Faculty of Occupational Medicine

Wilf Howe Memorial Prize 2008

Winning submission by Professor David Koh

An innovative condom promotion intervention project for brothel-based sex workers in Singapore since 1994

1. Clear description of innovation, initiative or intervention

An innovative condom promotion intervention project was implemented for brothel-based sex workers in Singapore since 1994.

This multidisciplinary project involved
- Dr Mee-Lian Wong, project leader and specialist in Public Health Medicine (health promotion and behavioural medicine), National University of Singapore
- Dr Roy Chan, then Head and Program Manager of Department of STI Control (DSC) and currently Consultant in Dermatology and Genitourinary Medicine, National Skin Centre
- Dr David Koh, Consultant Occupational Physician.

Socio-behavioural, clinical, public health, occupational health and management sciences were applied in the project development. Intervention activities stressed on developing condom negotiation skills of sex workers and mobilizing support from brothel management. Instructional methods included video presentations (with local sex workers as actresses) to demonstrate negotiation skills, role-play and peer group discussion. The team’s previous studies on risk factors of STIs, knowledge and sexual behaviour of the sex workers and successful condom negotiation techniques were used to design messages for video presentations and comic scripts.

Sex workers participated in two 2-hour small group sessions on condom negotiation skills in the public STI clinic after receiving a talk on STIs and AIDS. This was followed by four group problem solving sessions held over 2 years. Comic books on how to persuade clients to use condoms and solve common problems encountered with difficult clients were distributed to the sex workers. Free condoms were also distributed after their first session. Subsequently, low cost reliable condoms were sold at the DSC (at <US 10 cents per condom).

Interventions for brothel managers included talks and administrative measures with temporary closure of brothels with high STI rates. The DSC also stepped up surveillance checks on brothels from 6 to 3 monthly intervals.

Project activities were monitored and regular meetings held with health staff and
peer leaders of sex workers to provide feedback and involve them in solving problems.

2. Description of working population

There are two main types of sex work in Singapore. They either work from brothels or work freelance.

An estimated 1,100 brothel-based workers work in 6 geographically defined ‘red-light’ localities in Singapore. The number showed a slight decline from 1,681 in 1990 to about 1000 after 2000. The localities differ by type and class of brothel establishment, and ethnicity of sex workers. Between 10 and 30 sex workers are housed in each brothel and are under the control of the brothel owners. The majority (86%) of their clients are locals with the rest being Malaysian, Caucasian, Japanese, Taiwanese, Bangladeshi, Thai or Indonesian.

Brothel-based sex workers are required by the Medical Surveillance Scheme, which was set up in 1976, to attend the only public STI clinic at the DSC or designated general practice clinics for regular screening for STIs. The Anti-Vice Unit works closely with the DSC to ensure that brothel owners send the sex workers regularly for screening.

3. Reasons for choosing 1 and 2, including organizational context

Sex workers in Singapore have been identified as an important core group for the transmission of STIs in Singapore, accounting for 48.8% and 50.5% of notified cases of gonorrhea and syphilis in 1994, with the main risk factor being unprotected vaginal intercourse. Intravenous drug use is very low among sex workers (<1%). In Singapore, 9.6% of men (6.0% married and 13.3% unmarried men) surveyed in the community in 1987 reported having engaged sex workers.

The HIV incidence rate in the general Singaporean population had risen rapidly from 0.8 per million in 1985 to 6.2 per million in 1990 and 71.4 per million in 2001. Genital ulcer diseases like chancroid, syphilis and herpes have been found to increase the risk of HIV infection by 1.5 - 7 times while non-ulcerative diseases like gonorrhea, chlamydial infection and trichomoniasis increase the risk by 6 - 34 times. In light of the above, an important strategy for HIV prevention in Singapore would be to prevent and control spread of STIs among sex workers and their clients.

4. How did you measure outcomes?

Outcome measures were (i) negotiation skill (ii) consistent condom use and (iv) gonorrhea incidence.

Negotiation skill was measured by self-reported average success rate in persuading clients to use condoms in the last working week preceding the interview. Sex workers were asked on an average out of ten how many of their clients were persuaded to use condoms following negotiation.

Consistent condom use was defined as using a condom with every act of vaginal sex
with clients in the last working week preceding the interview. To increase the validity of self-reporting, the question was asked as a 5-point frequency rating scale (never, seldom, half of the time, most of the time and all the time) rather than as a leading question such as 'do you always use condoms with your client? After pilot testing, the 5-point rating scale was reduced to a 3-point scale: never, sometimes and always as the sex workers found it difficult to understand and respond to the 5-point scale.

Cervical gonorrhea incidence. Cervical gonorrhea incidence was chosen as a biological indicator of the impact of intervention on condom use in view of the short incubation period and short duration of the infection, high specificity and sensitivity of the diagnostic test, and rapid and effective response to treatment.

HIV was not used as an outcome measure due to the very low incidence rates of HIV. In addition, sex workers who contracted HIV were deregistered from the surveillance program and were not available for follow-up.

5. What were the health benefits?
The intervention led to a sustained increase in condom use for vaginal and oral sex from <50% before program implementation in 1994 to >90% for the decade. There is a corresponding significant decline in cervical gonorrhea incidence from >30 per 1000 person-months to <5 per 1000 person-months since 2000 (Fig 1). No cases of HIV have been reported among brothel-based sex workers for the past five years.

Figure 1. Trends in consistent condom use for vaginal sex and cervical gonorrhea incidence rates among sex workers in Singapore, cross-sectional surveys 1990-2004

Wong ML, Chan RKW, Koh D. AIDS 2004; 18:1195-1199
6. Give an account of the difficulties / obstacles that arose and how they were addressed

Resistance to condom use because of fear of loss of earnings
To overcome resistance to condom use, project activities focused on assessing sex workers’ needs and using behavioural and organizational approaches in their work environment to address their main reasons for non-condom use. The main reasons were identified as lack of negotiation skills and no support from brothel management.
Individual counselling was also provided to non-condom-using sex workers and administrative measures such as warnings and closures were directed at non-compliant brothel owners.
Continuous quality improvement principles were adopted to monitor progress, identify problems and respond promptly to them.

Unintended effect: an increase in pharyngeal gonorrhea
A subsequent condom promotion program for oral sex was implemented in 1996 because of a marked increase in the practice of oral sex and pharyngeal gonorrhea – an unintended effect of the successful condom promotion program for vaginal sex.
Specific approaches were developed to increase condom use for oral sex. These included helping sex workers learn new skills to put the condom on the client’s penis in an arousing and enticing way without negotiating; making available more varieties of oral condoms with different flavours such as strawberry or mint to provide clients and sex workers more attractive choices to use oral condoms; addressing misconceptions about the safety of oral sex and intensifying interventions targeting brothels. More frequent on-site checks at brothels were required to ensure their support to sex workers on oral condom use and counselling sessions were conducted for all brothel owners whose sex workers tested positive for STIs. Explicit posters on condoms for oral sex were designed and posted in brothels to remind clients and sex workers to use condoms for oral sex. Following the implementation of the condom promotion program for oral sex in 1996, pharyngeal gonorrhea incidence decreased from >12 to <4 per 1000 person-months since 2000.

7. Explain how this might be used elsewhere
The approaches adopted and materials developed in this project may be adapted for other brothel-based sex workers in Asia.

8. References
Wong ML, Chan RKW, D Koh. Promoting condom use for oral sex: its impact
* S Wee is a graduate student.