HIV in Bangladesh: where is it going?

Background document for the dissemination of the third round of national HIV and behavioural surveillance.

National AIDS/STD Program,
Directorate General of Health Services,
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Government of the People's Republic of Bangladesh

Dhaka, November 2001

Foreword

It has been proven over time, all over the world that HIV/AIDS has major health, political, social, economic and legal consequences, which will touch almost all aspects of human life. This in turn threatens the national development and efforts to improve the quality of life of our people.

Through the just completed third round of national sero and behavioural surveillance for HIV we know that we still have a window of opportunity to avoid an HIV epidemic in Bangladesh. However, recent lessons learned from other countries – such as Indonesia and West Bengal – clearly indicate that time may be running out.

This document reflects the major lessons learned from the third round of national sero and behavioural surveillance for HIV and identifies a window for effective prevention. It also looks at challenges to prevention, and picks out opportunities through which Bangladesh can limit the spread of HIV and its development impact.

We hope that this report will inspire all those involved in the response to HIV/AIDS – including the different Government sectors, community based organisations, people with HIV/AIDS, NGOs, International Organisations, United Nations, private sector organisations, religious leaders, business men, etc – to step up and scale up interventions. As we know that early action at the beginning of an epidemic is most effective, we should not lose out on the opportunity to turn Bangladesh into a success story for HIV prevention.

Dhaka, November 2001

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Acknowledgement

The work presented here is the contribution of many people. Large numbers of people have been involved at different stages of the surveillance from its inception in 1998. We have had policy makers, people from the community, activists, researchers, NGO workers, academics, all involved in setting up an integrated surveillance system that is workable and usable. The Surveillance Advisory Committee has met regularly to advise on all its activates. Donors have been very supportive and the UN organisations and the World Bank have played a very active role in supporting and promoting surveillance in Bangladesh. The AIDS/STD Program, Directorate General of Health Services, Ministry of Health and Family Welfare, Govt. of Bangladesh is the main body responsible for HIV surveillance. The organisations involved in conducting the surveillance on behalf of the Govt. of Bangladesh were Family Health International (FHI), Centre for Health and Population Research, ICDDR,B and Org Marg Quest. The Institute of Epidemiology and Disease Control Research (IEDCR), a government organisation worked together with the other organisations. This work was done in collaboration with many partners, NGOs, Government clinics, private organisations, community groups and they include: APOSH, Bandhu Social Welfare Society, CARE Bangladesh, Central Drug Addiction and Treatment Centre, Central Skin and Social Hygiene Centre, Chittagong Medical College and Hospital, Durjoy Nari Sangha, Gonoshasthya Kendra, Jagroto Jubo Sangha, Karmajibi Kallyan Sangha, MAG Osmani Medical College and Hospital, Marie Stopes Clinic Society, Mukti Mahila Samity, Nari Mukti Sangha, NOVA Medical Centre, Paricharja, PIACT Bangladesh, Prochesta, Rajshahi Medical College and Hospital, Rangpur Medical College and Hospital, The Salvation Army, Save the Children Fund, Australia, Shishuk, World Vision.

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Finally, the greatest thanks are for the many participants who gave their blood and stories. We hope this report brings about a positive response for the future for all communities and the nation as a whole.

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সারসংক্ষেপ

এইচআইভি/এইডস মহামারী : বাংলাদেশের অবস্থান কোথায়?

বিশ বছর পূর্বে আবির্ভূত এইচআইভি ক্রমে পৃথিবীর প্রায় সব দেশেই ছড়িয়ে পড়েছে। ইতিমধ্যেই দক্ষিণপূর্ব এশিয়ার বেশ কয়েকটি দেশে এইচআইভি/এইডস মহামারীর আকার ধারণ করেছে। তবে বাংলাদেশে এর বিস্তার এখনও আশংকাজনক নয়, যদিও এইচআইভি সংক্রমণের জন্য ঝুঁকিপূর্ণ যৌন আচরণ ও মাদকদ্রব্য ব্যবহারের উপস্থিতি অন্য যে কোন এইচআইভি প্রাদুর্ভাব যুক্ত দেশের তুলনায় কম নয়। উদাহরণ স্বরূপ এখানে উল্লেখ্য যে বাংলাদেশের যৌনকর্মীদের সপ্তাহ প্রতি যৌনসঙ্গীর গড় সংখ্যা এশিয়ার অন্য যে কোন দেশের তুলনায় সব চাইতে বেশী এবং যৌনমিলনে কনডম ব্যবহারের হার তুলনামূলকভাবে কম।

সর্বশেষ প্রাপ্ত এইচআইভি সার্ভিলেন্সের তথ্য অনুযায়ী বাংলাদেশে এইচআইভি সংক্রমণের হার যদিও এখন পর্যন্ত কম, তবে এইচআইভি বিস্তারের সার্বিক পরিস্থিতি থেকে এটা সুস্পষ্ট যে ঝুঁকিপূর্ণ আচরণের হার দ্রুত কমিয়ে আনতে না পারলে অদূর ভবিষ্যতে বাংলাদেশে এইচআইভি মহামারী অনিবার্য।

এশিয়া মহাদেশে এইচআইভি/এইডস পরিস্থিতি থেকে এটা দৃশ্যমান যে, এখানে বেশ কয়েকটি দেশে হঠাৎ করে এইচআইভির প্রাদুর্ভাব বেড়ে গেছে। অথচ কিছুকাল আগেও এই দেশগুলোতে এইচআইভি সংক্রমণের হার অত্যন্ত কম ছিল এবং কোন কোন ক্ষেত্রে প্রাদূর্ভাব ছিলনা বললেই চলত। উদাহরণ স্বরুপ ইন্দোনেশিয়ার এইচআইভি পরিস্থিতি উল্লেখ করা যায়। মুসলিম সংখ্যাগরিষ্ঠ দেশগুলোর মধ্যে অন্যতম দেশ ইন্দোনেশিয়ায় সম্প্রতিকালে যৌনকর্মীদের মধ্যে এইচআইভি সংক্রমণের হার প্রায় শূন্য থেকে হঠাৎ করে বেড়ে গিয়ে আট থেকে ছাব্বিশ শতাংশ হয়েছে। এখানে উল্লেখ্য যে, ইন্দোনেশিয়ার যৌনকর্মীদের জনপ্রতি যৌনসঙ্গীর গড় সংখ্যা বাংলাদেশের যৌনকর্মীদের তুলনায় কম এবং যৌনমিলনে কনডম ব্যবহারের হার তুলনামূলকভাবে বেশী হওয়া সত্ত্বেও সময়মত প্রয়োজনীয় পদক্ষেপের অভাবে এইচআইভি বিস্তারের হার বিপদজনক পর্যায়ে গিয়ে ঠেকেছে।

অনুরূপভাবে এশিয়ায় ইনজেকশনের মাধ্যমে মাদকদ্রব্য ব্যবহারকারীদের মধ্যে হঠাৎ করে এইচআইভির প্রাদুর্ভাব বিপদজনক হারে বেড়ে গিয়েছে। উদাহরণ স্বরূপ ভিয়েতনামের উত্তরে অবস্থিত হেইপহং শহরের পরিস্থিতির কথা উল্লেখ করা যায়। দু-বছর আগেও এই শহরে মাদকদ্রব্য ব্যবহারকারীদের মধ্যে এইচআইভির প্রাদূর্ভাব ছিল শূন্যের কোঠায়, অথচ সাম্প্রতিক জরিপের ফলাফল অনুযায়ী এঁদের ৬০ শতাংশেরও বেশী এইচআইভিতে সংক্রমিত। এখানেও উল্লেখ্য যে, ইনজেকশনের মাধ্যমে মাদকদ্রব্য ব্যবহারকারীদের মধ্যে একই সূঁচ বহুজনে ব্যবহার করার প্রবণতা আছে এবং জরিপে দেখা গেছে যে বাংলাদেশে এই প্রবণতার হার হেইপহং শহরের মাদকদ্রব্য ব্যবহারকারীদের চাইতে তুলনামূলকভাবে বেশী। উল্লেখিত উদাহরণগুলো থেকে এটাই সুস্পষ্ট যে অতিস্বত্বর ব্যাপক কার্য্যক্রমের মাধ্যমে কনডম এবং জীবাণুমুক্ত সূঁচ ব্যবহারের হার বাড়াতে না পারলে ইন্দোনেশিয়া এবং ভিয়েতনামের মত বাংলাদেশেও এইচআইভির প্রাদুর্ভাব হঠাৎ করেই বিপদজনক পর্যায়ে গিয়ে পৌছবে।

এইচআইভি/এইডস এর বর্তমান পরিস্থিতির যে চিত্র এই রিপোর্টে উপস্থাপিত হয়েছে তা অবশ্যই বাংলাদেশের জন্য আগত এইচআইভি/এইডস মহামারীর বিপদসংকেত। তবে সুসংবাদ এই যে, এখনও বাংলাদেশে এইচআইভি/এইডস এর প্রাদুর্ভাব বিপদজনক পর্যায়ের অনেক নীচে। কিন্তু ঝুঁকিপূর্ণ আচরণের ব্যাপক উপস্থিতি অদূর ভবিষ্যতে এইচআইভির বিপদজনক প্রাদুর্ভাবের সংকেত বহন করছে। সুতরাং, এখনই সময় এইচআইভি সংক্রমণে আচরণগত ঝুঁকির হার কমিয়ে এইচআইভির বিস্তারকে প্রতিহত করা। নিঃসন্দেহে এটা বাংলাদেশের জন্য এইচআইভি মহামারীকে প্রতিরোধ করার একটা সুবর্ণ সুযোগ। ইতিমধ্যে ঝুঁকিপূর্ণ যৌনমিলনের ক্ষেত্রে কনডম ব্যবহার এবং মাদকদ্রব্য ব্যবহারের ক্ষেত্রে একই সূঁচ বহুজনে ব্যবহার না করে জীবাণুমুক্ত সূঁচ ব্যবহার করার বিভিন্ন কার্যক্রম কম বেশী সাফল্য লাভ করেছে। তবে এই কার্যক্রমগুলো এখনও ব্যাপক নয়। তাই প্রয়োজন আরো সমন্বিত এবং আরো ব্যপক কার্যক্রম যা আওতাভুক্ত করবে দেশের ঝুঁকিপূর্ণ আচরণযুক্ত প্রত্যেকটি নাগরিককে। এইচআইভি বিস্তার প্রতিরোধে কনডমের ভূমিকা অনস্বীকার্য। সুতরাং কনডম ব্যবহারের হার বাড়ানোর ক্ষেত্রে যে কারণগুলো প্রতিবন্ধক হিসেবে কাজ করছে সেই কারণগুলোকে যথাযথ পদক্ষেপের মাধ্যমে অপসারণ করা একান্ত প্রয়োজন।

এইচআইভি প্রতিরোধে ব্যাপক কার্যক্রম গ্রহণ বাংলাদেশের জন্য একটি রাজনৈতিক, সামাজিক এবং অর্থনৈতিক অঙ্গীকার বাহ্যিক দৃষ্টিকোণ থেকে বর্তমান পরিস্থিতিতে এই অঙ্গীকারকে মাত্রাতিরিক্ত মনে হতে পারে। কিন্তু আসন্ন এইচআইভি মহামারীকে প্রতিহত করতে হলে এই ব্যাপক কার্যক্রমের অঙ্গীকার অবশ্যই প্রয়োজন। বর্তমানে বাংলাদেশে এইচআইভি সংক্রমণের হার মহামারী সূচক বিপদজনক পর্যায়ের অনেক নীচে। তাই এখনই সময় দেশে সরকারের পাশাপাশি বেসরকারী ও প্রাইভেট সংস্থার কর্মীবৃন্দসহ সমাজের সকল স্তরের জনগণের সম্মিলিত উদ্যোগের মাধ্যমে এইচআইভি বিস্তার প্রতিহত করে বাংলাদেশকে এইচআইভি প্রতিরোধে সাফল্যের নিদর্শন হিসেবে বিশ্বে প্রতিষ্ঠিত করা।

এইচআইভি সার্ভিলেন্সের প্রধান সূচক সমূহের তালিকা

টেবিল ১ঃ বর্ধিত এইচআইভি সার্ভিলেন্সের তৃতীয় পর্যায়ের জরিপের প্রধান প্রধান সূচক সমূহ

সূচক	ভৌগলিক অবস্থান	ইনজেকশনের মাধ্যমে মাদকদ্রব্য ব্যবহারকারী	মহিলা যৌনকর্মী		রিক্সা চালক	ট্রাক চালক ও হেলপার	পুরুষ যৌনকর্মী	হিজরা	পুরুষ সমকামী
			ব্রথেল	ভাসমান					
এইচআইভি সংক্রমণের হার	কেন্দ্রীয়	১.৭	০.৩-০.৫	০.৫	–	০	০	–	০
	উত্তর-পশ্চিম	০	–	–	–	–	–	–	–
	দক্ষিণ-পূর্ব	–	–	–	০	–	–	–	–
	দক্ষিণ-পশ্চিম	–	০-০.৫	–	০	০	–	–	–
সিফিলিস সংক্রমণের হার	কেন্দ্রীয়	১৮.২	৩২.২-৪৩.২	৪২.৭	–	৫.৭	১৮.২	–	৫.৩
	উত্তর-পশ্চিম	৮.৬-১০.০	–	–	–	–	–	–	–
	দক্ষিণ-পূর্ব	–	–	–	৪.৫	–	–	–	–
	দক্ষিণ-পশ্চিম	–	২৭.২-৩২.১	–	৩.৭	৬.৬	–	–	–
গত সপ্তাহে অর্থের জন্য যৌনকর্মের হার	কেন্দ্রীয়	NQ	৯৯.৯	৯৮.৯	NQ	NQ	১০০	৯৮.৯	০
	উত্তর-পশ্চিম	NQ		–	–	–	–	–	–
	উত্তর-পূর্ব	–		–	–	–	–	–	৪১.৬
	দক্ষিণ-পূর্ব	–		৯৮.৮	NQ	–	–	–	–
গতমাসে অর্থের বিনিময়ে যৌনকর্মের হার	কেন্দ্রীয়	৩২.৮	NQ	NQ	৬৮.৬	৬৯.৪	১৬.৭	৭.১	৯১.০
	উত্তর-পশ্চিম	১৭.৭		–	–	–	–	–	–
	উত্তর-পূর্ব	–		–	–	–	–	–	৬১.৬
	দক্ষিণ-পূর্ব	–		NQ	৫৭.৫	–	–	–	–
সর্বশেষ পেশাদার যৌনকর্মে কনডম ব্যবহারের হার	কেন্দ্রীয়	২৩.৯	১৯.৯	২৮.৮	৪.১	৮.৭	২৮.৭	৩.৪	৭.৭
	উত্তর-পশ্চিম	১৩.৫		–	–	–	–	–	–
	উত্তর-পূর্ব	–		–	–	–	–	–	৩.৬
	দক্ষিণ-পূর্ব	–		১৮.৯	৬.০	–	–	–	–
গত সপ্তাহে সকল পেশাদার যৌনকর্মে নিয়মিত কনডম ব্যবহারের হার	কেন্দ্রীয়	১১.২	০.২	২.৩	২.৪	৫.৫	৪.১	১.০	৩.১
	উত্তর-পশ্চিম	৯.৬		–	–	–	–	–	–
	উত্তর-পূর্ব	–		–	–	–	–	–	১.২
	দক্ষিণ-পূর্ব	–		১.৯	৬.০	–	–	–	–
বর্তমানে ইনজেকশনের মাধ্যমে মাদকদ্রব্য ব্যবহারের হার	কেন্দ্রীয়	১০০	০.১	১.৯	৮.৯	০.৩৫	৪.৬	০.৫	০.৬
	উত্তর-পশ্চিম	১০০		–	–	–	–	–	–
	উত্তর-পূর্ব	–		–	–	–	–	–	০.৬
	দক্ষিণ-পূর্ব	–		১.৪	০	–	–	–	–
গতমাসে মাদকদ্রব্য গ্রহণে বহুজন একই ইনজেকশন সরঞ্জাম ব্যবহারের হার	কেন্দ্রীয়	৯৩.৪	NQ	NQ	NQ	NQ	NQ	NQ	NQ
	উত্তর-পশ্চিম	৬১.৯		–	–	–	–	–	–
	উত্তর-পূর্ব	–		–	–	–	–	–	NQ
	দক্ষিণ-পূর্ব	–		NQ	NQ	–	–	–	–
যৌনবাহিত রোগের জন্য চিকিৎসা প্রার্থীর হার *	কেন্দ্রীয়	৩৪.৫	৬৭.৬	৪৬.৪	৩৫.৮	২৬.৭	১৫.৯	৩.৭	২০.৫
	উত্তর-পশ্চিম	২৫.০		–	–	–	–	–	–
	উত্তর-পূর্ব	–		–	–	–	–	–	১৭.২
	দক্ষিণ-পূর্ব	–		১৬.২	২৫.৬	–	–	–	–

– = সার্ভিলেন্সের আওতাভুক্ত ছিল না

NQ = প্রশ্ন করা হয়নি

* = যৌনবাহিত রোগের জন্য ক্লিনিক, হাসপাতাল অথবা প্রাইভেট ডাক্তারের কাছে চিকিৎসা প্রার্থনা

Executive summary

Since HIV first emerged 20 years ago, it has spread relentlessly around the globe. Bangladesh has been spared so far, but the sexual and drug-taking behaviours that carry a risk of HIV infection exist in this country just as they do in most others.

Information from the latest round of HIV surveillance in Bangladesh show that infection rates remain low, but it is now clear that this situation will not continue unless there are radical reductions in risk behaviour. Sex workers in Bangladesh report among the highest number of partners per week in Asia, and condom use is lower here than in any other Asian country in which it has been measured.

Other countries in Asia have recently reported very sharp rises in infection with HIV, the virus that causes AIDS, after years of relatively low rates. Indonesia, the world's largest Muslim-majority nation, has recently seen HIV shoot up from virtually nothing to between 8 and 26 percent in various sex worker populations. This even though Indonesian sex workers report fewer clients and more condom use than their counterparts in Bangladesh.

Among drug injectors too, HIV has risen sharply in Asia. No drug injectors in the northern Vietnam city of Haiphong were infected with HIV just two years ago. Now, HIV prevalence in this group has risen above 60 percent. Since new data confirm that drug injectors in Bangladesh share needles even more frequently that they do in Vietnam, similar rises are inevitable here at some point in the future, unless needle sharing falls drastically.

The information now available should set alarm bells ringing for Bangladesh. The good news is that because HIV rates in the country are still low for now, we have a real opportunity to decrease risky behaviour before the virus has a chance to take hold. Already, small scale prevention programmes working to reduce unprotected sex and needle-sharing are having some success in our country. These programmes need to be greatly expanded to cover a wider range of people engaging in risky behaviour. And they need to attack the background factors which make it so difficult to increase condom use in commercial sex through among others involving the sex trade establishments and the clients of sex workers.

The political, social and logistic challenges in increasing HIV prevention activity in our country may seem overwhelming. But if they are undertaken now, while HIV prevalence is still low, an HIV/AIDS epidemic may be averted. The leaders and people of Bangladesh have an opportunity to turn this country into a success story for HIV prevention.

Table of key Indicators

Table 1: Key indicators from the third round of sero and behavioural surveillanc for HIV

Indicator	Geographic Location	IDUs (out of treatment)	Brothel sex workers	Street sex workers	Rickshaw pullers	Truckers	Male sex workers	Hijra	Male having sex with male
% HIV infection	Central	1.7	0.3-0.5	0.5	-	0	0	-	0
	Northwest	0	-	-	-	-	-	-	-
	Southeast	-	-	-	0	-	-	-	-
	Southwest	-	0-0.5	-	0	0	-	-	-
% Syphilis infection	Central	18.2	32.2-43.2	42.7	-	5.7	18.2	-	5.3
	Northwest	8.6-10	-	-	-	-	-	-	-
	Southeast	-	-	-	4.5	-	-	-	-
	Southwest	-	27.2-32.1	-	3.7	6.6	-	-	-
% selling sex in the last week	Central	NQ	99.9	98.9	NQ	NQ	100	98.9	0
	Northwest	NQ		-	-	-	-	-	-
	Northeast	-		-	-	-	-	-	41.6
	Southeast	-		98.8	NQ	-	-	-	-
% buying sex in the last month	Central	32.8	NQ	NQ	68.6	69.4	16.7	7.1	91
	Northwest	17.7		-	-	-	-	-	-
	Northeast	-		-	-	-	-	-	61.6
	Southeast	-		NQ	57.5	-	-	-	-
% condom use at last commercial sex	Central	23.9	19.9	28.8	4.1	8.7	28.7	3.4	7.7
	Northwest	13.5		-	-	-	-	-	-
	Northeast	-		-	-	-	-	-	3.6
	Southeast	-		18.9	6	-	-	-	-
% consistent condom use in all commercial sex last week (IDU last month *)	Central	11.2	0.2	2.3	2.4	5.5	4.1	1	3.1
	Northwest	9.6		-	-	-	-	-	-
	Northeast	-		-	-	-	-	-	1.2
	Southeast	-		1.9	6	-	-	-	-
% currently injecting drugs	Central	100	0.1	1.9	8.9	0.35	4.6	0.5	0.6
	Northwest	100		-	-	-	-	-	-
	Northeast	-		-	-	-	-	-	0.6
	Southeast	-		1.4	0	-	-	-	-

Indicator	Geographic Location	IDUs (out of treatment)	Brothel sex workers	Street sex workers	Rickshaw pullers	Truckers	Male sex workers	Hijra	Male having sex with male
% sharing injecting equipment last week	Central	93.4	NQ	NQ	NQ	NQ	NQ	NQ	NQ
	Northwest	61.9		-	-	-	-	-	-
	Northeast	-		-	-	-	-	-	NQ
	Southeast	-		NQ	NQ	-	-	-	-
% seeking treatment for STDs **	Central	34.5	67.6	46.4	35.8	26.7	15.9	3.7	20.5
	Northwest	25		-	-	-	-	-	-
	Northeast	-		-	-	-	-	-	17.2
	Southeast	-		16.2	25.6	-	-	-	-

- = group not included in the surveillance

NQ = not questioned

* = Based on question "Did you use condoms for commercial sex last month with all, most, some or none bouts". All data for other groups were obtained through comparing the number of all penetrative sex acts with the number of condoms used for those acts.

** = clinic, hospital or private doctor as first choice for treatment of STD

Introduction

Since HIV first emerged 20 years ago, it has spread relentlessly around the globe. Bangladesh has been spared so far, but the sexual and drug-taking behaviours that carry a risk of HIV infection exist in this country just as they do in most others.

In 1998, the government of Bangladesh set up a surveillance system to track those behaviours, as well as to look for HIV and other diseases which can be spread by sex and unsafe injection, such as syphilis and hepatitis.

The surveillance system is now entering its fourth year. This document summarises the data from the third round, completed earlier this year. It describes the level of HIV infection in different occupational and behavioural groups - rickshaw pullers, sex workers and drug users for example - and examines how much risky behaviour exists within those groups. It also examines the links between people with different pictures of risk behaviour.

The picture that emerges is worrying: while prevalence of HIV is low, risk behaviour is common, at least in some groups. Experiences from other countries -- described briefly in this document -- highlight the dangers for Bangladesh. In Indonesia, for example, HIV prevalence remained low for many years despite plenty of risky behaviour. In the past year or two that has changed, and HIV is now skyrocketing in several parts of the country.

Will Bangladesh follow the same path? It depends on how the country responds to the information presented in this report. In the last decade, several countries whose governments and communities have acted strongly to prevent HIV through the provision of means, services and skills, have recorded sharp falls in risk behaviour, and a few have also measured falls in HIV prevalence.

This document draws lessons from the successes of those countries, and makes suggestions about the action we in Bangladesh can take to decrease risky behaviour and prevent an HIV epidemic in Bangladesh.

Where do the data come from?

The data presented in this report come largely from the third round of sero and behavioural surveillance for HIV in Bangladesh, which was conducted between July 2000 and June 2001.

HIV surveillance systems aim to track changes over time in the prevalence of the virus and in the behaviours that can spread it. They concentrate on collecting information from populations likely to have behaviours that carry a substantial risk for HIV infection. In Bangladesh we conduct sero and/or behavioural surveillance among groups of men who may be clients of sex workers (rickshaw pullers, truck drivers, dock workers and patients being treated for sexually-acquired infections), male and female sex workers and hijras, men who have sex with men and injecting drug users. A full list can be found in

Table 3 on page 27.

In sero surveillance, members of the populations of interest are actively contacted through NGOs and encouraged to give blood for screening. Passive sample collection is done for STD patients and IDU in detoxification centres. The sample they give is split in two: one can be traced to the donor and is tested for syphilis, and treatment is given if necessary. The other is unmarked and cannot be traced to the donor. This is screened for HIV infection. All the blood samples from different sites are collected and tested by ICDDR,B: Centre for Health and Population Research, Bangladesh.

While behavioural surveillance tries to cover the same groups, it is not restricted to people attending clinics or involved in NGO interventions. Usually, the population in question is mapped, and a random selection of its members are asked questions about their sexual and drug injecting activity by a trained member of that same group, under the supervision of professional researchers.

Because both the sero and behavioural surveillance are strictly anonymous, it is not possible to identify whether or not an individual has been included in both the components of the surveillance system.

What can surveillance data tell us?

Sero-surveillance in combination with the behavioural surveillance can build up a picture of the national epidemic and response. The information can help to describe risky behaviours and quantify levels of risk in a population, providing an early warning for public health officials and demonstrating the need for prevention activities in different groups.

Surveillance data can also be used to help plan those prevention activities and, over time, to indicate whether the national response to HIV is working or not.

Where is it going?

In the last two decades, we have learned a great deal about the way this virus works. It spreads in only a limited number of ways - mostly through unprotected sex or unsafe injecting. It spreads fastest among those who have unprotected sex with a large number of sexual partners -- especially if they have untreated sexual infections -- among those who engage in especially risky practices such as anal sex, and among those who share injecting equipment such as syringes and needles with other people.

These are behaviours that we can measure. Where substantial levels of risk exist, HIV will inevitably follow, even if it takes some time to appear. By looking at current levels of HIV, at levels of other diseases spread through the same behaviours, and at levels of risk behaviour in a population, we can forecast what is likely to happen if no action is taken to change the course of the epidemic.

HIV prevalence is currently low

The Bangladesh HIV surveillance system has been praised in many international fora. It is a very active system focused on anonymous testing of people with risky sexual or drug-taking behaviour. To date the system reveals very low levels of HIV infection. However, people from a higher economic status with risky behaviour, are not being sampled, as they are not accessible.

Among over 400 clients of a needle exchange programme in Central Bangladesh, 1.7 percent tested positive in the latest round of surveillance. This was the highest rate recorded in any population anywhere in the country. Among 600 drug injectors tested anonymously in the Northwest, no HIV infections were found.

No more than 0.5% of sex workers in brothels in eight sites throughout the country was found to be HIV-infected. No samples taken from men who have sex with men, including male sex workers, or from dock workers, truckers or rickshaw pullers were found to be HIV positive. Only one infected sample was found in blood taken from a group of several hundred patients with sexually transmitted diseases.

These levels of HIV infection are extraordinarily low by the standards of South Asia and, indeed, the world. Does this mean that Bangladesh is safe from HIV?

A look at the behavioural data suggests not.

Risky behaviour is very common, at least among some Bangladeshis

Behavioural surveillance aims to track knowledge about HIV and attitudes towards it over time, and concentrates especially on measuring changes in the sexual and drug-taking behaviours which can spread the virus.

Many people do not even know they are at risk

In many countries throughout the world, the "knowledge" battle has been won. High proportions of men and women know about HIV and how to prevent it. Among people especially at risk of exposure to HIV -- such as sex workers and their clients -- knowledge is virtually universal.

This is NOT the case in Bangladesh. As Figure 1 shows, phenomenally high proportions of respondents in several groups could not even name the basic routes through which AIDS is spread.

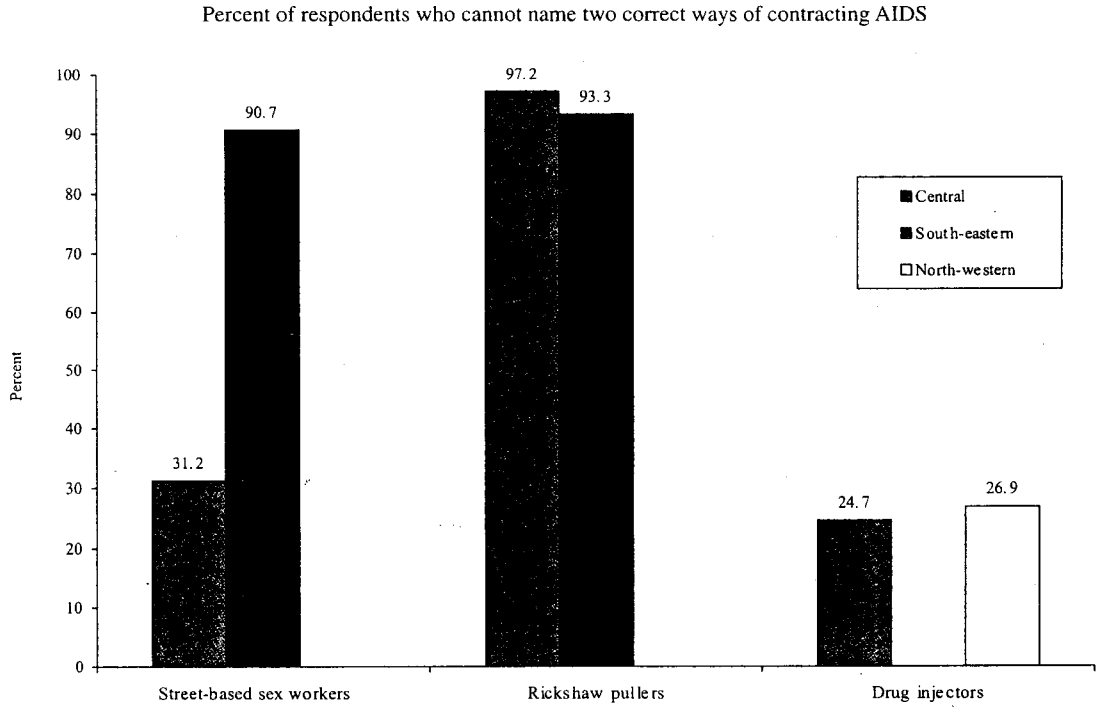

Figure 1: Most people can't even name the basic ways AIDS is spread

While knowledge does not lead automatically to safer behaviour, it is hard to see how people can act to protect themselves from HIV if they do not even know it exists. Note, however, that the ignorance is not universal. Street-based sex workers in Central Bangladesh and drug injectors in both the centre and the Northwest are far better informed than other groups. This is at least in part because the National AIDS/STD programme and its partners have active HIV prevention programmes aimed at increasing people's ability to protect themselves against the virus in the better-informed populations.

"Very high proportions could not even name the basic ways that HIV is spread"

Men who buy sex and women who sell it: many partners, not many condoms

All over the world, men are prepared to pay women for sex, and where there is demand, there will always be supply. In Bangladesh, sex work has many faces. Women work in brothels, in hotels and in their own homes, they meet clients on the streets or at massage parlours, beauty parlours, or over the telephone.

Clients are equally diverse. They range from the unemployed, labourers and transportation workers to students, civil servants and businessmen. Some are married, and many have very high numbers of sex partners, both paid and unpaid. Rickshaw pullers and truckers reported an average of six to 10 partners a year, for example.

Many of these men -- and the women that serve their needs - have one thing in common. They do not use condoms when buying or selling sex. Men rarely report condom use at all, and as Figure 2 shows, virtually all sex workers report at least some sex without condoms with their clients.

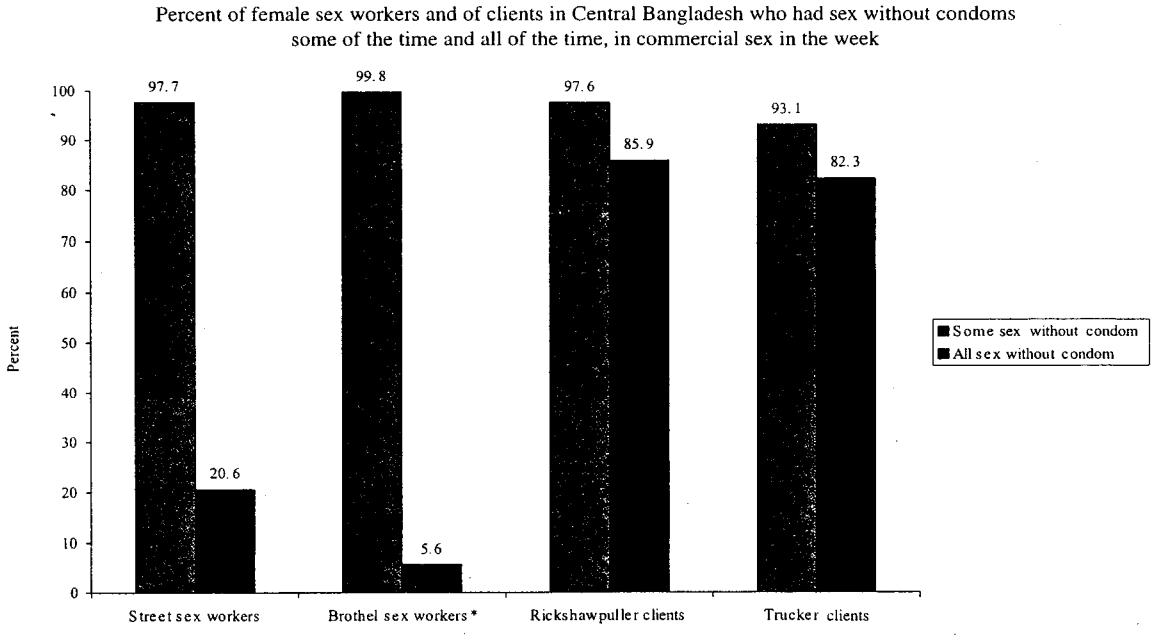

Figure 2: Most men don't use condoms when buying sex in Bangladesh
**** Nationally representative***

The gap between sex workers' responses and their clients responses is explained by the fact that a relatively small number of women serve a relatively large number of clients. Their chances of encountering at least one client who uses a condom is therefore high, even if only a small proportion of men use condoms.

At an average of 18.8 clients a week, sex workers in Bangladesh brothels report among the highest turnover of partners anywhere in Asia, and among hotel-based sex workers it is higher still, averaging 44 clients a week[i]. This is extremely important, because it means that once a woman does contract HIV from a client, she can pass it on to a large number of other people very quickly if condom use remains low. And it is worth noting that current levels of condom use are low by any standards: almost everyone buying sex in Bangladesh is having unprotected sex some of the time, and a large majority are having unprotected sex most of the time.

Sex workers in Bangladesh have more partners than anywhere else in Asia

Many men have sex with men, and some sell it too

There is also a trade in sex between males. Hijras and other males sell sex to a wide range of clients, and men have sex with one another without payment, too. Over one rickshaw pullers in 10 in South-eastern Bangladesh and one in seven in central Bangladesh said he has had sex with a hijra or other male in the last month, and among tuckers it was close to one in five.

Almost everyone buying sex in Bangladesh is having unprotected sex some of the time, and a large majority don't use condoms most of the time

Over 90 percent of these men say they did not always use condoms in these encounters. Figure 3 shows condom use in recent sex between males. The darkest part of the bar represents those who never used condoms in these encounters. The lightest part - the tiny area on the right -- represents those who always used condoms.

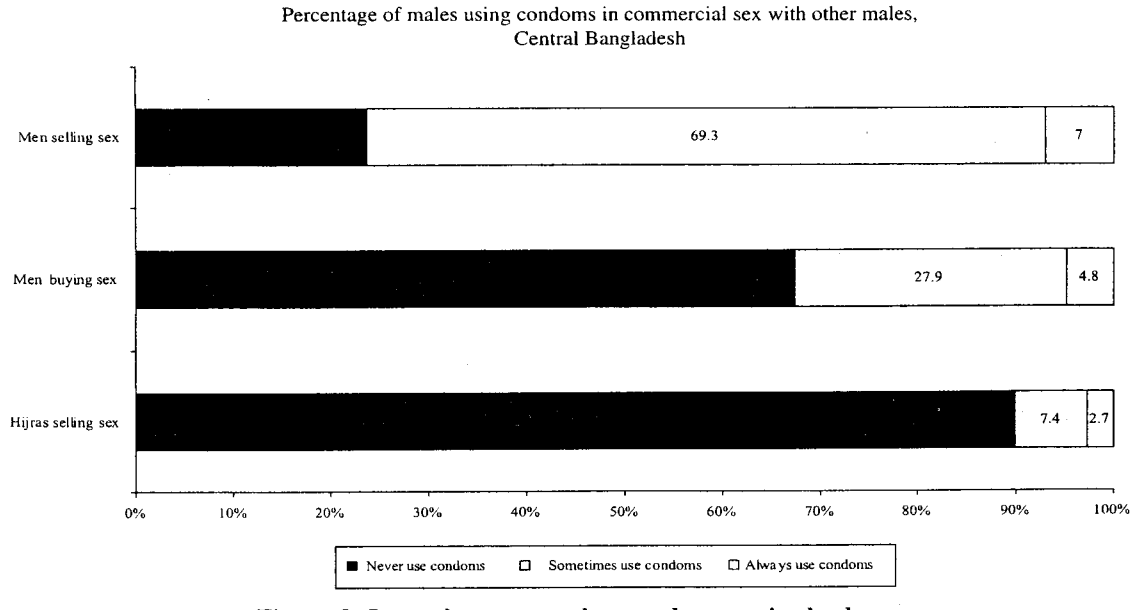

Figure 3: In sex between males, condom use is also low

i. A Situational Assessment of the Hotel-based Sex Trade in Dhaka, Bangladesh, Family Health International, 2001.

Men who have sex with other men also have a large number of partners. Those males that sell sex, including hijras, average between eight and 11 clients a week. And nine out of 10 men who don't sell sex (but still have sex with other men) reported 20 or more sex partners in the last year.

Needle sharing is routine among drug injectors

Sharing needles and syringes with an infected person is one of the most efficient ways of spreading HIV. Experience around the world - in countries as diverse as India, Scotland, Thailand and Russia - has shown that once HIV enters a drug injecting network, it can infect half of all injectors in two years or less if needle sharing is common.

In Bangladesh, needle sharing is more than common: it is the rule, at least in some parts of the country. In Central Bangladesh, 93.4 percent of over 500 drug injectors questioned said they had shared needles or injecting equipment in the past week, though nearly a third said they had some access to a needle exchange programme. In North-western Bangladesh, those who got some clean needles from an NGO programme were far less likely to share needles than other injectors, as Figure 4 shows, but sharing rates were still unacceptably high.

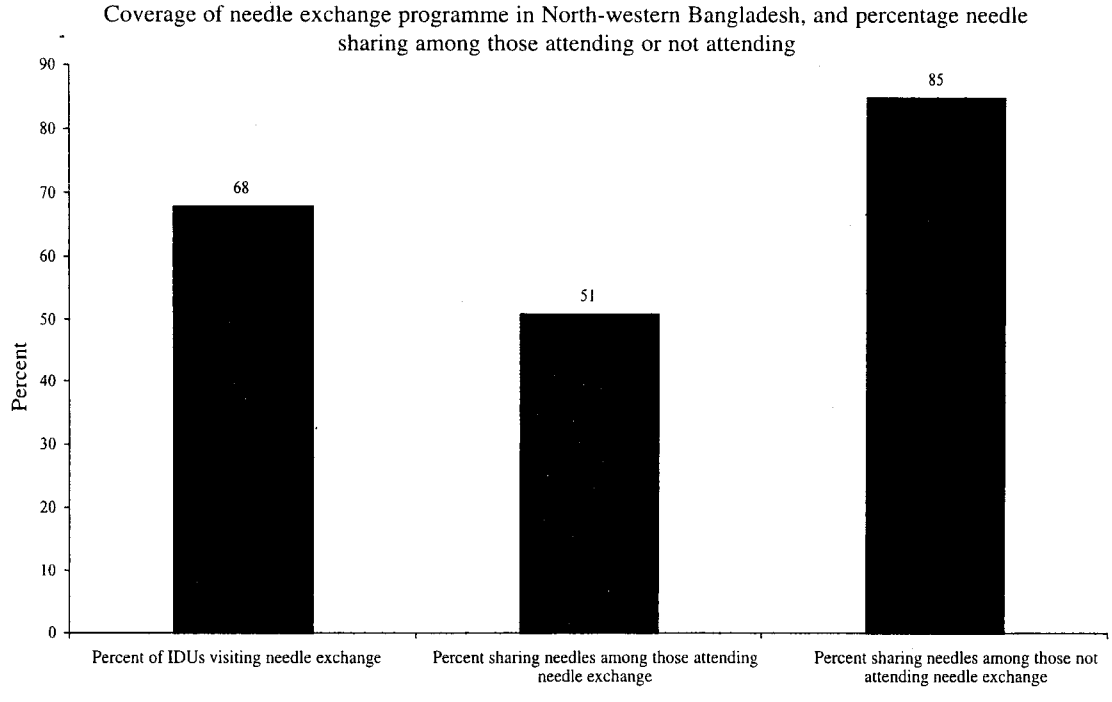

Figure 4: People who use needle exchange programmes are less likely to share injecting equipment, but sharing is still high

How many people engage in these behaviours?

Tentacles of risk may reach further than we assume

It is important to stress that the groups included in the surveillance system are chosen precisely because it is believed they are likely to have high risk behaviour. Rickshaw pullers in South-eastern Bangladesh or men who have sex with men in Central Bangladesh are no more representative of all men in Bangladesh than sex workers are of all women, or injecting drug users are of all young people.

A majority of married men reported unprotected sex with a sex worker, a street girl, a hijra or another man in the past month, even though almost all had sex with their wives.

At the moment, it is not possible to estimate what proportion of the total population engages in one or more of the risks described in this summary. What is clear, however, is that many people may be exposed to high risk behaviour even when they themselves do not engage in it.

The wives of men who visit sex workers are only the most obvious example. As Figure 5 shows, a majority of married men reported unprotected sex with a sex worker, street girl, a hijra or another man in the past month, and several also reported injecting drugs. Almost all of these men had had sex with their wives in the last week. Even if none of these women have any risk behaviour besides having sex with their husbands, a total of two thirds are exposed to the risk of sexually transmitted diseases, HIV and Hepatitis through their husband's behaviour.

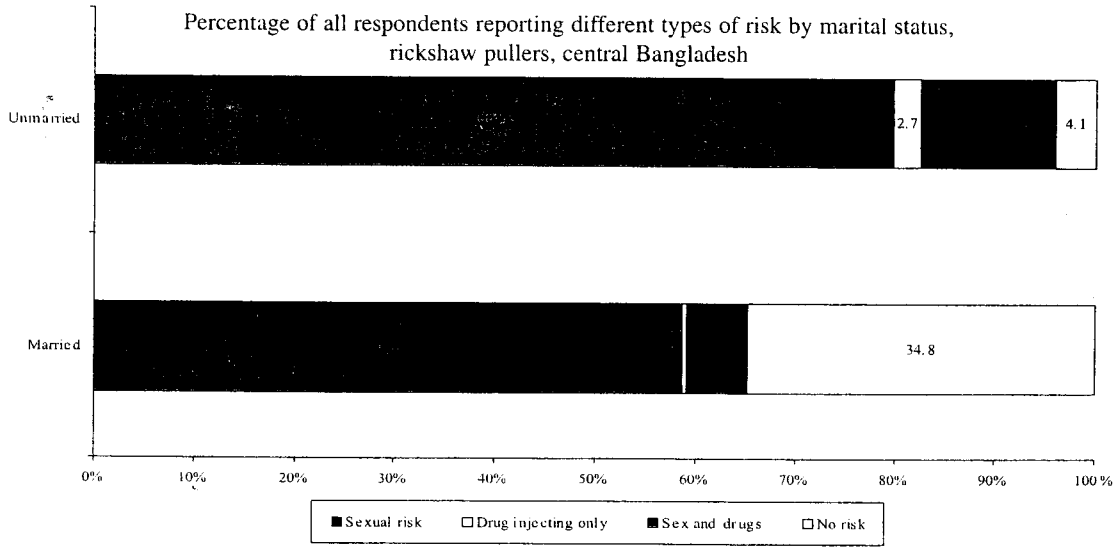

Figure 5: Even married men have very high levels of risky behaviour

Other examples come from drug injectors and from sex workers, both male and female. Most people don't think about the risks associated with drug injection, because they don't inject drugs and don't know anyone who does. But drug injectors are part of the fabric of our society: they buy sex from the same sex workers, and sometimes sell sex and blood, too. Male injectors are often married to women who don't inject, and some have other girlfriends. Figure 6 gives an idea of the extent of behaviours potentially linking non-injectors to injectors: these are all channels through which HIV can pass.

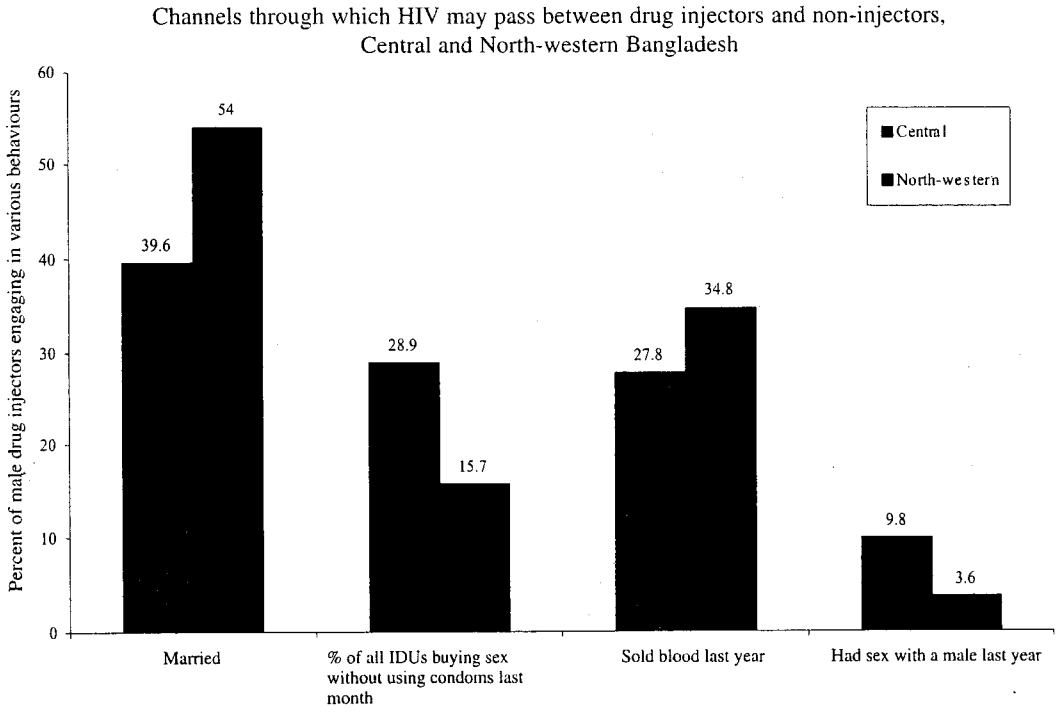

Figure 6: Drug injectors are not an isolated population

Although drug injection in Bangladesh remains overwhelmingly a male pursuit, some female sex workers -- particularly those based on the streets-reported that they injected drugs. In some countries in the Asian region, notably in Vietnam and China, injecting drug use among female sex workers has fuelled the heterosexual epidemic.

Male sex workers are around twice as likely to report drug injection as female sex workers. They, too, report a wide network of risk, which has the potential to spread HIV well beyond the community of men who have sex with men. Virtually all male sex workers used a condom occasionally when selling anal sex, but almost none used condoms all the time. Male sex workers also bought sex, from women, men or hijras. And men who have sex with other men pay women as well as men for sex, too. As Figure 7 shows, over 40 percent of men bought sex from both men and women in the last month alone.

Percent of men who have sex with men by the types of partners they bought sex from, North-eastern Bangladesh

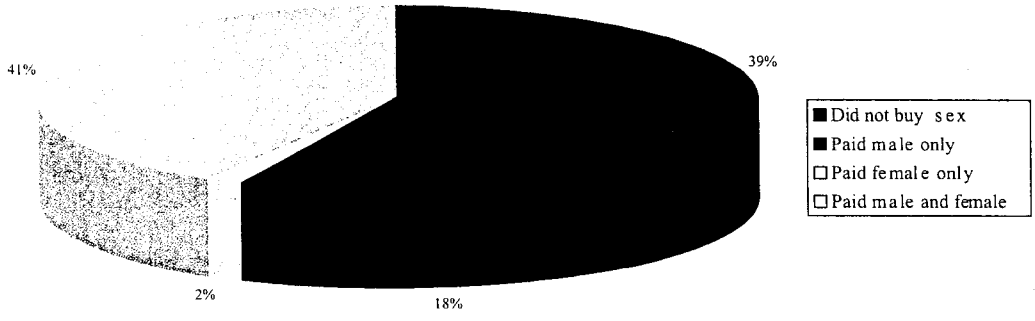

Figure 7: Many men who have sex with men also go to female sex workers

Anal sex - the most common sexual practice between males - carries a high risk of membrane trauma, which helps HIV to spread easily in anal sex. If HIV begins to spread rapidly among men having sex with men, Figure 7 suggests it may also spread rapidly into the population of female sex workers. Most of these women probably don't know that their clients are also having sex with men. Other male clients buying sex from women will almost certainly feel far removed from any threat posed by HIV among men who have sex with men. And yet they, too, are linked in to this network.

Are people really telling the truth about all this risk?

Many people believe that the data must somehow be flawed. Perhaps people are boasting about their number of sexual partners, or understating condom use? If there really were so much risky behaviour, how come there is no HIV epidemic?

Risk behaviour existed for many years in many populations around the world before HIV appeared. For generations, it has left signs and symptoms other than the virus that causes AIDS. If risky sexual behaviour really is taking place in a population, we can expect to see high levels of "classic" sexually transmitted diseases such as syphilis. Drug injectors sharing needles are also vulnerable to other blood-borne infections such as Hepatitis C.

Respondents in behavioural surveillance report very high levels of sexual infections. In brothels throughout the country, for example, three quarters of women say they are currently suffering from a sexually transmitted infection, and among male sex workers over half reported an infection. Among rickshaw pullers, truckers and men who have sex with men, between 12 and 29 percent report symptoms of a current sexual infection.

These again are self-reported data. But the HIV surveillance system in Bangladesh also includes laboratory measures of syphilis, and in some rounds Hepatitis C, a disease easily spread through shared needles. These physical markers -- which are measured in the same

groups as the behavioural indicators but not necessarily the same individuals -- confirm the high levels of risk reported by respondents, as Table 2 shows.

Table 2: Hepatitis C and syphilis rates, selected populations

	N	Syphilis (3rd round)	Hepatitis C (2nd round)
Drug injectors, North-western needle exchange programme	416 (round 2) 397 (round 3)	8.6 %	59.6 %
Drug injectors, Central needle exchange programme	418 (round 2) 401 (round 3)	18.2 %	66.5 %
Female sex workers, Central street-based	419	42.7 %	-
Female sex workers, Central brothel-based	384	43.2 %	-
Female sex workers, South-eastern brothel-based	335	27.2 %	-
Male sex workers, Central	310	18.2 %	-
Men having sex with males, Central	399	5.3 %	-
Truckers, Southwest	392	6.6 %	-
Rickshaw pullers, Southeast	400	4.5 %	-

These high rates of syphilis are worrying for three reasons. Firstly, syphilis is a health problem in its own right, causing sickness and congenital disorders. Secondly, these prevalence rates confirm that unprotected sex with multiple partners is indeed a norm at least for some sub-sections of the Bangladeshi population. And thirdly, because infection with other sexually transmitted diseases greatly increases the efficiency of HIV transmission, high syphilis rates means HIV will spread more quickly when it does enter the population.

The evidence suggests that unless risk changes, it's just a matter of time before HIV rises significantly in Bangladesh

For years, many countries that have seen no HIV epidemic have thought that they were somehow "protected" by their culture or other physiological factors. This has been true even where behavioural surveillance has shown consistently high levels of risk

behaviour. There are, indeed, some cultural/physiological factors, such as widespread male circumcision, that can slow the onset of an epidemic. One by one, however, the "low HIV" countries of Asia are falling to the virus: China, Nepal and Vietnam are all examples of countries that have recently registered sharp increases in HIV infection in some groups.

Another example in the Asian region is Indonesia, the world's most populous Muslim majority country. Like Bangladesh, Indonesia for many years registered very low levels of HIV infection even in groups with documented high risk behaviour, such as sex workers. Stubbornly low condom use in commercial sex did not matter: the country seemed immune to the virus.

Sadly, that comfortable picture is a thing of the past.

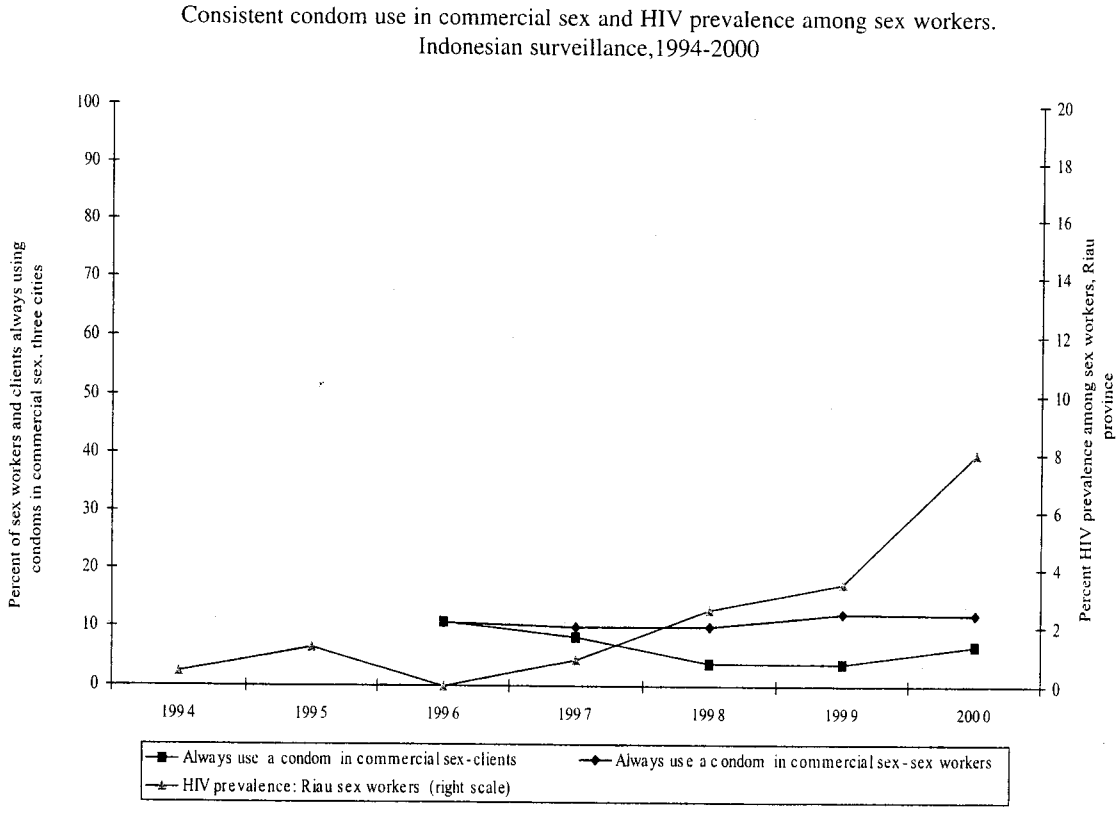

Figure 8: In Indonesia, low condom eventually led to sharp rises in HIV
Source: Indonesian AIDS Control Board

As Figure 8 shows, years of risky behaviour in commercial sex in Indonesia have eventually led to a "take-off" in HIV prevalence. It turns out that Indonesia was not protected by its culture, its traditions or its geography: it was only protected by time, and time has now run out.

Another example comes from closer to home. West Bengal province in India has recorded relatively low levels of HIV infection for several years. Sex workers report far higher levels of condom use in West Bengal than they do in Bangladesh, although it is likely that some over-reporting is occurring, since clients of sex workers report roughly similar levels of sexually transmitted disease symptoms in both places. Comprehensive behavioural surveillance is in its infancy in the Indian state, but data from West Bengal show that HIV prevalence among sex workers has risen to 6% confirming that West Bengal now has a concentrated epidemic [ii]. The latest sentinel surveillance data also reveals that the median HIV prevalence in STD clinic attendees in West Bengal have also increased over time (0.63% in 1998; 1.42% in 1999 and 1.96% in 2000) [iii].

The lesson that low prevalence in the past does not mean low prevalence in the future is universal. But the experience of West Bengal may have more direct implications. Hundred of thousands of people cross the border between West Bengal and Bangladesh every year, and some will engage in behaviours that may transmit HIV infection on both sides of the border.

So far we have seen that although HIV is currently low in Bangladesh, risk behaviour and other biological markers of risk are high. All the available data suggest that only time is protecting Bangladesh from a rapid rise in HIV among those with risk behaviour. We must use that time wisely if we are to change the course of the epidemic.

Low HIV prevalence in the past does not mean low HIV prevalence in the future

ii. Distribution of HIV-1 subtypes in female sex workers of Calcutta, India by Mandal D et al, Indian Journal of Medical research 112, November 2000, pp 166-172

iii. Annual sentinel surveillance for HIV infection in India 2000, Report for National AIDS Control Organisation by the National Institute of Health and Family Welfare. Information obtained through Dr. Samiran Panda.

Learning from experience:

Building on the lessons of the past

If the likely course of the HIV epidemic in Bangladesh is clear, so are the paths that can help turn the nation away from that course. Several countries in the Asian region have begun actively to confront the HIV epidemic, and valuable lessons have been learned. In Bangladesh, we can profit from one of the most important of these lessons: the earlier prevention programmes are instituted, the more effective they are likely to be.

Lesson one: effective early action is essential

The government of Bangladesh recognised that it is easier to keep HIV prevalence low than to try to reverse the course of the epidemic once it has taken hold. It therefore acted early by establishing the National AIDS Committee in 1984 and developing a National Policy in 1996. Recently, a safe blood transfusion programme was launched. However, although a Behaviour Change Communication Strategy is in place and a large number of NGOs are working to promote condom use, condom use continues to remain low as the surveillance data show.

Another example of a country that acted early is Laos. Laos is locked in by nations with already high or rapidly rising HIV epidemics: Thailand, Cambodia and Vietnam. The HIV situation is not dissimilar to Bangladesh: while there was no active HIV surveillance system in the 1990s, case reports registered only a tiny handful of infections, mostly in migrant workers returning from neighbouring Thailand.

The Laos government backed an aggressive condom marketing campaign. By the time the first round of integrated surveillance took place in 2000, men buying sex and women selling it both reported extraordinarily high rates of condom use, as Figure 9 illustrates. Active HIV surveillance conducted in 2000 found virtually no HIV in these groups. If the reported rates of condom use reflect the truth, and if those rates can be sustained over time, it is likely that the heterosexual spread of HIV will have been permanently averted in Laos.

Condom use in commercial sex : sex worker reports and client reports, Bangladesh, Laos, Vietnam, 2000

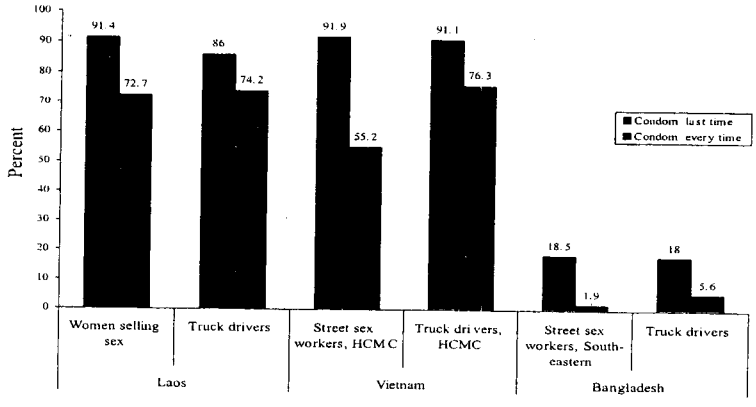

Figure 9: Condom use has reached very high levels in other countries, including countries like Laos with very low HIV prevalence
(Source: National surveillance data, Bangladesh, Vietnam and PDR Laos)

Figure 9 shows similar success in increasing condom use in commercial sex in Ho Chi Minh City, in

Vietnam. But Vietnam did not begin effective HIV prevention efforts until much later. Surveillance data show that one sex worker in five in the city is already infected with HIV. This late start has important implications for the epidemic: even though roughly the same levels of condom use have been achieved in these neighbouring Southeast Asian countries, sex workers and their clients are over 20 times as likely to have unprotected sex with an infected partner in southern Vietnam as they are in Laos, simply because a pool of infection was allowed to build up **before** condom use reached high levels.

Data from the third round of behavioural surveillance in Bangladesh are also shown in Figure 9. It is clear that only a very small fraction of those engaging in commercial sex are currently using condoms. It is imperative that this fraction increases radically before HIV takes hold in the country.

Many in Bangladesh would be forgiven for questioning these data: don't we have NGOs working on condom promotion in brothels here just as they do in Laos and Vietnam? Here lies the second lesson of the past.

Lesson two: effective prevention targets the context, not just the group

Many of the early HIV prevention activities in Bangladesh have focused on urging sex workers to use condoms with their clients. And indeed, sex workers are far more likely to ask their clients to use condoms now than ever before, as Figure 10 shows. Women are also more likely to have a condom on hand. And yet they are no more likely than before to report using condoms with all of their clients.

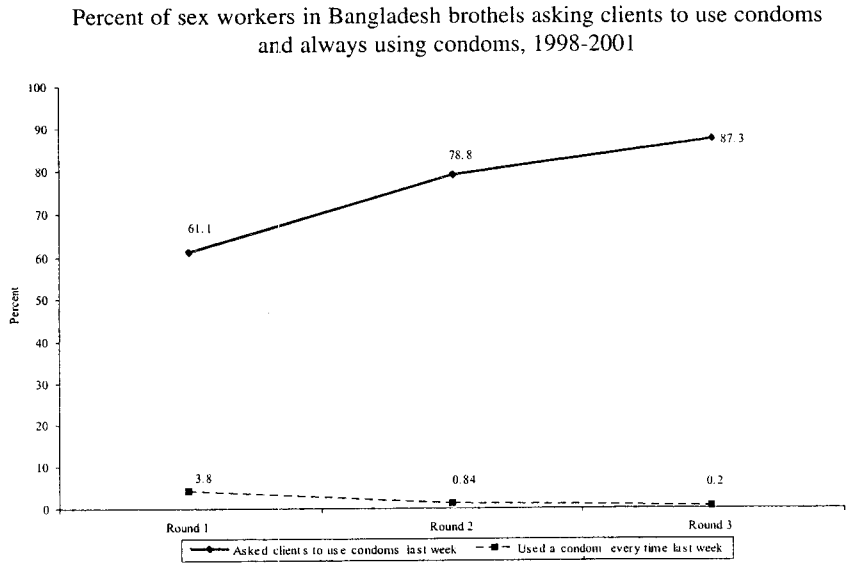

Figure 10: More sex workers in Bangladesh are asking their clients to use condoms, but condom use remains low

The implications are clear: sex workers are not the ones who decide whether or not they use condoms. Usually, the decision is left to the client, and pimps and brothel-owner sometimes have a say, too.

It is important that sex workers have the knowledge and the skills to negotiate condom use, but it is not enough. Short-term prevention efforts need to target both sides of the commercial sex equation, as well as its context. That means working with clients, brothel-owners, pimps and the police as well as with sex workers. It also means reducing the climate of violence which is a norm for sex professionals in Bangladesh. Over two thirds of female street-based sex workers and a fifth of male sex workers in Central Bangladesh reported being forced into having sex by both police and mastans in the past year. Hijras reported high levels of sexual violence, too.

Longer term prevention efforts should work on changing the social landscape which accepts violence as a norm and which deprives people -- especially women -- of choices in their working lives as well as their sexual and reproductive lives. Furthermore, all prevention efforts need a multi-sectoral approach with a recognition that only targeting risk behaviours and not vulnerability does not work.

Lesson three: effective prevention is possible, but programmes must reach large proportions of people at risk

There is clear evidence from Bangladesh itself that HIV prevention programmes can make a difference. Figure 11 shows information collected among street-based sex workers in South-eastern Bangladesh.

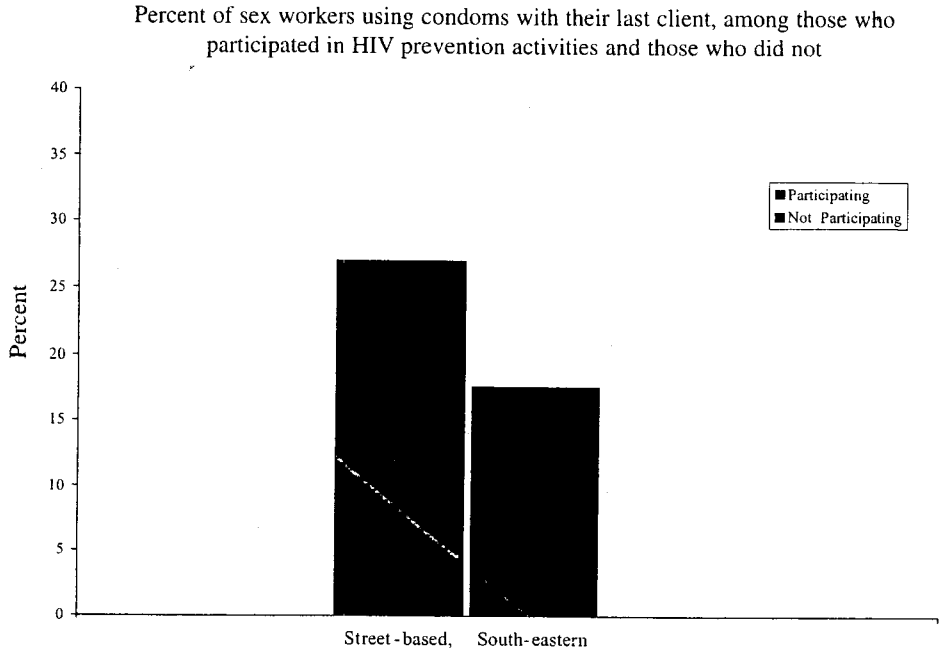

Figure 11: Sex workers participating in prevention programmes are more likely to use condoms with clients

Those who said they had participated in an NGO-led HIV prevention programme were more likely to have used a condom with their most recent client than those who had not participated. The problem is, however, that for example fewer than one in ten of the street based sex workers in South-eastern Bangladesh are currently being reached by prevention efforts.

As we saw earlier in this document, the networks of risk in Bangladesh are both complex and extensive. Effective prevention in just a small corner of the network may delay the takeoff of the epidemic, but the virus will eventually circumvent the "protected" group and take hold anyway.

This was powerfully illustrated in Nepal, where a needle exchange programme for drug users was started as early as 1991. For years, no rise in HIV prevalence was registered, and it appeared that the needle exchange programme had effectively prevented an HIV epidemic among drug injectors in Nepal. Indeed in 1995, a paper was published in a scientific journal declaring that harm reduction programmes had scored a victory and effectively prevented an HIV epidemic among drug injectors in Nepal [iv]. Between 1995 and 1997, approximately half of all injectors tested in the capital were infected with HIV[v], as Figure 12 shows. After much analysis, researchers and public health officials concluded that this was because the needle exchange programme was too small and too localised to make a permanent difference. Once HIV found its way into sharing networks, it just took off.

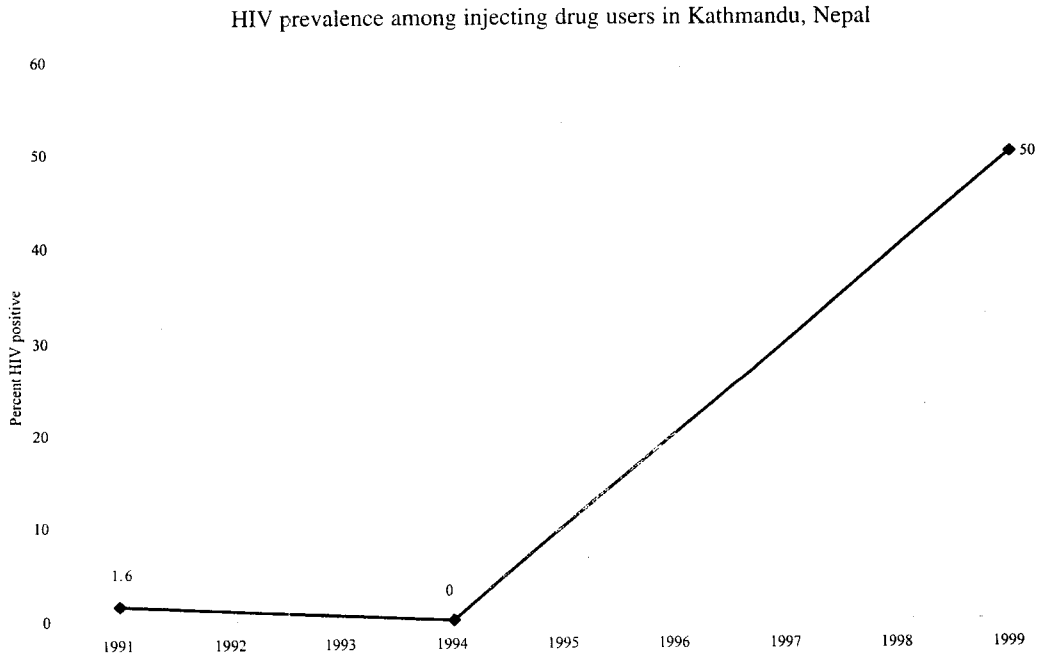

Figure 12: Needle exchange in Nepal was too little to prevent a rapid rise in HIV infection among drug users
Source: National Centre for AIDS and STD Control (NCASC), Ministry of Health, Nepal

iv Peak et al, 1995. AIDS 9:1067
v Oelrichs et al, 2000 AIDS 74:1149

Nepal's prevention efforts were on too small a scale, and didn't keep up with the rising number of drug users. This points to another lesson for effective HIV-prevention:

Lesson four: HIV prevention needs to be adapted and continued over the long haul

Even countries and communities that have registered major victories in cutting down on unsafe sexual and drug-taking behaviours have seen those victories reversed as soon as their prevention efforts slackened. Probably the best-known example comes from gay communities in industrialised countries. Here, prevention efforts were so successful that safe sexual behaviour became the new norm, and prevention programmes tailed off. The result of this, together with the availability of medicine to treat HIV (although not to cure it), has been a sharp upturn in risky sex. New generations of young men -- generations who don't remember the worst of the epidemic and who have not been exposed to aggressive HIV prevention campaigns - are resuming the risky behaviours of the past. The consequence: new HIV infections are rising again, after more than a decade of falling consistently.

Lesson five: political leadership is key

The concerted effort of a number of social, cultural and economic groups is important in ensuring success in the fight to keep HIV at bay. Realistically, however, we have to face the fact that these different groups rarely come together without the strong personal commitment of senior figures in society.

It is impossible to overstate the importance of political leadership in successful responses to HIV. The seeds of all of the "success stories" that are so much touted around the world – Uganda, Thailand, Senegal, Cambodia - can be found in the dedication and commitment of political leaders: President Yoweri Museveni in Uganda, Prime Ministers Anan Panyarachun of Thailand and Hun Sen of Cambodia, and the leaders of the Islamic faith in Senegal.

These leaders had the vision and the courage to acknowledge the realities of risk behaviour in their countries. They also had the ability to mobilise and disperse funds adequately and in a sustained way. Furthermore, they had the leadership skills to create a network into which they pulled a large number of partners, each with a contribution to make in preventing the spread of HIV and reducing its impact on those affected.

Opportunities for action

Towards a safer future for Bangladesh

The information presented in this document tell us several things:

- Behaviour that carries a risk for HIV is common in Bangladesh
- Networks of risk mean that epidemics will not be contained for long in any given sub-population
- Prevention efforts have shown some success in Bangladesh, but to date they are inadequate
- Time is still on our side, but that may not be the case for long

Together, this adds up to a single, central message:

Bangladesh has an unparalleled opportunity to avert a potentially serious HIV epidemic, if action is taken now.

What must happen to turn that opportunity into a reality? Again, the data presented in this document point to several things:

- Prevention programmes are needed to reduce the dangers of injecting drugs and of buying and selling sex
- These programmes must work to change the context in which these risks take place, rather than focusing on "risk groups" alone
- Prevention must happen on a large scale
- Programmes must be designed to be sustained over the long term
- The longer we wait to get effective, large-scale HIV prevention underway, the harder the task will be

Comprehensive HIV prevention is no small task, and it cannot fall to the Ministry of Health alone, much less to NGOs. Successfully reducing the risk associated with the sex industry and with drug-taking requires the active co-operation of many different groups. Government bodies in the health sector may take the lead, but they will need the support of communities engaging in risk behaviours and the organisations that represent them as well as of the educational and business sectors, the police force and religious leaders.

Strong political leadership and quick action will help Bangladesh take advantage of a opportunity to become one of the world's few success stories in HIV prevention.

Appendix

Table 3: Sampled groups in the serological and behavioural surveillance, 1998-1999, 1999-2000 and 2000-2001

Sampled groups in surveillance, 1998-1999, 1999-2000 and 2000-2001												
Group			Geographical location		1998-1999		1999-2000		2000-2001	
					Serology	Behaviour	Serology	Behaviour	Serology	Behaviour
IDUs	In-treatment		Central		✓		✓		✓	
	Out of treatment		Central			✓	✓	✓	✓	✓
			Northwest			✓	✓	✓	✓	✓
Sex workers	Males		Central			✓	✓	✓	✓	✓
	Females	Brothel	All			✓		✓		✓
			Central	A	✓		✓		✓	
				B	✓					
				C			✓		✓	
				D					✓	
			Southwest	A			✓		✓	
				B					✓	
		Street	Central		✓	✓	✓	✓	✓	✓
			Southeast					✓		✓
	Hijras		Central					✓		✓
MSM			Central		✓	✓	✓		✓	✓
			Northeast							✓
Truckers			Central		✓	✓			✓	✓
			Southwest						✓	
STD patients			Central		✓		✓			
			Northeast		✓				✓	
			Southeast		✓		✓		✓	
			Northwest		✓		✓		✓	
Rickshaw puller			Central							✓
			Southeast					✓	✓	✓
			Southwest						✓	
Dock workers			Southeast						✓	
			Southwest						✓	