A tale of two cities: Brothel based female commercial sex work, spread of HIV, and related sexual health care interventions in India, using Bombay and Delhi as examples

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In the early 1980s, the belief that Asia might avoid the HIV/AIDS epidemic was widespread.[1] Some believed all Asians to have a natural resistance to HIV infection.[1] Others referred to traditional Asian morality:

> *'Our younger generation still practice virginity until their nuptial day. The religious customs ... are protection against many social evils. It will be difficult even for HIV to penetrate this shield',* Dr K Abhyambika, AIDS Programme Officer for Kerala, India, 1993.[2]

Beyond this avoidance of reality, the facts emerged: Since the first documentation of HIV infection in India in 1986,[3] there has been an explosion in seroprevalence. By 1993, seroprevalence exceeded 60% among injecting drug users (IDU) in Manipur,[4] and 50% among commercial sex workers (CSWs)[†] in Bombay[‡].[4]

Yet, in some parts of India, prevalence remains low, even among high-risk groups (HRGs)[*].[5] What is the potential for spread in these areas? How can it be contained?

To give substance to these questions, I describe the experiences of two major Indian cities, Bombay and Delhi, where progress of the epidemic has so far been very different. CSWs are believed to play a key role in the spread of HIV infection in these communities.[6–9] I compare the rise in seroprevalence in this HRG and discuss factors which may have influenced past infection patterns and which may influence future spread.

I then describe and assess interventions that have been implemented to lessen the incidence of HIV infection in this HRG, and discuss considerations for future strategies in Bombay, Delhi, and in India in general. Reviewing the situation in Bombay, I consider whether the need to apply such interventions in Delhi is as urgent.

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From the beginning of serosurveillance studies in India, the group having the highest proportion of HIV antibody positive persons has been CSWs,[7] with heterosexual intercourse as the major mode of transmission[¶] [6,8] as shown in Figure 1.

However, the epidemic's spread and impact have not been homogeneous,[10] as Figure 2 illustrates.

In Bombay several hundred thousand female CSWs live and work in poor conditions, under the strict control of brothel-owners.[12] Here, HIV prevalence has risen dramatically.[6]

Similar establishments exist in Delhi.[13] Yet here, HIV prevalence amongst CSWs remains low. According to one study, it rose from 0.1% in 1988 to 0.2% in 1990,[13] compared to a rise from 1.6% to 23% in Bombay during the same period.[14]

Figure 3 illustrates data complied from this and other studies.

This may be interpreted in one of two ways: **either** the curves are diverging, implying that the Bombay CSWs are more likely to become infected than CSWs in Delhi, **or** Delhi's curve resembles an earlier part of Bombay's, suggesting the same potential for later HIV spread as seen in Bombay.

If the first interpretation is correct, it implies that, provided important influences remain unaltered, Delhi CSWs will never experience the devastating spread of HIV infection that the CSWs of Bombay have suffered. If the second interpretation is correct, it emphasises the importance of learning from Bombay's experience and intervening early at Delhi. In establishing which relationship is more likely, I consider various influences on sex work in Bombay and Delhi. Key factors include exposure to foreigners, number of clients, and condom use.

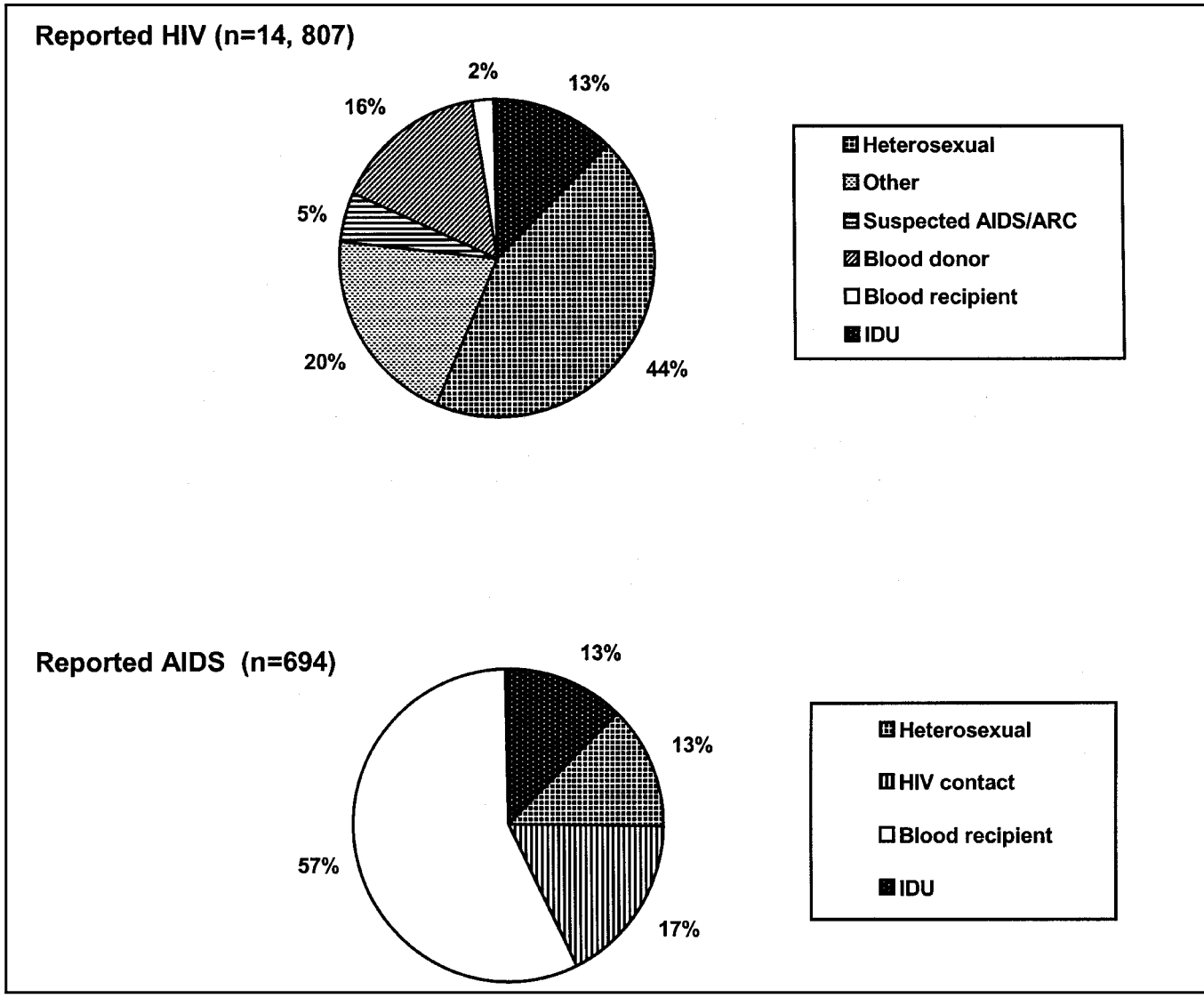
Several studies[13] propose Delhi's central **location**, far from international borders, as protective. A study by Singh et al in Delhi, in 1990, found few CSWs infected with HIV, and concluded 'It would thus appear that HIV infection first reached coastal metropolitan areas in India … from contact with expatriate Indians or other visitors from high HIV prevalence areas. From there the infection is slowly making inroads in our country...'.[13] The contrast with Bombay is striking - India's most affluent and industrialised city, with the country's busiest international airport and seaport,[16] Bombay is well situated to act as a nidus of HIV infection for other parts of India and the region.[12]

Analysis of the newer HIV-2 epidemic highlights the relevance of **exposure to foreigners**. In the early 1990s HIV-2 was spreading rapidly in Bombay and Goa,[17,18] both frequented by many foreign visitors,[16] but had yet to appear elsewhere.[6]

In a study on HIV prevalence amongst female CSWs in Tamil Nadu, India,[19] the only significant difference between HIV seronegative and HIV seropositive CSWs was a greater degree of exposure to foreign customers among the latter: 37.5% HIV positive CSWs had received foreign clientele in the recent past, compared to 4.5% among the uninfected CSWs. The odds ratio (95% CI) for development of HIV seropositivity and exposure to a foreigner was 7.71 (4.16-11.20), after correcting for the influence of the city of origin.

[†]A CSW may be defined as a person who receives money or goods in exchange for sexual service, and consciously defines these activities as income generating.[22]
[‡]The new name for Bombay is Mumbai; I use 'Bombay' throughout the text, because of its familiarity.
[*]HRGs, in this context, are those with a markedly higher chance of exposure to HIV than the majority of the general population, either as a direct result of their own behavioural habits or of their sexual partner's.
[¶]Except in the North Eastern states.[11]

Figure 1 *Pie charts showing risk factors for 14 807 infections and 694 AIDS cases reported to the Government of India, up to 28 February 1994*[†,6]



Disparity in the number of clients using Bombay and Delhi CSWs might explain the difference in HIV seroprevalence amongst the CSWs, since greater frequency of unprotected sexual contact promotes spread of infection.[20] However, studies by Singh et al[13] and Bhave et al[12] do not suggest a statistically significant difference between numbers of clients entertained by CSWs in Bombay and Delhi. (These studies are not directly comparable, since they were carried out at different times, and with different sampling and interview techniques. However, no similar studies are currently available, published or unpublished.)

In the same two studies amongst CSWs, there appears to be significantly higher base-line **condom use** among CSWs in Delhi than amongst those in Bombay, which could explain some seroprevalence disparity, although as explained, the value of comparing these studies is limited.

Simoes et al (1986) found a relationship between **clients' socio-economic group** and price charged, but no significant association between these and HIV prevalence among the CSWs studied.[19]

So, differences in factors influencing sex work in Bombay and Delhi appear to be small. They may explain the delayed spread of HIV infection to and within Delhi, (e.g. Delhi's lesser exposure to foreigners), but do not reliably suggest any long-term protection. Hence, of the first two models proposed - that either Delhi is protected or is likely to follow Bombay's example, the latter appears most plausible. Without preventive measures, HIV seroprevalence amongst Delhi CSWs threatens to follow Bombay's pattern.

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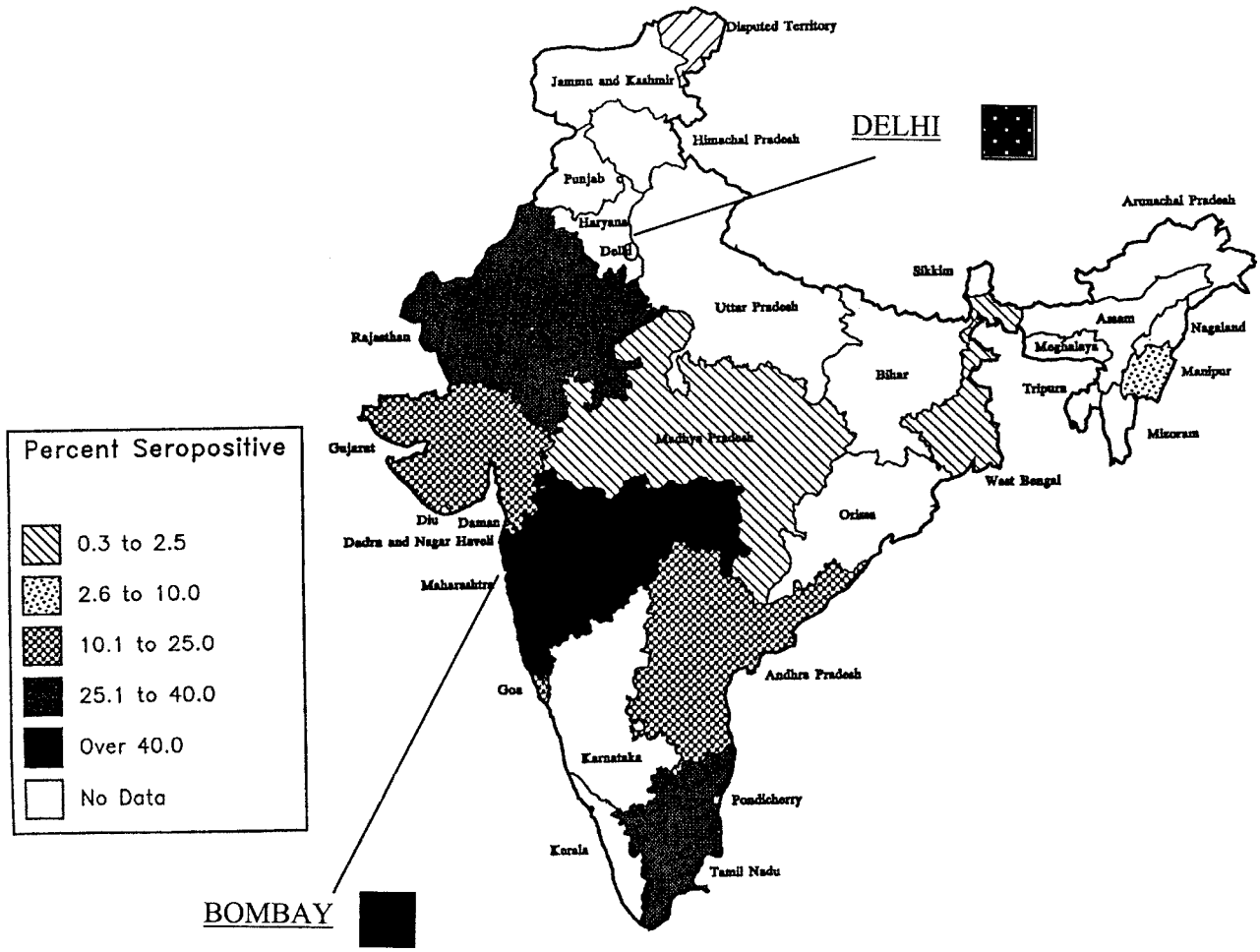
The Indian Government's initial response to the newly recognised HIV epidemic was to establish 30 HIV testing centres by early 1987. Other proposed activities, including counselling, were not implemented.[21]

There were attempts to

1) quarantine HIV-infected individuals, (National AIDS Prevention Bill 'Quarantine Law' passed in 1989)[6,21]
2) deny HIV-positive persons access to health care[6]
3) place CSWs in 'vigilance homes', to isolate them and restrict their movements.[2]

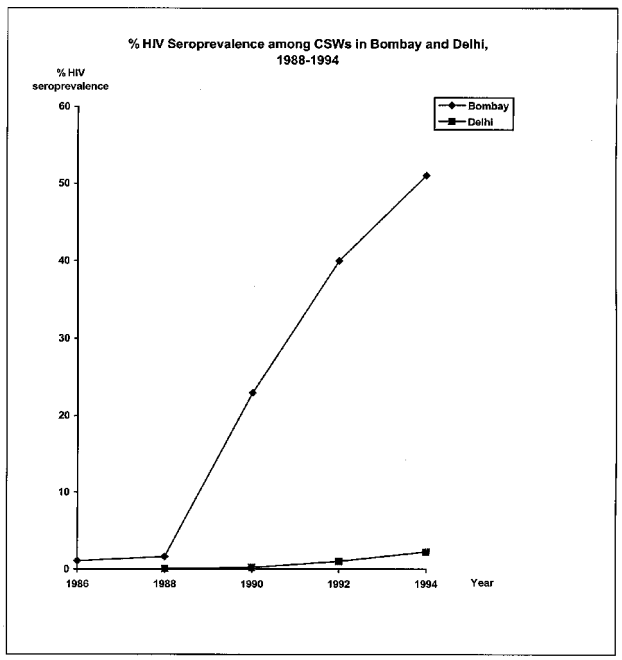
[†]'IDU' refers to intravenous drug use.;'Blood recipient' to a history of transfusion of blood or blood products.
For the HIV group risk factors: 'Other' includes unknown risk (18.7%), dialysis patients (0.8%), antenatal mothers (0.5%), and homosexual men (0.3%).
'Suspected AIDS/ARC' are patients referred to regional testing centres with clinical symptoms consistent with HIV-associated disease. Additional risk factor data are not available for these individuals.
'Heterosexual' includes data from female CSWs, patients in sexually transmitted disease (STD) clinics, and spouses of HIV-infected persons.
For those with AIDS: 'HIV contact' refers to the monogamous spouses of HIV-infected persons.

Figure 2 *HIV seroprevalence for commercial sex workers in India, 1994*[*11,13]



*Note: The HIV seroprevalence levels for each state must be viewed with caution because they are represented by the results of a single study and thus may not be representatives of the entire state.

Figure 3 *Percentage HIV seroprevalence among CSWs in Bombay and Delhi, 1988-1994*[4,6,10,13-15]



Only 15% of HIV/AIDS related funds were given for awareness and education activities.[21]

Nonetheless, intervention studies in Delhi and in Bombay, begun in 1988 and 1991 respectively,[12–15] had already begun to demonstrate the value of education: In Delhi, Singh et al assessed seropositivity, HIV/AIDS awareness, and condom use among 701 female CSWs. The methodology included pamphlet distribution, group discussion, and counselling of madams, pimps, CSWs, and *nochis* (young men who pose as CSWs' husbands, providing emotional and physical security). These groups later became peer counsellors, and helped show a short video on AIDS and safer sex. The video, unique in India at the time, was made in Hindi, and with the participation of the CSWs themselves.

By the end of the intervention period, regular condom use by the CSWs had more than doubled, and seropositivity amongst the CSWs had not risen during this time. Seventy percent of the CSWs described themselves as 'aware' of HIV/AIDS, compared to 5% pre-intervention.

Although lacking a control group, Singh et al concluded that their work increased HIV/AIDS awareness and condom use among the female CSWs.

The following year, Bhave et al began a controlled intervention study in Bombay.[12] They recruited 334 CSWs and 20 madams from an intervention site, and 190 and 17, respectively, from a similar control site, both in the red-light areas of Bombay. All CSWs were tested for antibodies to HIV-1 and HIV-2. Information on sexual practices, condom use, and madams' rules was gathered by interviewer-administered questionnaire.

Combining the findings from both groups, only 10% of madams and only 24% of the CSWs had previously

received information about AIDS, usually from friends. Ninety-nine percent of the CSWs wanted more health education; more than 95% favoured TV, video and personal or group teaching as the best methods of providing this.

The intervention group underwent a 6-month programme using educational videos, small group discussions and pictorial educational materials, and received free condoms. The control group did not. Following this programme there were significant improvements in all areas of HIV/AIDS-related knowledge investigated (including that HIV is transmitted through sex, that a person may look healthy and transmit HIV, and that condom use can prevent HIV transmission). Knowledge regarding correct condom use was also significantly improved, and there were significant increases in those reporting to use condoms.

However, a large proportion (96%) still expressed concern of losing business by insisting on condom use, and the madams in both groups still maintained that no client would be refused if unwilling to use a condom.

The behavioural changes that *were* seen in the intervention group were associated with significantly lower seroconversion rates. Compared to seroconverters, non-seroconverters were more likely to:

1) use condoms often or always (53% versus 30%; $p < 0.05$)
2) ask clients to use condoms (63% versus 33%; $p < 0.05$)
3) refuse clients who would not use condoms (31% versus 10%; $p < 0.05$)

Hence the importance of raised assertiveness regarding condoms and increased condom use.

Bhave and Singh employed similar techniques, including group discussion and the use of video, as preferred by the CSWs. Group sessions provide an opportunity to share experiences and knowledge, and remove the focus from single individuals, easing discussion.[22] Singh also involved CSWs as peer counsellors/educators, as described. Whilst the tensions and rivalries in commercial sex may cause difficulties with peer education, it can be extremely effective, shared experiences enhancing mutual understanding and trust.[22] Both Singh and Bhave also recognised the importance of educating madams, and Singh extended this to pimps and *nochis*.

A difference between the two interventions was the provision of free condoms in Bhave's study. This is important since condom expense may deter CSWs from safer sex despite their raised awareness.[12] At 1-5 rupees per condom, condom purchase would consume a considerable portion of a CSW's earnings. In a study by Simoes et al,[19] 57% of the CSWs charged their customers 5-10 rupees, (catering for the lowest socio-economic group) - little over twice the price of a condom. With perhaps seven clients a day/night,[13,15] the expense to a CSW is considerable. Interventions like that of Bhave et al[12] which provide free condoms, as well as safer sex education, may be essential.

Much of the solution to condom provision and use lies in educating clients as to their importance, to encourage clients to agree to condom use, and to bring their own or to cover the cost in the fee for sex.[2]

K Gopalakrishna of Population Services International India (PSI), claims 'the client comes prepared to spend money and a little extra for condoms doesn't matter as far as he's concerned'.[23] Nor does the condom matter, if the client has not been convinced of its importance. However, in Bhave's study, madams and CSWs expressed concern that insistence on condom use would result in financial loss, by driving clients away.[12] Clients hold the purse, so ultimately the power. The need for client education is apparent.[24,25]

However 'clients' are difficult to target. People only become clients when they visit CSWs. CSWs are therefore ideally, and uniquely, placed to educate them. But this has its own difficulties, including fear of losing custom,[12] and perhaps of violence.[24]

To increase the effectiveness of interventions directed at CSWs, the focus of activities must clearly be widened.

Although very important, safer sex should be seen as only part of a set of longer-term strategies.[1] Deep-rooted social and cultural changes are needed. Sexual taboos must decrease, to allow frank public discussion and education. So too must stigmatisation of marginalised groups such as CSWs, to help empower them and ease their access to health care, including STD clinics[12] and other facilities. Women must achieve higher social and political status. According to Tim Brown and Wersait Sittitrai, writing for *Current Science* in 1995, 'the roots of India's HIV problem lie in the inequality between the genders'.[1] Employment opportunities for women are poor, and sex work can be the only escape from complete poverty. Meanwhile, subordinate to males sexually as well as socially, women's lack of control in sexual situations makes practising safer sex difficult. As explained by Dr S Jana of the Sonargachi Project in Calcutta 'The sex worker may understand perfectly the factual information imparted to her but she cannot promote safer sex with her clients (due to) powerlessness with social roots and important psycho-logical dimensions'.[22] Hence the importance of addressing aspects of the social, economic and political influences on CSWs' lives.[22]

Some such changes may require cultural remoulding.[26] The powerful sectors of society, politicians and religious leaders, working with the media and non-governmental organisations (NGOs), are best equipped to influence these changes.[27] The media must be persuaded to challenge dominant cultural values and stereotypes; national leaders must be induced to encourage public discussion.[26] There must be a focus on the local language media,[26] because of the greater numbers that these reach relative to the English language media.

Strategies are required to reduce both supply of, and demand for, commercial sexual services. Development policies can increase employment and educational opportunities for young women, especially in rural areas, reducing the incentive to engage in commercial sex work. This might be done by supporting and encouraging local women's groups or, more ambitiously, by providing scholarships for young women to continue their education beyond primary school.[1] Schemes which assist CSWs to earn income from other sources may also be important.[22] CSWs who do not rely on sex work as their only source of income are in a better position to choose safer sex,[22] since the loss of a non-compliant client is then less financially devastating. Meanwhile, in developing new industrial zones, consideration should be given to moving entire families rather than asking husbands to leave their wives and children behind when they find work there. This would encourage a more stable social and sexual environment, reducing the demand for commercial sexual services.[28]

While improving female status and decreasing the demand for commercial sex are important, so too is the acknowledgement that sex work 'cannot be totally eradicated.[29] The aim should not be to abolish it or to penalise the CSWs, but to work *with* those involved.[29] 'In order to achieve... risk reducing practices, it is essential to ...ensure the active participation [of CSWs] in prevention efforts'.[30] Many countries deal with commercial sex by legislation against it. This forces CSWs to hide, which has

the effect of isolating them from health and social services. There is little evidence to show that this reduces commercial sex activity, but it does detrimentally affect the CSWs' health, welfare and self-esteem.[30]

Optimistically, the future could even hold a role for CSWs as 'safer sex educators': Their knowledge about sex and related thoughts and behaviours is considerable, and they have regular and frequent contact with the sexually promiscuous. From CSWs we can learn what intervention activities appeal to clients. CSWs are ideal communicators of safer sex practice.[30] Indeed, the Sonargachi project for HIV prevention and STD control among CSWs in Calcutta is now run by a committee of the CSWs themselves, allowing them to begin to fulfil the 'safer sex educator' role. Elsewhere, however, while madams, brothel owners and clients are uncooperative, while sex workers feel threatened by the law, and while their self-esteem is still undermined, such roles are far off.

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Despite these many possible considerations for future interventions, some believe that opportunities for effective intervention have already disappeared.[27] Certainly, in some parts of India, such as Bombay, where HIV prevalence amongst commercial sex workers exceeded 50% in 1993, action has begun decidedly late.[21]

In many other parts of India, as in Delhi, the opportunity for effective intervention still remains.[15,31,32]

We have seen that whilst recent HIV seroprevalence levels among CSWs in the two cities differ markedly, Delhi appears in no way intrinsically less susceptible than Bombay. Thus, if action is not taken soon, it is highly likely that Delhi will experience Bombay's pattern of HIV transmission.

Delhi must be targeted with improved and modified interventions, as discussed. Bombay, meanwhile, must not be forgotten. The Bombay to Delhi truck route is well travelled. As truckers visit CSWs in each city, so infection may spread.[33,34] Wayside CSWs between the cities are also affected.[34] Failure to intervene in Bombay affects Delhi, and vice versa. Interventions, or failure to implement them, can have effects far beyond the intended target group.[33,34]

Excellent opportunities for intervention still remain in India, as shown by the example of Delhi. Through assessment of the strengths and shortcomings of earlier strategies, new interventions can be implemented with greater effectiveness than in the past. In this way, the dramatic spread in Bombay may be contained, and Delhi's CSWs may be helped to avoid a similar fate. The cost of the epidemic to the Indian nation, in economic terms, as well as the enormous human tragedy that otherwise lies ahead, makes the development of effective interventions a major priority for the whole country.

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