55-16.97)	<0.001
Follow-up group Women with AGUS/ ASCUS, LSIL or HSIL	21.1% (18.0%-24.3%)	4.9% (3.2%-6.6%)	7.69 (4.73-12.59)	<0.001

Combining the classes AGUS/ASCUS, LSIL and HSIL in a group of candidates for follow-up (repeat smears, colposcopy), the odds ratio for sex workers to belong to the follow-up group is 7.7 (95% confidence interval 4.7-12.6) in comparison with women of the same age from the general population. When only considering the women under 25, 24.4% of them were candidate for follow-up, in comparison with 5.1% of the women under 25 in the control group (OR 6.1, 95% CI 3.2-12.0).

HPV-typing

In the sex worker group a total of 6 results were non-conclusive, 21 (22.6%) (95% CI: 14.1%-31.1%) were negative, and 72 (77.4%) (95% CI: 68.9%-85.9%) were positive for HPV. The prevalence of HPV types 16, 31 and 52 were highest (12.9%).

Table 2: HPV-types for 93 sex workers and 98 age-matched controls in Belgium (2001)

HPV	HPV type	Sex Workers N=93	Controls N=98
		N %	N %
NEGATIVE		21 (22.6)	71 (72.4)
LOW RISK	6	5 (5.4)	2 (2.0)
	11	2 (2.2)	
	34	1 (1.1)	
	40	3 (3.2)	
	42	1 (1.1)	
	43	1 (1.1)	1 (1.0)
	44	6 (6.5)	
	53	6 (6.5)	
	54	3 (3.2)	1 (1.0)
	70	6 (6.5)	2 (2.0)
	74	6 (6.5)	
	X: benign types	8 (8.6)	8 (8.2)
HIGH RISK	16	12 (12.9)	4 (4.1)
	18	3 (3.2)	2 (2.0)
	31	12 (12.9)	1 (1.0)
	33	6 (6.5)	1 (1.0)
	35	3 (3.2)	1 (1.0)
	39	7 (7.5)	2 (2.0)
	45	9 (9.7)	2 (2.0)
	51	1 (1.1)	1 (1.0)
	52	12 (12.9)	2 (2.0)
	56	6 (6.5)	1 (1.0)
	58	2 (2.2)	
	59	4 (4.3)	
	66	3 (3.2)	2 (2.0)
	68 or 73[a]	10 (10.8)	

a according to manufacturer genotype 68 and 73 may show cross-reactivity

Of the 21 (22.6%) negative samples, 17 (85%) were negative for intraepithelial lesion or malignancy, and 3 (15%) were candidates for follow-up (no result for 1). Of the 20 (21.5%) low-risk HPV samples, 15 (79.0%) were negative, and 4 (21%) abnormal (no result for 1). Of the 52 (55.9%) high-risk HPV samples, 34 (65.4%) were negative, and 18 (34.6%) abnormal (P=0.078).

In the control group one result was non-conclusive, 71 (72.4%) (95% CI: 63.6%-81.3%) were negative, and 27 (27.6%) (95% CI: 18.7%-36.3%) were positive for HPV (13 (13.3%) low-risk, and 14 (14.3%) high-risk). All samples were negative for intraepithelial lesion or malignancy.

The odds ratio to be HPV-positive was 9.0 (95% CI: 4.5-18.5), and the odds ratio to have one or more high risk HPV was 7.6 (95% CI: 3.6-16.3) for sex workers in comparison with the controls.
Multiple presence of HPV genotypes was found more often in sex workers (50%) than in the controls (22.2%) ($P<0.05$).

Discussion

The prevalence of LSIL (15.6%) and HSIL (2.9%) at routine screening of sex workers in our study is very high in comparison to a control group of women of the same age and same region, but not in sex work (LSIL 2.9%, HSIL 0.6%). Cervical smears of all controls were evaluated using liquid-based cytology. Since the sensitivity of Pap smears with this technique is higher [7], the real contrast between sex workers and controls may even be bigger. The prevalence was similar to a small group of sex workers (97) tested in Ireland [8] (abnormal smear in 19%), but much higher than found in Singapore [9] (5.6%) and in Austria (6.3%) [2]. The prevalence of HPV in sex workers is very high too (77.4%) compared to the control group (27.6%). In comparison to other studies among sex workers (48.9% in Mexico City [10], 43% in Senegal [11], 14.4% in Singapore [9]), HPV-prevalence is highest in our group. The high prevalence of HPV may partly be explained by the higher sensitivity of the applied tests. Since we used the same tests for the controls however, the results for the sex workers remain significantly higher than expected. Although numbers are low, the results of the cervical smears for the HPV-typed samples are consistent, with more pathology for the high-risk types. Results for multiple infections were similar as found in Mexico (58.3%) [10].
Almost one quarter, or 63 women of our group of sex workers younger than 25 (258 women), was referred for repeat smears or colposcopy. If the recommendations for Belgium and most European countries had been applied here, these sex workers with abnormal smears would only have been detected with some years delay. We therefore propose to offer sex workers a test when they start working in sex work, regardless of their age. The high prevalence of oncogenic HPV in sex workers supports a higher screening frequency for this group, e.g. once a year.
We recommend the use of targeted services to implement cervical screening in the sex worker community. In the case of Hepatitis B vaccination, targeted services have proven to reach sex workers better than regular health services [12].

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Authors
Rudolf Mak is the principal investigator, Lieve Van Renterghem and Claude Cuvelier performed and interpreted the tests, and were involved in the redaction of the article.

Key messages

1. Sex workers in Belgium are at increased risk for abnormal cervical smears and HPV in comparison to the general population.
2. Cervical cancer screening should start at the onset of sex work, irrespective of age.

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4.5 *Chlamydia trachomatis* in female sex workers in Belgium: 1998 - 2003

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Abstract

Introduction: In this study we analysed the results of a six-year screening period for *C trachomatis* in a group of female sex workers (FSW) of all ages in Ghent, Belgium.
Methods: They were tested in the context of an outreach health programme for sex workers. *C trachomatis* was tested by COBAS AMPLICOR CT/NG PCR (Roche Diagnostics).
Results: In the six-year period, 1643 tests were performed on 950 different sex workers (Nationality: Belgian 60.3%, other Western European (mostly French) 21.0%, African 12.4%, Eastern European 3.0%, other 3.3%. Workplace: bar/sauna 49.0%, private homes 31.8%, windows 18.2%, and escorts 1.0%).
Baseline prevalence (only considering results of first test) was 70/950 or 7.4 % (CI95%: 5.7 - 9.0). The incidence rate was 98 episodes in 1347 person-years or 7.3/100 person-years (CI95%: 5.9-8.7). There was a strong age effect. There was no clear relationship with nationality or the workplace.
Conclusions: The prevalence was higher than in general populations selected in Belgium, Britain and The Netherlands. Since younger age is a risk factor for *C trachomatis*, it is very important to contact these women as soon as possible when they enter the trade. General screening for *C trachomatis* in young women is not common practice in Belgium. Sex workers often do not tell doctors about their work and will therefore not be screened unless in the context of specific outreach projects.

Keywords: Sex Workers, *C Trachomatis*, Belgium

Introduction

Chlamydia trachomatis infections are an important public health problem since they can cause complications such as pelvic inflammatory disease (PID), chronic pelvic pain, ectopic pregnancy and infertility (1). Screening for genital *C trachomatis* infection is considered as effective to reduce these complications (2). In this study we analysed the results of a six-year screening period for *C trachomatis* in a group of female sex workers (FSW) of all ages in Ghent, Belgium.

Methods

In the context of an outreach health programme for sex workers in Ghent (Belgium) and surroundings (3), *C trachomatis* testing is performed in the following situations: on first contact, as part of basic STI screening; after a perceived risk, e.g. condom breakage, when signs and

symptoms are present. Those positive were treated or referred for treatment. The importance of partner treatment was emphasized and on many occasions we handed out a prescription for the epidemiological treatment of private partners. Since 1998, *C trachomatis* has been tested by the COBAS AMPLICOR CT/NG PCR (Roche Diagnostics) done on first void urine samples according to the manufacturer's instructions.
When comparing the results with other studies, it was adjusted for age.

Results

In a six-year period, 1643 tests were done on urine specimens from 950 different sex workers. Most tests were performed on non-symptomatic women. The nationality of the sex workers is Belgian 60.3%, other Western European (mostly French) 21.0%, African 8.2%, Moroccan 4.2%, Eastern European 3.0% and other 3.3%. Their workplace is bar/sauna 49.0%, private homes 31.8%, windows 18.2% and escorts 1.0%.
When only the result of the first test taken by the project is considered, we find 70 positive tests in 950 persons, or a baseline prevalence of 7.4 % (CI95%: 5.7 - 9.0).
The age when the first test was positive is shown in table 1. There is a strong age factor.

Table 1: Positive C trachomatis on first test of FSW in Belgium in relation to age (N=920)

Age group	Test positive N	(%)	95%CI	Total
<20	15	15.0	8.0-22.0	100
21-29	40	8.3	5.0-10.7	484
>29	12	3.6	1.6-5.6	336
Total	67	7.3	5.6-9.0	920[a]

a No age available for 30 women

Chi-square test: p<0.001

There is no clear relation to nationality or the workplace.

Considering all tests, one positive test was found in 75 persons, 2 positive tests in 11 persons, 3 positive tests in 1 person and 4 positive tests in 1 person, bringing the total of positive tests to 104. When reviewing individual case histories, we calculated that the 104 positive tests reflected at least 98 different *C trachomatis* episodes.
We can estimate the number of person-years by counting the number of years in which at least one test was carried out on a woman. This gives us 98 episodes in 1347 person-years or an incidence rate of 7.3/100 person-years (CI95%: 5.9-8.7). The evolution over time is given in Table 2.

***Table 2:* Incidence rates *C trachomatis* in FSW in Belgium 1998-2003**

	N persons tested	N + episodes	N + episodes/N persons tested	95% Confidence Interval
1998	122	11	9.0%	3.9%-14.1%
1999	143	13	9.1%	4.4%-13.8%
2000	210	13	6.2%	2.9%-9.4%

Table 2: **Incidence rates *C trachomatis* in FSW in Belgium 1998-2003 (Continued)**

	N persons tested	N + episodes	N + episodes/N persons tested	95% Confidence Interval
2001	263	21	8.0%	4.7%-11.3%
2002	294	20	6.8%	3.9%-9.7%
2003	315	20	6.3%	3.7%-9.0%
	1347	98	7.3%	5.9%-8.7%

Discussion

The number of persons tested for *C trachomatis* rose gradually. This was due to the extension of the team in 2000, enlarging the capacity for testing and to the phenomenon of increased testing after condom failure, which was actively promoted by the project. The development of reliable PCR tests on urine lowered the barrier for screening, especially in this population, where most tests are sampled in outreach conditions.

To estimate the baseline prevalence of *C trachomatis* of the sex workers in the area we analysed the results of those who had their first test in the project at any moment in the six- year period of observation. These women were new to the project and represented sex workers who were not yet influenced by the project. Every year, more than half of all sex workers visited by the project are new, which reflects the high turnover in this group.

To estimate the incidence rate, we assumed that when someone was tested in a year, this counted for one person-year of observation. If someone had more than one positive test, the decision was made to decide whether or not this reflected one or more episodes.

Incidence could be underestimated if the practice of self-treatment or prophylactic treatment is widely spread. In our study with mainly European women, these practices are rare and will therefore hardly influence our estimate.

The baseline prevalence rate of 7.4% (CI95%: 5.7 - 9.0] was lower than in immigrant sex workers (n=101) in Italy (4) (11% after correction for age), and in registered sex workers (n=354) in Mexico (5) (14.5% after adjustment for age). It was higher than reported in the Czech Republic (6) (5.5%, not corrected for age). The prevalence was higher than in populations selected in general practices in Belgium (7) (12.4% vs. 6.6% in 18-22 yr, 7.9% vs. 5.8% in 23-27 yr and 4.7% vs. 3.3% in 28-40 yr), in home obtained urine specimens for the general population in Britain (8) (11.5% vs. 3.0% in 18-24 yr, 5.6% vs. 1.7% in 25-34 yr and 3.5% vs. 0.6% in 35-44 yr) and The Netherlands (9) (15.0% vs. 2.4% in 15-20 years, 9.3% vs. 4.4% in 21-25 years, and 5.3% vs. 2.5% in 31-35 years).

Age was the strongest risk factor for *C trachomatis.* Young women in general have the highest Chlamydia incidence, which is related to their experimental phase in forming sexual relationships. For sex workers, the risk of sex work adds to the risk in their private life.

Over the six-year period, there was no clear tendency of changing prevalence. Only a small fraction of the total number of women had a yearly test in the project. The reason for this is the high turnover of this population. There is a constant influx of new women and many women leave the trade after some time. Since younger age is a risk factor for *C trachomatis*, it is very important to contact these women as soon as possible when they enter the trade. Risks outside of sex work should be discussed (10), and partners treated (11). Good communication

is a prerequisite. General screening for *C trachomatis* in young women is not common practice in Belgium. Sex workers will often not tell the doctor about their work in the sex industry, and will therefore not be screened unless in the context of specific outreach projects.

Key messages

- The prevalence of *C trachomatis* in female sex workers in Belgium is higher than in women of comparable age in the general population

- Screening of sex workers for *C trachomatis* should start from the very beginning of their starting work in sex industry

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Contributors

RM is the principal investigator; LVR performed and interpreted the tests, AT collected most of the samples.

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4.6 Economic Aspects

In the evaluation of a health intervention the economic aspects cannot be left undiscussed. Cost analyses are needed to estimate the resources required to sustain or to expand the intervention. Economic evaluations can assist in priority-setting exercises (1). Outcome and benefits should clearly be assessed to make evaluations possible.
In practice, however, it is not always easy to assess the costs and benefits. In this chapter we try to give some insight into the cost aspects of the PASOP intervention on the one hand, and some analyses of benefits on the other.

When considering the intervention for sex workers, we can easily calculate the cost by adding up the total funding of the project. In the year 2003 we arrived at a sum of approximately 200,000 euro through funding by the Flemish Community, the Province of East-Flanders and the City of Ghent. The Ministry of Labour pays one collaborator (GESCO). Personnel costs included 30 hours/week for the medical doctors, 49 hours/week for the social nurses, 44 hours/week for the contacts and 2 hours/week for the accountant. Operational costs included the rent of the premises, office costs, laboratory costs, HBV vaccines and travel costs.

For 2003 we counted 683 different sex workers who were in one way or another in contact with the project. This would give a cost of 200,000/683 = 292.83 euro per sex worker reached.
We also counted the number of contacts between the team and the sex workers: 2235, resulting in 89.49 euro per contact.

A possible way of evaluating the actual cost is to make an estimation of how much the project would cost if the legally assessed minimum rates would apply used in existing occupational medicine in Belgium (benchmarking).
The annual all-inclusive rate for an employee working in an industry with a risk profile warranting close health surveillance is 98.93 euro for the year 2004 (2). This budget will cover in principle one hour of specialist time plus all overhead costs (housing, administration and nurses). For every extra hour of risk management the budget is 84.80 euro. The cost of transport, vaccines and laboratory are not included in this budget. For the project this would mean a basic cost of 683 x 98.93 = 67,569.19 euro. If we assume that all contacts of the team with a sex worker will on average take one hour a year, we need to add (2235 - 683=1552) x 84.80 euro = 131,609.60 euro.
The total cost for vaccines and laboratory is 24,500 euro and transport (outreach work to bars and clubs) is 3,000 euro. In a situation where sex work would be legal, and every sex worker would fall under the rules and regulations of the existing occupational health system, the total budget would be 67,579.19 + 131,609.60 + 24,500 + 3,000 = 226,678.80 euro. This cost is somewhat higher than the actual budget of PASOP, which is 200,000 euro.

To be able to judge if these costs are justifiable, we need a more qualitative approach. Indeed, the project actively vaccinates against HBV, screens and treats for STI, screens for cervical cancer, gives health education, etc. All costs involved are included in the total cost.

We will therefore try to discuss all items separately, as far as data is available.

The costs associated with STI can be divided into three main categories: direct, indirect and intangible (3). Direct medical costs refer to treatment of acute STI and their complications. Indirect costs of STI refer to productivity losses attributable to STI related illnesses and intangible costs are related to the pain and suffering associated with STI.
In the following we will focus on the direct costs.

Chlamydia trachomatis

From 1998 till 2003 the project detected 98 sex workers with a positive test for *C trachomatis*, who were asymptomatic at the time of the screening. This represents 7.3% (95% CI 5.9%-8.7%) of the tested population (see chapter 3.4). Both in 2002 and 2003, 20 women were detected with a positive test. Without screening, asymptomatic infections are unlikely to be treated.
The main reason for screening and treating women for *C trachomatis* is the prevention of its complications, such as PID (pelvic inflammatory disease), which may in turn lead to infertility, ectopic pregnancy and chronic pelvic pain (4). Early detection and treatment significantly decreases the incidence of PID (5). It also prevents the further spread of the infection in the population. In order to make an estimate of the prevented cost for each case of *C trachomatis* found, we need to know the rate of progression from lower genital tract chlamydia to pelvic inflammatory disease (6). The most widely cited study found pelvic inflammatory disease in 6 out of 20 women (30%) with chlamydia (7). More recent studies, however, show much lower (even 0%) disease progression in low-risk populations (8), especially for *C trachomatis* detected by DNA amplification techniques. In a recent cost-effectiveness analysis (9), the rate of progression to overt PID was set at 25%, based on earlier studies. In the case of PASOP this would mean the prevention of progression to PID for 5 women each year. Of these, 20% would suffer from chronic pelvic pain (one woman), and 10% of infertility (0.5 woman). In the same study, the cost for hospital-treated PID was estimated at approximately 4,000 euro in 1996, for chronic pelvic pain at 3,000 euro, and for infertility at 4,500 euro. For the 20 women who were *C trachomatis* positive in PASOP, the prevented complications would have cost approximately 25,500 euro in 1996 or 31,500 euro in 2003 (3% inflation). No account was made for the prevention of the further spread in the population through the treatment of the woman and her partner, with subsequent costs. In the Dutch study it was estimated that 43% of the male partners of chlamydia-positive women were asymptomatically infected with *C trachomatis* (10).

Cervical cancer screening and HPV

In the sex worker group 2.6% were diagnosed with AGUS/ASCUS, 15.6% with LSIL and 2.9% with HSIL, in comparison with the control group where the results were 1.4%, 2.9% and 0.6% respectively (see chapter 4.4). The annual number of smears is now approximately 200, giving 5 cases of AGUS/ASCUS, 31 cases of LSIL and 6 cases of HSIL. All these women get repeat tests or are immediately referred to specialist services.
The cost for diagnosis and treatment of invasive cancers at baseline is approx. 10,000 euro, and the cost for treatment of advanced cervical cancer is estimated at 30,000 euro for women less than 50 years old (11). Since we don't know whether the existing health system would pick up the women with positive smears in the years following their positive test with PASOP, it is not possible to predict the number of cervical cancers prevented. However, one prevented case would save 30,000 euro, without counting human suffering.
Given the relatively high number of abnormal cervical smears and the high prevalence of oncogenic HPV in our group, the women would benefit a lot from vaccination against HPV (12). In (3) the estimated HPV attributable cost per abnormal Pap test was set at $1,281. For PASOP this would mean that vaccination against HPV would save $53,802 or 44,835 euro. Considering the results of our HBV vaccination programme (see 4.3), it is not likely that existing health services will be successful in identifying and vaccinating sex workers. For the project, however, implementing an HPV vaccination programme would not add a lot to the cost, but would very likely be successful. Since half of the sexually transmitted HPV infections are obtained within three years of sexual debut (13), it is very important to contact the women as soon as possible. As indicated in our HBV vaccination programme (see 2.3), and in an HBV vaccination program for sex workers in Thailand (14), the secondary effect of an HPV vaccination program would be raising general awareness of STI and HIV in our target population of sex workers.

HIV

An ideal intervention effectiveness model would facilitate estimation of the total number of infections averted, not just in the near present but also over the course of the epidemic, stretching decades into the future. It would also consider the secondary infections averted among the partners, and the tertiary infections averted among their partners' partners (15).
Between 1998 and 2003 in total 3 out of 943 tested sex workers in PASOP were found positive for HIV, giving a prevalence of 0.32% (CI 0.004% - 0.68%), which is near the prevalence of women of the same age in Belgium (0.37%) (16). All three sex workers were unaware of their HIV seropositivity.
Based on the findings of the last 6 years, we can expect one case of HIV every 2 years.
If we find a HIV seropositive woman unaware of her serostatus, she is referred to specialist services, where the patient is extensively counselled in order to reduce the risk of further transmission. In most cases the partner(s) are tested and, if positive, they are counselled as well.
The estimated gain in Belgium in 1996 of one prevented HIV infection (primary prevention) is 2,373 euro per year in the asymptomatic stage, 8,401 euro per year in the symptomatic stage and 22,087 euro per year in the stage of full-blown AIDS (17). Estimated life expectancy

following HIV infection is 22-26 years for persons receiving antiretroviral treatment (18). After 12 asymptomatic years, 8 symptomatic and 3 full-blown AIDS years, the total cost would then be, calculated in 1996, approximately 170,000 euro (215,350 euro in 2004, 3% inflation).
In the US the lifetime medical cost per new case of HIV was estimated at $199,800 (19). Every year more than 300 sex workers are new to the project, and they receive the standard package of health education materials and personal advice on the risks of STI in their work. If the project would prevent one HIV transmission every two years, as a result of secondary prevention (early detection) and primary prevention (health education), the project would save more than 100,000 euro of the national health budget. For a prevention of one case every four years the yield would still be 50,000 euro.

HBV

PASOP vaccinated over 1,500 sex workers since it started to vaccinate in 1992, and each year 150 - 200 sex workers start their vaccination, often soon after they enter the trade. In (3) the average medical cost per case of HBV is estimated at $779, including asymptomatic and untreated cases. The cost per case of chronic liver disease was estimated to be $32,837 (20). It is not possible to calculate the yield in direct costs of the HBV vaccination programme of PASOP, but it created ample opportunities to discuss the principles of STI and HIV transmission with the target group. HBV transmission is the same as HIV transmission, but HBV is 100 times more infective. This message is very well understood by the sex workers. Raising awareness in sex workers of the existence of STI was one of the objectives of the HBV vaccination campaign in the AIDS research programme in 1991 (see 2.3).
The vaccination programme of PASOP is paid from the overall budget. It would be interesting to calculate the cost of vaccination in the existing health system. In fact, the recommendations to vaccinate sex workers are clear, so doctors should vaccinate them. Roughly 200 persons a year enter the PASOP HBV programme, and 140 of them have no antibodies for HBV (see 4.2). All of them are tested for HBsAg, anti-HBs and anti-HBc, and they have to see the doctor: total cost 7,200 euro (200 x 15 euro consultation + 200 x 21 euro laboratory). All come back for their results (=200 x 15 euro consultation cost), and 140 start their first vaccination (= 140 x 15 euro). If all 140 candidates come back for the second and third vaccination, the cost is 280 x 15 euro (vaccines) + 280 x 15 euro (consultation). If it is decided, as in PASOP, to test the level of anti-HBs after vaccination, another 140 x 15 euro (consultation) + 140 x 7 euro (laboratory) is added. The total annual cost for this program would reach 23,780 euro.

Gonorrhoea

Gonorrhoea used to be the most prevalent STI in sex workers. Frequent obligatory check-ups were organised to diagnose and treat gonorrhoea as fast as possible (21).
Today it is very rare to diagnose gonorrhoea in Belgian female sex workers. PASOP did not have one positive culture in 10 years (1000 cultures). With the introduction of DNA techniques for gonorrhoea more sensitive tests may be introduced, but specificity is still too low with the low prevalence we have in sex workers today. Nevertheless, testing for gonorrhoea

remains a very important public health tool, given the prevalence sometimes found elsewhere in the world (22), particularly in Eastern Europe (23). In the first half of 2004 we detected one positive culture of the throat. This person was positive for *C trachomatis* as well. In Gh@pro in Antwerp, 12 positive gonorhoea cases were reported since 1999, 10 women and 2 men (24).

Syphilis

All sex workers in the project are tested for syphilis as part of basic screening. In 2003, three active cases of syphilis were referred to specialised care out of 325 tested, or 0.9% (CI95%: 0.0 - 1.9). Treating syphilis is important in order to prevent its complications and to prevent further spreading. Only a fraction of active syphilis cases will lead to a complication. Some will be treated inadvertently by antibiotics taken for reasons unrelated to syphilis, others will be detected in the existing health care system e.g. at the occasion of antenatal screening. If a case would lead to a complication, the estimated cost is between $56,806 and $166,374 (25).

Anogenital warts

Diagnosis of anogenital warts is clinical. The project did not systematically collate data on anogenital warts. The team estimates to diagnose 10 cases of warts every year, or a prevalence of 3%. Most women with genital warts were referred to existing care, some received a prescription to treat themselves.
The diagnosis and treatment of anogenital warts itself will not yield much gain on the health budget (the average cost of treatment after a new diagnosis of external anogenital warts was $446 in the US (3)), but the general preventive message is again very strong. Discovering one STI creates a very good moment (teachable moment) to further discuss all other STI and HIV.

Genital Herpes

Diagnosis of HSV is mostly clinical, although the project has the transport media to take samples for culture. The project did not systematically collect data on HSV. The team estimates to diagnose three cases of HSV every year, or a prevalence of 1%. Most women with HSV get a prescription to treat themselves. The estimated direct cost per case was $417 in women and $511 for men in the US (26).
The preventive effect of diagnosing and discussing HSV is as discussed with the anogenital warts.

Back-up contraception

As we could read in chapter 4.2, not all women use back-up contraception, and the project is actively promoting back-up contraception for sex workers. Since the change in law in Belgium regarding abortion, termination of pregnancy (TOP) is covered by the social security system. The total cost for a TOP, including a first visit with pre-screening for STI, HCG testing, echography to assess duration of pregnancy, the termination itself, the after-control, is 360 euro (27). Around 40% of all women new to the project did not use proper back-up contraception.

Their risk for unwanted pregnancy would be 0.4 - 1.6 %, depending on the Pearl-index used (28). On a yearly basis, 100 - 140 women are counselled by the project to start some form of back-up contraception, thus preventing an unwanted pregnancy for one to two women. In reality, this figure may be higher, since the Pearl-index is calculated in a situation of a monogamous couple, and the risk for condom failure is higher in sex work. In 2003, PASOP referred five women to an abortion clinic.
The cost of unwanted pregnancies cannot only be counted in money, however.

Psycho-social support

An important objective of the project is to offer sex workers a place to openly discuss all problems related to sex work. Psychosocial problems scored high (16.7%) on the list of items that were mentioned by sex workers in contact with the PASOP team, together with working conditions (12.7%). Other issues like quitting sex work, financial problems and physical violence were discussed less frequently (2.4%, 1.9%, 1.6%), but still represent considerable absolute numbers when looking at the number of contacts (2235) (see 4.2).
If PASOP would not offer this counselling, where would these women go? The team of PASOP was often convinced that the time they spent on listening to and counselling a woman, in many cases brought relief of the tensions sometimes built up in the situation of sex workers. Would they otherwise use more drugs or alcohol, or would they decompensate and need professional mental health services?

Primary prevention

Health education materials are a basic component of the project's interventions. Every sex worker in contact with the project receives a full package of materials, such as a safe sex brochure, leaflets on hepatitis B vaccination, strategies for condom failure, mistakes in contraceptive pill use and the importance of health insurance.
Given the dynamic character of the population (29) with new cohorts of women coming to the trade every year, and others leaving sex work, an evaluation of the impact of the primary prevention on risk behaviour in private and in professional circumstances, and on health directly, would demand evaluation methodologies beyond the possibilities of the project.

Conclusion economic aspects

A first way of giving some insight into the economic aspects of the project was to look at the cost per sex worker and per contact, and to calculate the predicted cost if the existing occupational health system in Belgium would organise the services. We saw how both systems would probably cost the same.
When looking at the total output of the project, we analysed the wide range of services that were offered, yielding a potential economic benefit in prevented direct, indirect and intangible costs. These could not exactly be calculated, but we showed some ways to look at the available data and we presented some clear benefits.

Most published studies only focus on the economic aspects of one single disease, but in order to evaluate a project like PASOP a more comprehensive approach is needed.
We do not think it is appropriate to come to an exact estimate of the total benefit. We would need to make many decisions such as how many cases of HIV the project prevented. The yield of one prevented case of HIV is already paying for the annual budget of 200,000 euro. Primary prevention of many health issues is embedded in the project, and is the basic objective. The decrease in direct medical costs go along with it, and help to improve the cost-benefit balance. We need future research to enable us to make better estimates, but we feel confident in the conclusion that the 'return on investment' of a specific health service for sex workers is easily capable of competing with many health initiatives in our society.

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Chapter 5
Conclusions

5.1 General discussion and conclusions

The objectives of the thesis were to conduct a needs assessment for specific health services in a population of sex workers, to develop and implement an intervention and to evaluate the intervention.
A systematic and planned approach of the objectives was limited for several reasons.
The initial needs assessment was a research project, however the intervention was not set up and financed as research, but as a practical intervention. It therefore has some shortcomings, such as the relative lack of monitoring instruments and the fact that the intervention as such was not based on theoretical conceptions, but more on practical experience and opportunities. It would have been interesting to e.g. repeat the initial interviews several times in the course of time, or to evaluate different intervention methods under controlled conditions. But a population of sex workers cannot easily be separated in intervention and control groups, nor are they initially willing to answer long questionnaires. Time was pressing in 1990, and we knew how to prevent the further spread of sexually transmitted infections in the target group: firstly, lowering the risk of transmission through the promotion of safe sex techniques and, where possible, through vaccination; secondly, early detection of STI in order to shorten the infectious period and to decrease the individual risk of complications.
Answering research questions is a time and therefore budget consuming activity, but so are actually developing and delivering health services. Research and action sometimes compete, and the work described here is an effort to combine both.
Another limitation of this project is that its results cannot be generalised for all sex workers in Belgium. Street workers are not represented, since they are hardly found in East and West Flanders. Inner city sex workers in Brussels or Antwerp may have a different profile. In Antwerp only 33% of sex workers in contact with Gh@pro were Belgian, 30.4% were African and 11.9% Eastern-European (2003) (1). They work in the inner city of Antwerp. The number of Belgian sex workers near the railway station of Brussels-North dropped significantly over the last years (from 55% in 1996 to 22% in 2000) (2), and more and more African and Eastern European sex workers have replaced them. Their absolute numbers, however, are limited. This may be in contrast to common thought, but public opinion is strongly influenced by the media, tending to focus on problem areas and the more sensational side of prostitution.
Among 934 sex workers contacted between 1998 and 2003 by Espace P (3) in Liège, Namur and Charleroi, the nationality profile was exactly as reported by PASOP. In a vaccination study in Brussels (4), 54% had Belgian nationality and 21% was from another West European country, mainly France. From this data a general picture for Belgium can be derived: the majority of sex workers have the same characteristics as described in the thesis, with the exception of the inner city sex worker populations of Antwerp and Brussels.
When looking at the epidemiological data for hepatitis B, the picture is the same. The percentage of sex workers with natural immunity varies from 11.9% in Ghent (1992-2000) (N=1096) to 13.1% in the French community (1998-2003) (N=934). The percentage was 22.5% in Antwerp (2003) (1) (N=488), and 40.5% in Brussels (2000) (2) (N=107).

As in most other professional activities, sex work may pose several health risks. Sexually transmitted infections, psychosocial problems, alcohol and drug abuse are job-related problems for some sex workers. In order to keep these health risks as low as possible, sex workers need information and help, like other people with professional activities.
Research in this thesis showed this need. For example, some sex workers had misconceptions about safety measures and believed that signs and symptoms of STI are visible when inspecting the client. More than 80% of the women who were in contact with PASOP for the first time in 2003 could not mention a correct strategy in case of condom failure and 44.6% did not use another method of contraception besides the condom. Only one third of them said 'yes' when asked if they did an annual gynaecological check-up for STI and cervical smears. The number of sex workers vaccinated for HBV because of their sex work by a GP or a specialist was still very low (1%) in 2003.

The fact that not all sex workers receive the necessary information or preventive interventions related to their professional health risks in the existing health system in Belgium is partly due to the fact that the Belgium health system is mainly curative and not properly organised to deliver prevention activities to sex workers. General practitioners and specialists only treat patients when the person himself/herself takes the initiative. Occupational health services for sex workers do not exist in Belgium, since sex work is not legally defined as a profession. Independent or self-employed workers in general are not served by occupational health services, while many sex workers work as such.
Another reason is the taboo on sex work, hindering sex workers to speak freely about their work and related risks, being afraid to be judged in a negative way. The majority of sex workers do not tell their physician about their sex work.
General and particularly primary health care could take up its role better under several conditions. The remuneration system should include doctor-initiated preventive activities such as screening of asymptomatic patients at risk for STI, the vaccination for hepatitis B and cervical cancer screening. Family doctors and gynaecologists should be aware of the hesitation of sex workers to reveal their work to them. A better knowledge of the working conditions and the realities of sex work may help to improve communication between sex workers and health professionals. Guidelines such as developed by the national institute for STI & AIDS Control in the Netherlands (5) and EUROPAP (6) may help doctors to introduce evidence-based interventions. Anecdotic information of medical doctors testing every week, asking higher fees or sharing the results of individual women with club owners is very harmful to the relation of trust required when dealing with sensitive issues such as sex work and sexually transmitted infections.
However, we do not believe that all barriers to access existing care can be lifted short term. Specific services have proven to be an effective complement to the existing health system, as shown in this thesis.

The results of the HBV-vaccination campaign were clearly more successful than what sex workers get in the existing care.
The need for the intervention was illustrated by the finding of more abnormal cervical smears and more *C. trachomatis* in the sex worker population than in the general population. These

abnormal smears and positive *C. trachomatis* tests would not have been found or found in a later stage if the intervention did not exist.
Sex workers who were in contact with the project use more lubricants, know better what to do in case of condom failure, use more back-up contraception, know more places other than PASOP to go with sex work related problems and have more annual check-ups (although there is still room for improvement), than those in contact with PASOP for the first time.

The need for specific actions as described is illustrated by the conclusion of a recent (2003) overview of STI in Belgium: "Recent data in Belgium suggests an overall increase in the number of confirmed sexually transmitted diseases (STD), in particular gonorrhoea and syphilis. The increase in STD is probably due to a decreasing number of people practising safe sex and the impact of the immigration of sexually active populations. In the future it will be necessary to intensify surveillance and increasingly invest in case finding and prevention. To this end the primary goal should be to adjust the sexual behaviour of high-risk groups and to detect and treat STD at an early stage." (7)

Specific health services for sex workers are not more expensive than comparable occupational health services in Belgium. The introduction of more prevention in this group clearly yields a potential economic benefit for society. One prevented case of HIV e.g. would cover the annual budget of the described project in Ghent. The benefit of primary and secondary prevention for the individual sex worker is obvious, given the sometimes severe complications most STI and particularly HIV can give.

5.2 Recommendations

Based on the experiences of PASOP, and in a later stage Gh@pro, in Flanders, and of Espace P in the French-speaking community, we conclude that this model is successful in this period of time. We believe that we should aim to extend these services in the near future in such a way that all areas in Flanders are covered.
As long as sex workers experience health care barriers, such as lack of legal status and the taboo on sex work in society, hindering openness to health workers in general, we support the input of public funding to these services.

Services targeted at sex workers should be mainly preventive, as is the case with occupational health services, and should specifically deal with sex work related problems. They should refer to the existing curative health sector for all problems not specific to sex work.

In analogy with the way occupational health services in Belgium are organised, we think it will be possible to introduce a system in which the sex workers themselves contribute more directly to their own occupational health services. But this will only be possible when a sex worker can freely choose to do sex work within a legal framework. Additional publicly funded services will however still be needed for those who do not fit into a legally organised form of sex work, or who prefer to continue to do sex work in the grey or black market. Another constraint of the existing system is that self-employed sex workers (now known as artists, dancers, beauty specialists, etc.) would not benefit from occupational services (8).
We believe it is not realistic to think that sex work will only be performed in a legally organised way. One of the reasons sex work is attractive to young people is the possibility to enter the scene instantaneously, without any degree or other paperwork, and to make the same money as someone with a classified job.

Due to the specific character of sex work, we think that even in the case of a legal framework, specific occupational services should be organised, with specifically trained medical personnel. As mentioned before, there should be a relation of trust when dealing with sexual health, and it takes time to train health staff in understanding the specificities of sex work (also see chapter 3.2).
Another important reason to organise specific services is the high mobility of some of the sex workers. They may change workplace several times a year, and classically organised occupational health services are not adapted to the administrative complexity this would give. A further reason we defend a specific and flexible system is the likelihood that sex workers will easily switch from legally organised to non-organised forms of sex work. Only services that can easily follow them in both forms of sex work are able to give the necessary continuity of care. In the case of non-organised sex work, anonymity will need to be guaranteed in order to gain the trust of the sex worker, and the system in use in PASOP and Gh@pro is not applicable in classically organised occupational services.

5.3 Future activities of PASOP

Czech-Flemish cooperation
In 2003, the Ministry of Foreign Affairs of the Flemish Community approved and financed a bilateral cooperation between PASOP and the Charles University in Prague (2003-2005) (9). The aim of the project was to implement general guidelines according to a Flemish model that will establish contact with the sex worker community in order to develop and maintain prevention activities such as HIV and STI screening, hepatitis B vaccination and cervical cancer screening, aiming at lowering the risks of sex work. Keywords were easy access, outreach and anonymity.
In the first phase, the Czech partner set up the Czech – Flemish pilot project ESO (erotické služby opatrně-erotic services with care) in Prague with all actors in the field (10). The next step will be to execute the services in Prague under close monitoring of both partners, and to start organising meetings at district level to further implement the methods (11). In a final phase of three months an evaluation report will be produced and how the project can continue with local support will be determined.

Collaboration with street corner work Ghent
In 2002, PASOP and street corner work Ghent (city of Ghent) joined forces to serve the (young) men who sell sex in the city park of Ghent (Citadel park). Once a week the PASOP doctor and nurse offer a free consultation in a room in an anonymous office building near the park. The street corner workers make contact with the male sex workers and explain the possibilities of the consultation. Basically the same medical services as in PASOP were given in this project. In 2003, 21 different men presented themselves at the consultation, in 53 contacts. The project targeted at male sex workers will continue over the next few years.

Collaboration with Gh@pro in Antwerp
In 1999, using the contacts of the PAYOKE project with sex workers, a new health project targeting sex workers in Antwerp city and the province was set up in Antwerp. The project is called Gh@pro (Health House for Antwerp Prostitutes) and uses a similar methodology, objectives and indicators as PASOP, but adapted to the local Antwerp situation (12). PASOP and Gh@pro closely collaborate (13) in order to further improve the quality and coverage of specific health services for sex workers.

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Summary

The emergence of the AIDS epidemic in the early eighties renewed the interest in the health of sex workers, since they were considered as a risk group for acquiring HIV infection and further spreading HIV to the public.
In many countries in the world new initiatives were developed to organise HIV prevention activities for this target population.
The objective of this thesis is to describe how specific health services for sex workers (PASOP project) were set up in the Ghent region in Belgium, and to evaluate its results.

Before the actual start of the intervention in 1990, a study was done (the PASOP study = Project AIDS Sociaal-geneeskundig Onderzoek bij Prostituees) in 1988-89 to assess the scope of the problem of STI and HIV for local sex workers, to evaluate if health messages concerning HIV reached them, to study risk behaviour in this group, and finally to get their opinion on the need for specific services for them.
HIV was not yet prevalent, but 21% had a history of STI. More than 80% did not show immunity for HBV. Testing for HIV was common practice. Television scored best as a source of information on HIV. The leaflet used in the national campaign in 1987, and medical doctors were mentioned least. Less than half of the women gave more than 7 correct answers out of 11 questions about sex techniques safety. Intercourse with a condom was regarded as the safest technique, followed by massage, masturbation and French kissing, in relation to HIV transmission. Less than 10% of the respondents sometimes used a condom in their private life. Forty-three percent of the women thought that they were able to see whether a client had a venereal disease.
Finally, most of the sex workers were willing to cooperate in a future project aimed at them, but no one wanted to start such an initiative themselves.
Based on these findings it was concluded that an intervention would be helpful and well-received by the target population.

The intervention actually started in 1990, located in the red light district of Ghent. Over the years it developed from a small project with two part-time workers to an organisation with two doctors, two social nurses and two contacts filling three full-time job equivalents. They operate in East Flanders and West Flanders, visiting clubs, windows, private addresses and saunas with a mobile team consisting of a doctor and a nurse.

From 1993, PASOP was closely involved in a European network, EUROPAP (European Project AIDS prevention for Prostitutes), with participants from 11, and later 12 EU member states. They developed guidelines for good practices for health interventions directed at sex workers based on the experiences of people actually working with sex workers.

An important aspect of each action is evaluation.
When clear targets and indicators exist, correct and adequate reporting of the annual results will be very helpful in assessing the output. In 2003, PASOP had 2235 contacts with 683 different sex workers. In total 219 working places were visited, 87 windows, 81 private addresses, 43 bars, 5 saunas and 3 escort services. Almost half were situated in the city of Ghent, the rest elsewhere in East and West Flanders. Most sex workers had Belgian nationality (57.5%), oth-

ers French (16.4%), African (15.4%), Eastern European (4.8%) or other (5.9%). Sex workers who had already been in contact with PASOP scored better in the correct use of condoms and lubricants, had a better strategy in case of condom failure, used better contraception, were more informed about other health services (although not much: 27.8% could mention a place other than PASOP to go for sex work specific problems) and had an annual gynaecological check-up more often.

Another way to evaluate a project is to compare its results with other services. The HBV vaccination campaign of PASOP could give 82.8% of non-immune persons the first dose of vaccine, 71.5% the second and 67.9% the third dose one month later, and 47.9% 6 months later. Hardly any sex worker was vaccinated in the existing health system in Belgium and 81.1% of all sex workers that were contacted in the project had no immunity against HBV. There are various reasons for this, the most important one being the fact that over 50% of sex workers indicate that they do no reveal their work to their physician. Another reason is that doctors, who know of the sex work of a patient, do not systematically discuss the risk of HBV and the possibility to vaccinate against it.
When comparing two vaccination schedules (0, 1, 2, 12 months and 0, 1, 6 months), it became clear that shorter intervals are better in this population.

In order to assess the risks for abnormal cervical smears and HPV in the group of sex workers, the results of 653 smears of PASOP were compared to the results of an equal number in a control group of women from the general population in the same region and of the same age. Separately, 99 consecutive samples of sex workers were typed for HPV, and compared with a control group. Abnormal smears and high risk HPV were significantly more prevalent in sex workers than in controls. The odds ratio of sex workers to have an abnormal smear that needs further follow-up was 7.7 (95% CI: 4.7-12.6) in comparison with the control group. The odds ratio of being HPV positive was 9.0 (95% CI: 4.5-18.5) and having an oncogenic type of HPV 7.6 (95% CI: 3.6-16.3). Sex worker specific services should therefore include cervical screening in their programme, and start screening irrespective of age on an annual basis.

To evaluate the prevalence of *C trachomatis* in the study population, the results of 1643 tests on 950 different sex workers were analysed. The baseline prevalence was 7.4% (95% CI: 5.7-9.0), and the incidence rate was 7.3/100 person-years (95% CI:5.9-8.7). There was a strong age effect, but no relation with workplace or nationality. The prevalence was higher than in the general population in Belgium and The Netherlands. As young age was a risk factor for *C trachomatis*, it is very important to contact sex workers as soon as they enter the trade. As general screening of young women is no common practice in Belgium, asymptomatic infections in sex workers would be missed, and possibly develop to complications such as PID.

Finally, an important element in evaluation is the cost of the project. In the system of occupational medicine in Belgium, the PASOP project would cost more (226,000 euro) than its actual budget (200,000 euro). It is not simple to calculate the savings in direct health costs for all the health problems PASOP is dealing with. The prevention of complications of *C trachomatis* would yield 31,500 euro, preventing one case of cervical cancer would save 30,000 euro

and one case of HIV costs society 200,000 euro. If the HBV vaccination campaign of PASOP would be done in the existing health system, it would cost 23,780 euro. Gonorrhoea, syphilis, anogenital warts and genital herpes all have their costs when complications occur. Failing contraception adds to the direct cost, but also to human suffering, and PASOP is actively promoting back-up contraception for sex workers. The yield of psycho-social support cannot be calculated, but psycho-social problems scored high on the list of items PASOP is dealing with, together with working conditions. We conclude that 'the return on investment' of a specific health service for sex workers can easily compete with many health initiatives in Western society.

The described model of PASOP has its particular place in the health system in Belgium. If new developments, such as the legalisation of sex work, should occur, the occupational health services as they are organised in Belgium would still need to be complemented by specific services with specialised administratively flexible personnel, and in the ability to work free of charge and anonymously for that part of the sex worker population that does not fit in any organised form. We underline the need to extend these services in a way that all sex workers in Flanders have equal access to them.

Samenvatting

De opkomst van de HIV-epidemie in het begin van de jaren tachtig bracht de rol van sekswerkers voor de volksgezondheid weer in de belangstelling, want zij werden beschouwd als een risicogroep om een HIV-infectie op te lopen en deze verder te verspreiden naar de algemene bevolking. In veel landen in de wereld werden nieuwe initiatieven genomen om HIV-preventieactiviteiten voor deze doelpopulatie te organiseren.

De doelstelling van dit proefschrift is te beschrijven hoe in de regio Gent in België specifieke hulpverlening voor prostituees werd opgezet (het PASOP-project), en om de resultaten ervan te evalueren.

Voordat men in 1990 in de praktijk met de interventie van start ging, werd er in 1988-89 een studie gedaan (de PASOP-studie = Project AIDS Sociaal-geneeskundig Onderzoek bij Prostituees) om de omvang van het SOI (Seksueel Overdraagbare Infecties) en HIV probleem bij lokale sekswerkers vast te stellen, om te evalueren of gezondheidsboodschappen over HIV hen bereikten, om het risicogedrag in deze groep te bestuderen en tenslotte om hun mening te horen over de noodzaak specifieke hulpverlening voor hen te organiseren.
HIV werd nog niet gevonden, maar 21% had een voorgeschiedenis van SOI. Meer dan 80% had geen immuniteit voor HBV (Hepatitis B Virus). Testen voor HIV was algemeen aanvaard en 80% was het ermee eens zich om de drie maanden te laten testen. Als beste bron voor informatie over HIV kwam de televisie naar voor. Het pamflet dat in de campagne van 1987 gebruikt werd en de eigen dokter werden het minst genoemd. Minder dan de helft van de vrouwen gaf meer dan 7 juiste antwoorden op 11 vragen over de veiligheid van sekstechnieken. Coïtus met een condoom beschouwde men als de veiligste techniek in verband met HIV, gevolgd door massage, masturbatie en tongkussen. Minder dan 10% van de respondenten gebruikte soms een condoom in hun privéleven. Drieënveertig procent van de vrouwen dacht dat ze het konden zien als een klant een geslachtsziekte had.
De meeste sekswerkers tenslotte toonden zich bereid mee te werken aan een project dat zich naar hen richtte, maar niemand overwoog zoiets zelf op te starten.
Gebaseerd op deze bevindingen werd er besloten dat een interventie nuttig zou zijn en dat deze goed ontvangen zou worden bij de doelpopulatie.

In 1990 ging de interventie dan werkelijk van start in de rosse buurt in Gent. In de loop der jaren ontwikkelde het zich van een klein project met twee part-time medewerkers tot een organisatie met 2 dokters, 2 sociaal verpleegkundigen en 2 contactpersonen die samen 3 voltijds equivalenten invullen. Zij werken in Oost- en West-Vlaanderen, en bezoeken clubs, raamprostitutie, privéadressen en sauna's met een mobiel team bestaande uit een dokter en een verpleegkundige.

Vanaf 1993 was PASOP nauw betrokken bij een Europees netwerk, EUROPAP (European Project AIDS-prevention for Prostitutes), met 11, later 12 deelnemende landen van de EU. Zij ontwikkelden richtlijnen voor een goede werking van gezondheidsprojecten voor sekswerkers, gebaseerd op ervaringen van mensen die in de praktijk met sekswerkers werkten.

Een belangrijk aspect van iedere actie is evaluatie.

Als er duidelijke doelstellingen en indicatoren bestaan, dan zal het correct en adequaat rapporteren van de jaarlijkse resultaten zeer nuttig zijn om de prestaties te meten. In 2003 had PASOP 2235 contacten met 683 verschillende sekswerkers. Er werden in totaal 219 werkplaatsen bezocht, 87 ramen, 81 privéadressen, 43 bars, 5 sauna's en 3 escortebureaus. Bijna de helft hiervan situeerde zich in Gent, de rest elders in Oost- en West-Vlaanderen. De meeste sekswerkers hadden de Belgische nationaliteit (57,5%), anderen de Franse (16,4%), Afrikaanse (15,4%), Oost-Europese (4,8%) of andere (5,9%). Sekswerkers die al in contact met PASOP geweest waren, scoorden beter in het juiste gebruik van condooms en glijmiddelen, hadden een betere strategie in het geval van condoomfalen, gebruikten beter anticonceptie, waren beter op de hoogte van andere gezondheidsdiensten (hoewel niet veel: 27,8% kon een andere plaats dan PASOP opnoemen om met sekswerk specifieke problemen naar toe te gaan) en hadden ook vaker een jaarlijks gynecologisch onderzoek.

Een andere manier om een project te evalueren is zijn resultaten met andere diensten te vergelijken. De HBV-vaccinatiecampagne van PASOP slaagde erin 82,8% van de niet-geïmmuniseerde personen een eerste dosis vaccin te geven, 71,5% kreeg een tweede dosis, 67,9% een derde dosis één maand later, en 47,9% een derde dosis 6 maanden later. Er was bijna niemand gevaccineerd in het bestaande gezondheidssysteem in België, en 81,1% van alle sekswerkers die werden gecontacteerd in het project was niet immuun tegen HBV. Er zijn daar verschillende redenen voor en de belangrijkste is het feit dat meer dan 50% van de sekswerkers aangeeft dat ze hun arts niets over hun werk vertellen. Nog een reden is dat dokters die wel op de hoogte zijn van het beroep, het risico voor HBV en de mogelijkheid van vaccinatie niet systematisch ter sprake brengen.
Wanneer we twee vaccinatieschema's vergeleken (0, 1, 2, 12 maanden en 0, 1, 6 maanden), bleek duidelijk dat kortere intervals beter waren voor deze populatie.

Om te bepalen welk risico sekswerkers liepen om een gestoord uitstrijkje voor baarmoederhalskanker of een positive HPV-test (Humaan Papilloma Virus) te hebben, werden de resultaten van 653 uitstrijkjes van PASOP vergeleken met de resultaten van eenzelfde aantal in een controlegroep vrouwen van dezelfde leeftijd uit de algemene bevolking in dezelfde regio. Apart daarvan werden er 99 opeenvolgende staaltjes van sekswerkers getypeerd voor HPV en vergeleken met een controlegroep. Abnormale uitstrijkjes en hoog-risico HPV werden significant meer gevonden bij sekswerkers dan bij controles. De odds ratio voor sekswerkers om een abnormaal uitstrijkje te hebben dat verder opgevolgd moest worden, was 7,7 (95%BI (= betrouwbaarheidsinterval): 4,7-12,6) in vergelijking met de controlegroep. De odds ratio om positief te zijn voor HPV was 9,0 (95%BI: 4,5-18,5) en om een oncogeen type HPV te hebben 7,6 (95%BI: 3,6-16,3). Specifieke hulpverlening voor sekswerkers zou daarom baarmoederhalskankerscreening in zijn werking moeten opnemen en met jaarlijks screenen moeten starten ongeacht de leeftijd.

Om de prevalentie van *C trachomatis* in de studiepopulatie te evalueren, werden de resultaten van 1643 testen bij 960 verschillende sekswerkers geanalyseerd. De basis prevalentie was 7,4% (95%BI: 5,7-9,0) en de incidentie was 7,3 nieuwe gevallen/100 persoonsjaren (95%BI: 5,9-8,7). De leeftijd was een sterke factor, maar er was geen relatie met de nationaliteit of de werk-

plaats. Deze prevalentie is hoger dan die van de Belgische en Nederlandse bevolking. Omdat jonge leeftijd een risicofactor was voor *C trachomatis*, is het erg belangrijk sekswerkers te contacteren van zodra zij in het werk beginnen. Algemene screening voor *C trachomatis* voor jonge vrouwen wordt niet overal toegepast in België. De bestaande gezondheidszorg zou de asymptomatische infecties die PASOP diagnosticeerde in sekswerkers niet gevonden hebben en deze zouden mogelijks tot complicaties zoals PID (Pelvic Inflammatory Disease of kleine bekken ontsteking) geleid hebben.

Een belangrijk element tenslotte van evaluatie is de kostprijs van het project.
Wanneer het systeem van arbeidsgeneeskunde in België toegepast zou worden op de resultaten van PASOP, dan zou het PASOP-project meer kosten (226.000 euro) dan dat het feitelijk budget nu is (200.000 euro). Het is niet eenvoudig de besparingen in directe gezondheidsuitgaven te berekenen voor alle gezondheidsproblemen die PASOP aanpakt. De preventie van de complicaties van *C trachomatis* door opsporing en behandeling van asymptomatische infecties brengt per jaar al 31.500 euro op, de preventie van één geval van baarmoederhalskanker zou 30.000 euro opbrengen, en één geval van HIV-infectie kost de maatschappij 200.000 euro. Als men de HBV-vaccinatie campagne van PASOP in het bestaande gezondheidszorgsysteem zou uitvoeren zou dat 23.780 euro kosten. Gonorrhoea, syfilis, anogenitale wratten en genitale herpes brengen alle directe kosten met zich mee wanneer er complicaties optreden. Een falende anticonceptie brengt niet alleen directe kosten met zich mee, maar ook menselijk leed, en PASOP promoot actief het gebruik van een andere vorm van anticonceptie naast het condoom. Het is moeilijk de opbrengst van psychosociale ondersteuning te berekenen, maar de aanpak van psychosociale problemen neemt een belangrijke plaats in op de lijst van problemen waar PASOP mee te maken heeft, samen met de werkomstandigheden.
De 'return on investment' van een specifieke gezondheidszorg voor prostituees kan zich volgens ons gemakkelijk meten met vele gezondheidsinitiatieven in de westerse maatschappij.

We besluiten dat het beschreven model van PASOP zijn eigen plaats in het gezondheidssysteem in België verdient. Zouden er nieuwe ontwikkelingen zijn, zoals de legalisatie van sekswerk, dan zouden de bestaande arbeidsgeneeskundige diensten nog steeds aangevuld moeten worden met specifieke diensten met gespecialiseerd personeel. Deze moeten administratief flexibel zijn en gratis en anoniem kunnen werken voor dat deel van de sekswerkerpopulatie dat in geen georganiseerde werkvorm past, of wenst te passen. We willen ook de nadruk leggen op de noodzaak deze hulpverlening zodanig uit te breiden, dat er voor alle sekswerkers in Vlaanderen een gelijke toegang is.

Curriculum Vitae & Publications
Rudolf Mak

Curriculum vitae

Rudolf Mak was born in Blokker in The Netherlands on March 7, 1955. After finishing secondary school (gymnasium β) in Rotterdam in 1973, he started at the medical faculty of the Ghent University.
In 1981 he finished his medical studies in Ghent. During the last year, he did 3 months of clinical training in Butare, Rwanda. In 1981 he started to work in a family planning and STD clinic in Ghent (until 1991). In 1982 he got a degree in Tropical Medicine in Antwerp. In the same year he collaborated in a clinical trial on gonorrhoea in Kakamega, Kenya. In 1983 he got a degree in Public Health at the Ghent University. In 1984 he followed the London University Postgraduate Course on Sexually Transmitted and Related Diseases, (Prof. Dr. M. Adler), leading to the Diploma in Venereology.

In 1985 he started as assistant at the Department of Public Health of the Ghent University (Prof. Dr. K. Vuylsteek, Prof. Dr. G. De Backer). In 1986 he got a degree in Occupational Medicine, and in 1988 in Radioprotection at the same university. The main projects he was involved in were: 1986-1988: The epidemiology of radon and lung cancer in southern Belgium (EC DG XII), 1988-1989: Study of STD and AIDS in prostitutes: PASOP study (AIDS reference centre, Prof. Dr. J. Plum), 1989- 1990: Study of STD and AIDS in male homosexuals: Gay Service Research Project) (AIDS reference centre, Prof. Dr. J. Plum, and Department of Sociology, Prof. Dr. J. Vincke).

By the end of 1991 he started at the Scientific Institute of Public Health in Brussels (Dr. Thiers, Dr. Stroobant), where he was responsible for the HIV/AIDS surveillance data in Belgium.

He gradually came back to the Department of Public Health in Ghent, in order to take up the responsibility as a project leader in the Hepatitis B vaccination project for prostitutes, National Fund for Scientific Research, Belgium (Prof. Dr. J. Plum, Prof. Dr. G. De Backer) from 1991 till 1995. From 1993 till 1997 he was co-ordinator of the EUROPAP project, EU DG V. (EUROPAP: European Intervention Projects AIDS Prevention for Prostitutes). From 1997 till 2001 he collaborated in the Belstress study (DWTC, Prof. De Backer, Prof. Kornitzer). In 1999 he accepted the responsibility for the Erectile Dysfunctions Study Male Population Ghent and Charleroi (ADAM-study).

From 1987 - 1992 he was Consultant for the AIDS Task Force (European Community, Dr. Lieve Fransen) in Papua New Guinea (2 weeks mission with WHO), Botswana (10 days), Mozambique (co-organiser and teacher in a ten-day course on STD), and Swaziland (10 days). In 1990 he was a Temporary Advisor for WHO, CD/VDT GENEVA (Director Prof. Dr. A. Meheus) with the subject of 'Practical guidelines for Surveillance of STD'.
From 1997-2003 he was Local Coordinator for EUROPAP Belgium.

From 2003-2005 he has been Promotor of the Czech-Flemish cooperation: health services for sex workers in Czech Republic (Ministry of Foreign Affairs, Flanders - Charles University, Prague, Czech Republic).

He founded PASOP in 1990 with Ms. Terry Baele and from then on he has been medical doctor in the mobile team in PASOP.

He is member of the International Society for Cardiovascular Epidemiology, the International AIDS Society, the Belgian Society for Public Health and Member of the Board of Directors of VZW PASOP (President).

He reviewed for Sexually Transmitted Infections, Archives of Public Health, AIDS, Social Science and Medicine, J of Andrology and for Public Health.

Publications

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