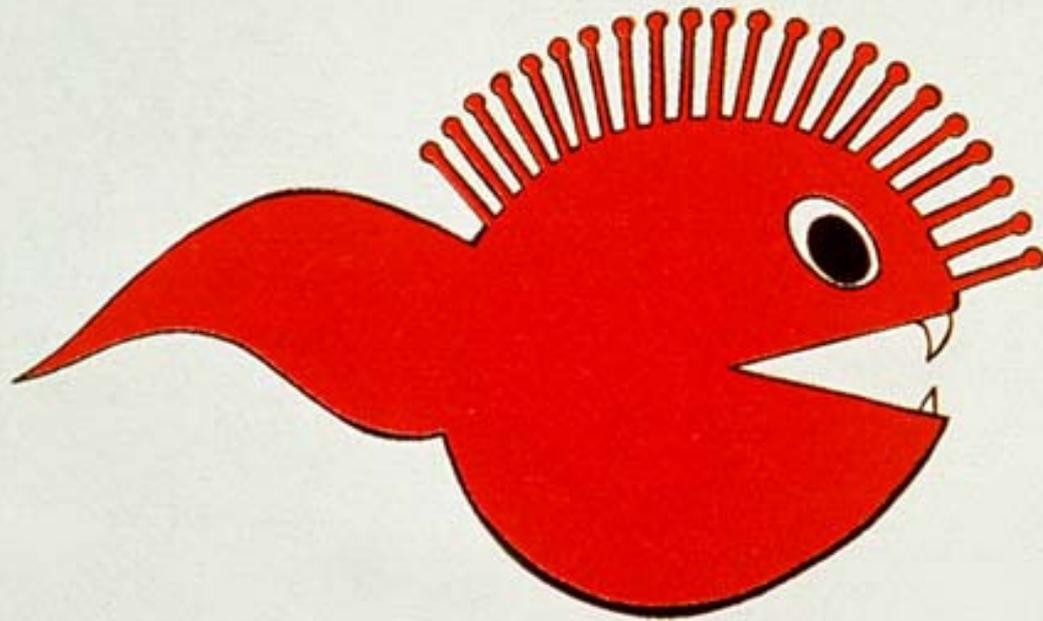


HIV and AIDS in India Challenges and Opportunities

Report to PACHA
29 June 2004

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The AIDS virus: This graphic was evolved in close interaction with commercial sex workers in Bombay under a collaborative effort of the Municipal Corporation of Greater Bombay, Xavier Institute of Communication and WHO



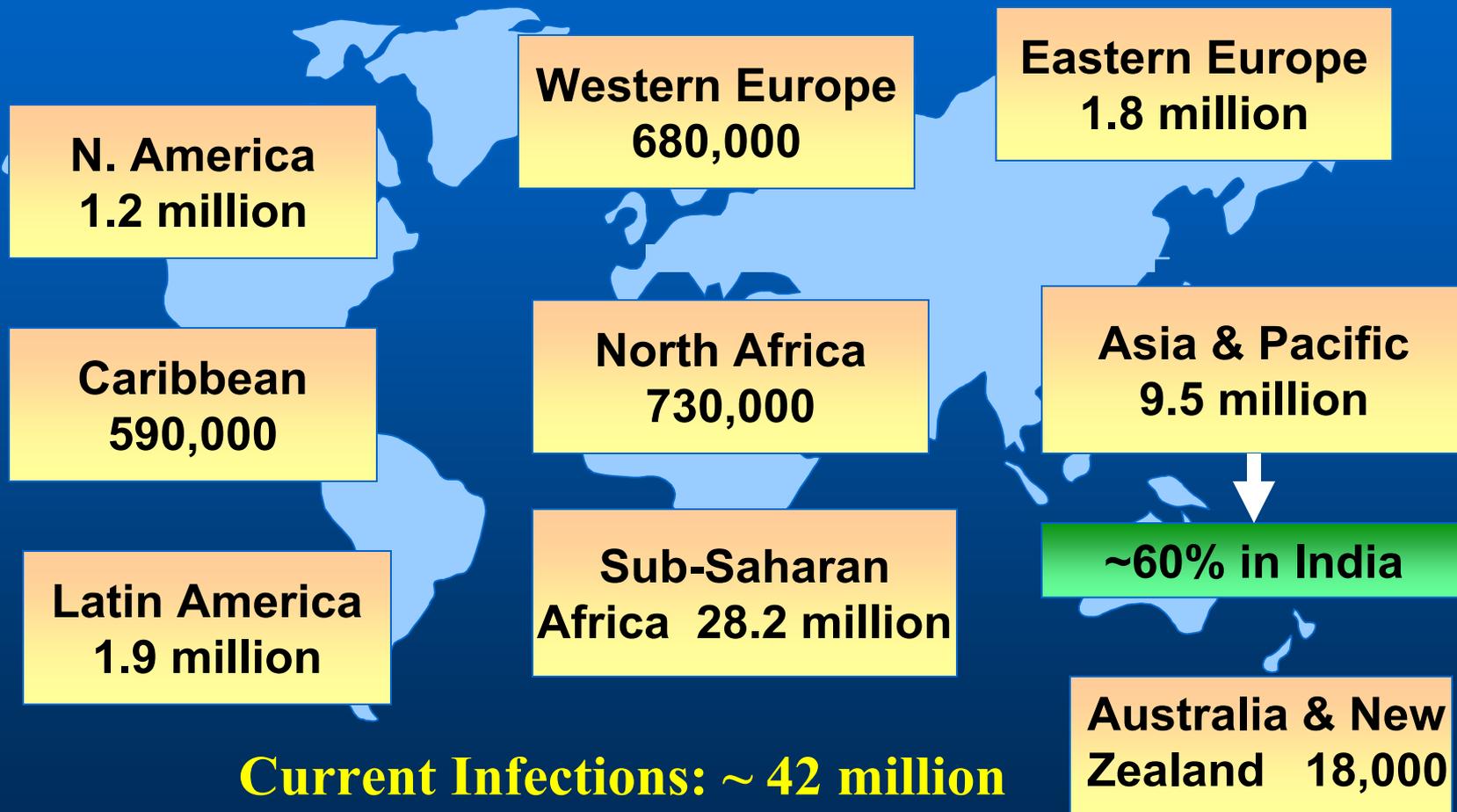
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HIV and AIDS in India

Some Key Questions

- 1. How many HIV infections have occurred in India?**
- 2. Who is HIV-infected in India?**
- 3. How many in India will become HIV-infected?**
- 4. What is the impact of HIV on the health care system?**
- 5. What HIV treatment is available in India?**
- 6. What can we do to help?**

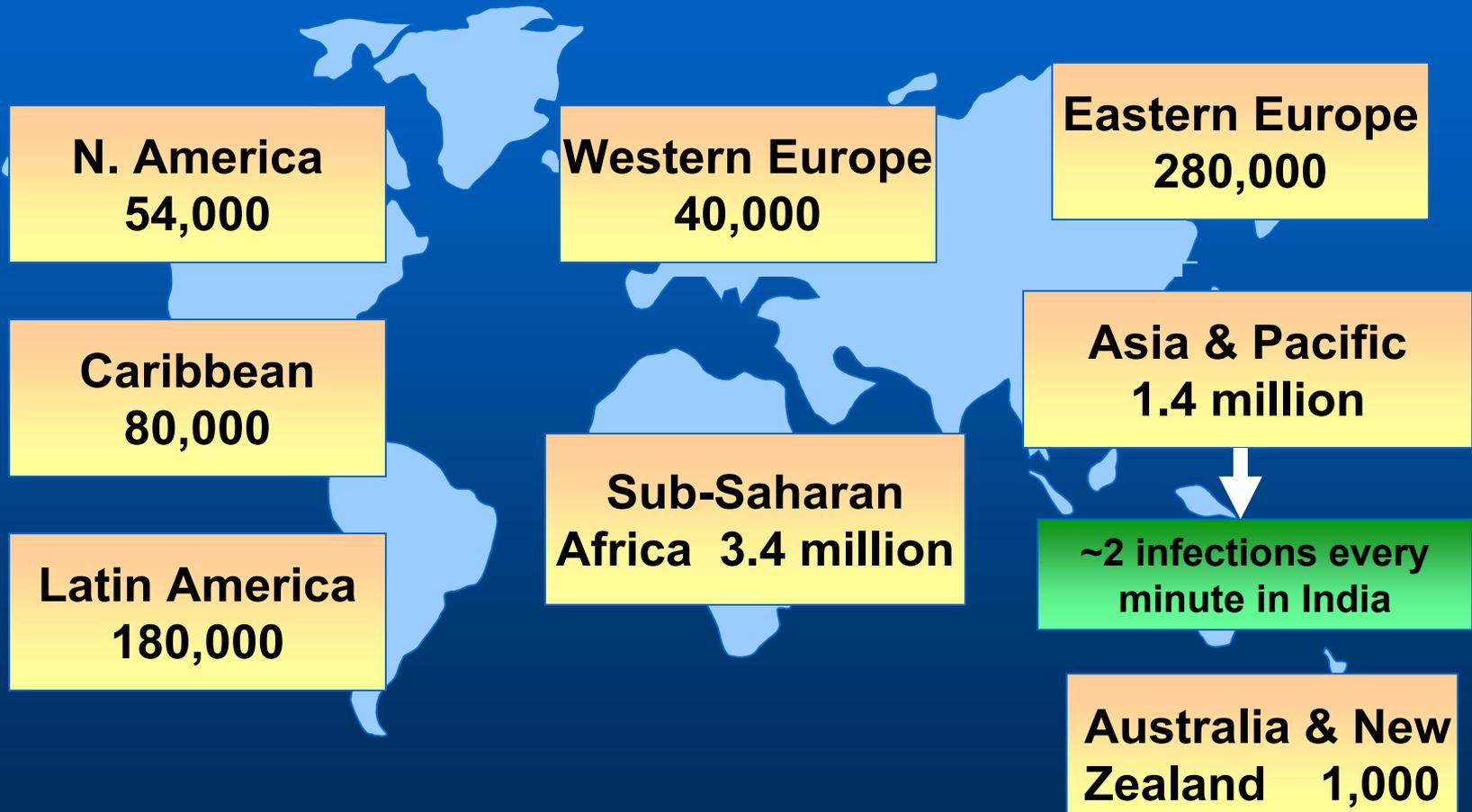
Adults and Children Living with HIV/AIDS 2004



Current Infections: ~ 42 million

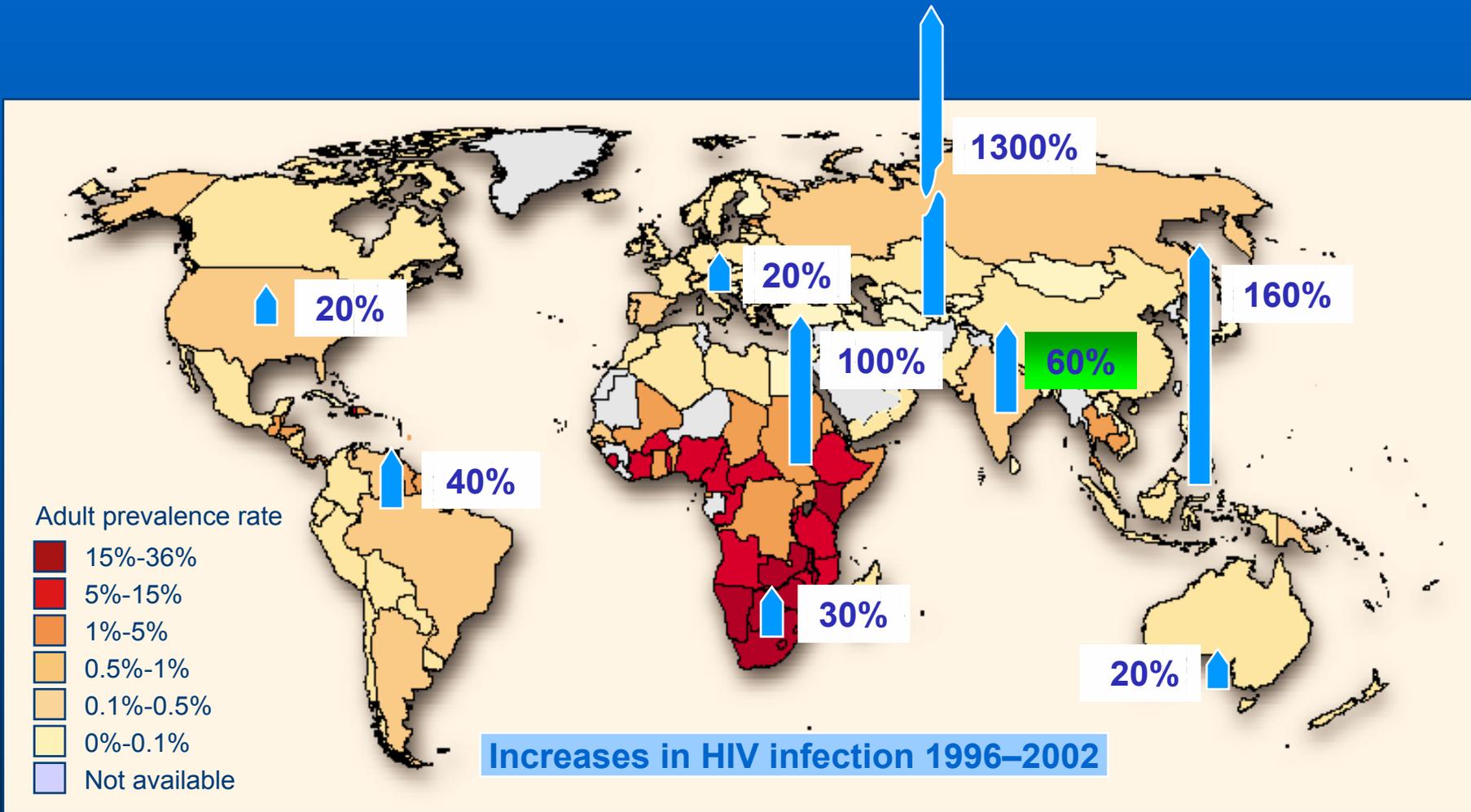
Cumulative Infections: ~ 70 million

Annual New Infections of HIV Adults and Children

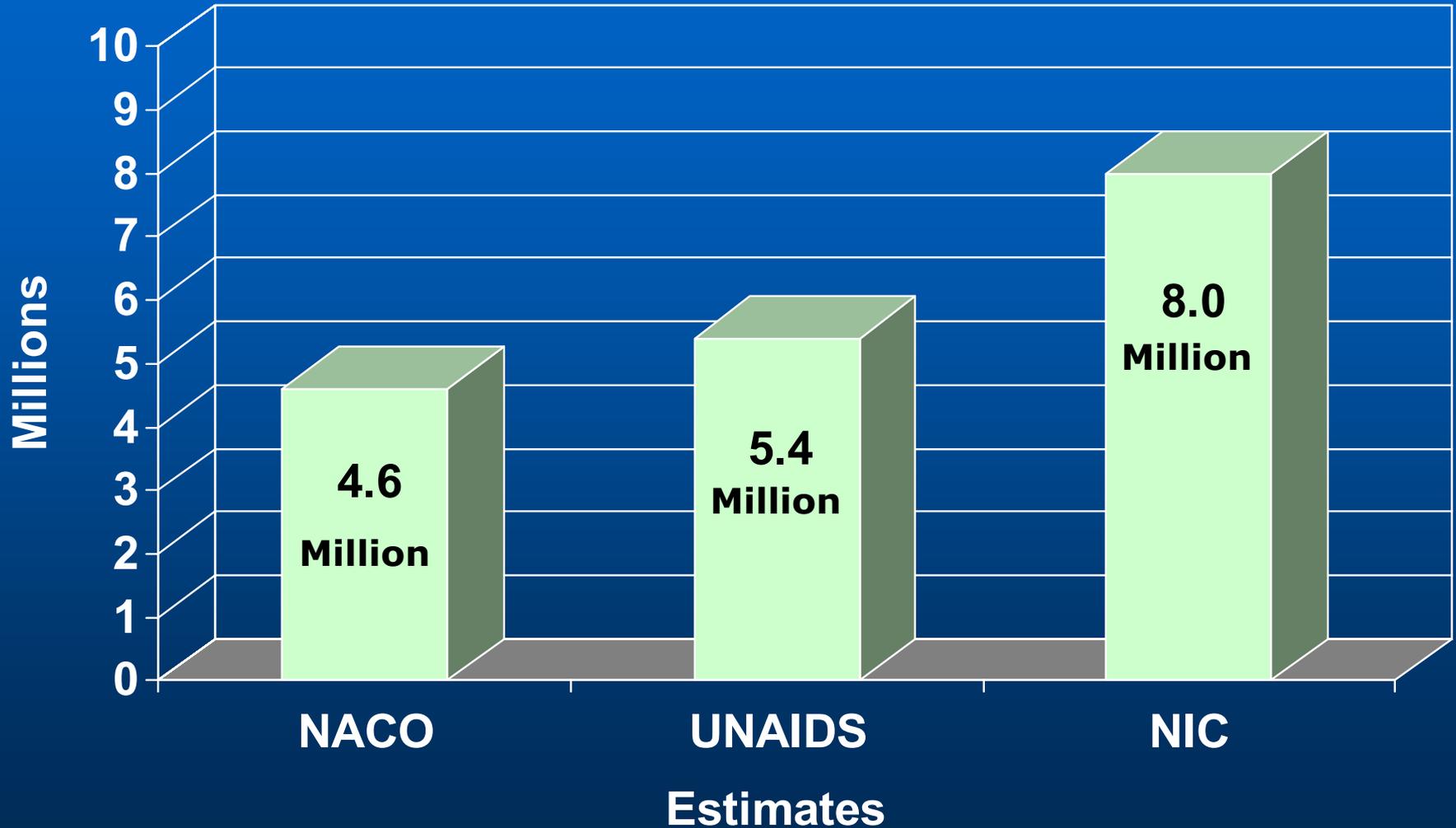


Total: 5.0 million per year

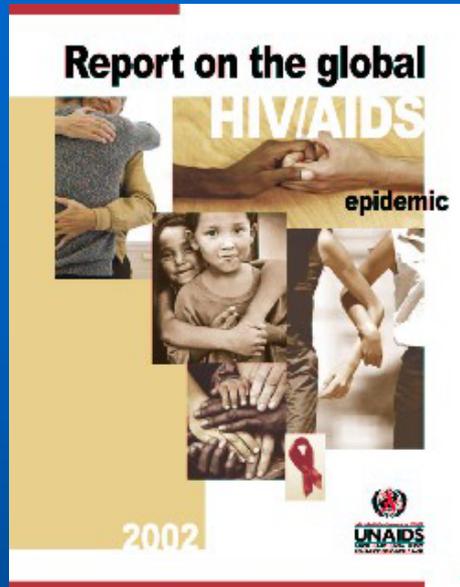
UNAIDS/WHO Global View of HIV Infection



1. How many HIV infections have occurred in India?



Are the current estimates too high or too low?



The Indian EXPRESS Google Indian E

NATIONAL NETWORK Saturday, January 19, 2002

NGOs punch holes into UN agency's AIDS estimates

EXPRESS NEWS SERVICE

NEW DELHI, JANUARY 18: A GROUP of NGOs and independent activists today claimed that the India figures of HIV/AIDS cases put out by UNAIDS, the United Nations' nodal agency for AIDS, contain several contradictions and "cover-ups".

"They have released the same 1999 HIV/AIDS data on four different occasions, and in their latest report, called the 2000 'Revised' update, all the data was suddenly removed," alleged Purushottaman of the NGO Joint Action Council Kannur (JACK).

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The Next Wave of HIV/AIDS: Nigeria, Ethiopia, Russia, India, and China

ICA 2002-04 D

September 2002

National
Intelligence
Council
ICA 2002-04D

The Next Wave of HIV/AIDS: Nigeria, Ethiopia, Russia, India, and China

Bill Gates Visits AIDS Patients in India During Controversy- Laced Visit

Associated Press (11.11.02) - Tuesday, November 12, 2002

Beth Duff-Brown

Bill Gates chatted with an HIV-positive patient Monday as he opened his controversy-laced visit to India, where he plans to talk business and give money to help fight AIDS. "Coming to India is valuable for me for both business and personal reasons... it's a place where I believe we can make substantive efforts to eradicate diseases and help develop the health care infrastructure in a way that benefits millions of people," Gates said in an interview with Business Line newspaper.

Wearing the red Hindu "tika" mark on his forehead, Gates visited a nursing home for HIV-positive patients in New Delhi, where he sat cross-legged with resident Navin Kumar, whose pregnant wife is also HIV-positive. When Kumar's wife went to a government hospital to deliver her baby, "the hospital actually asked my wife to leave. They said it was useless to have the baby," Kumar told Gates.

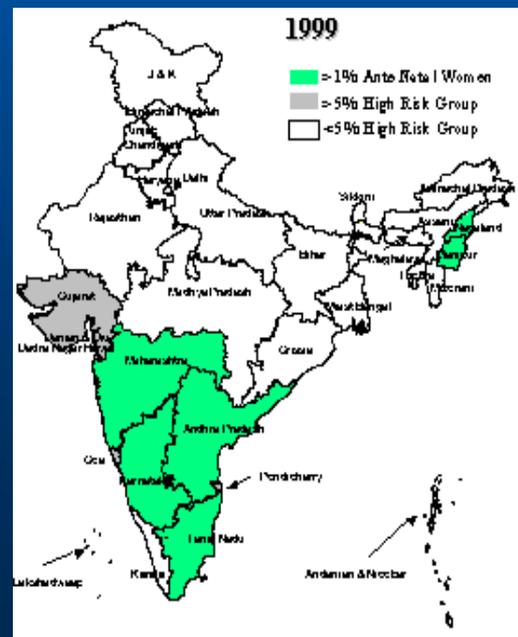
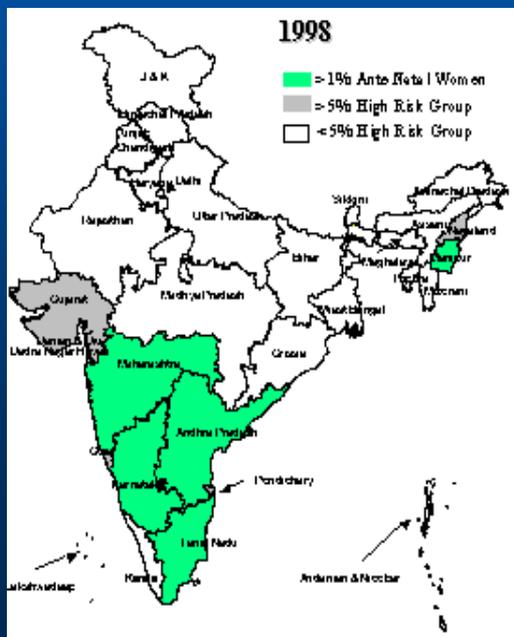
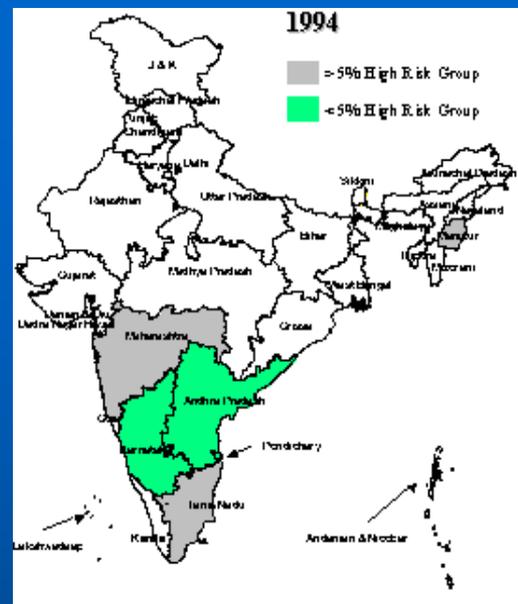
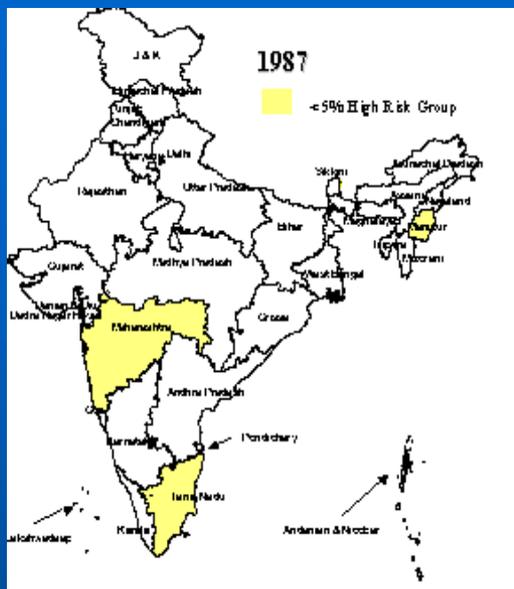
Gates has walked into a controversy over the scale of India's AIDS epidemic. Government officials and health activists have rejected a US National Intelligence Council report that forecasts the number of HIV-infected people in India will rise to 20 million-25 million by 2010 from about 4 million now. Health Minister Shatrughan Sinha on Friday described the projections, which Gates cited, as "completely inaccurate." The government does not expect a dramatic increase in cases in 2010, claiming its AIDS prevention programs are paying off and that the number of HIV/AIDS cases has stabilized to between 3.5 million and 4 million - 0.7 percent of its adult population - over the last three years.

ANSWER: All of the HIV estimates for India are too high!

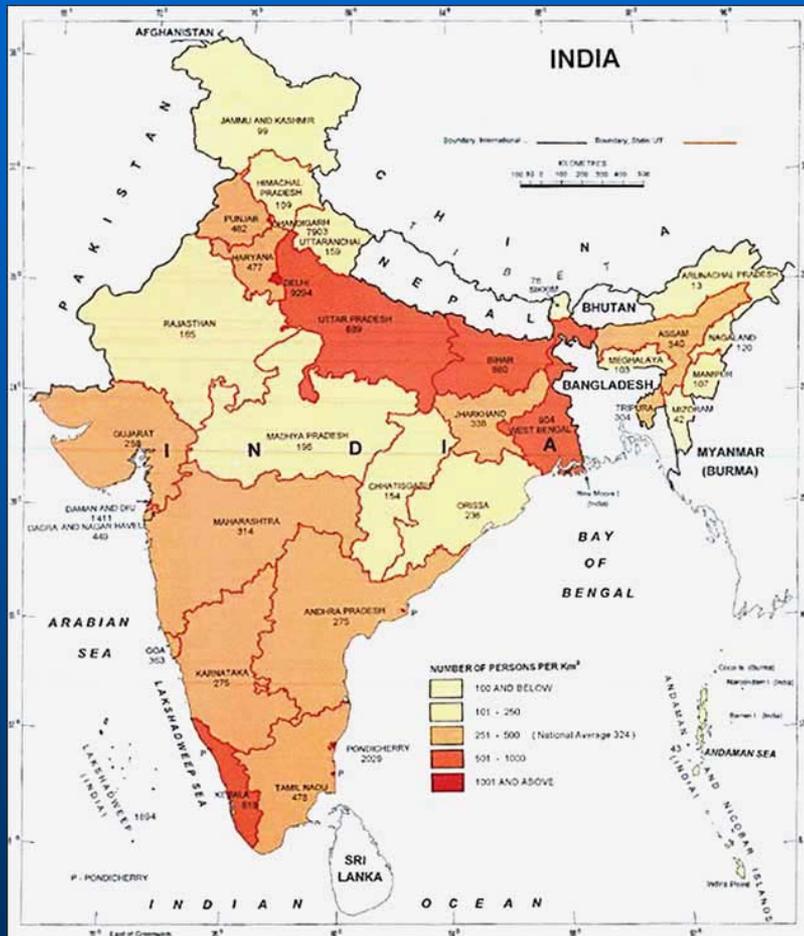
The HIV epidemic, like culture in India, is geographically diverse.



Spread of HIV over time in India, 1987–1999



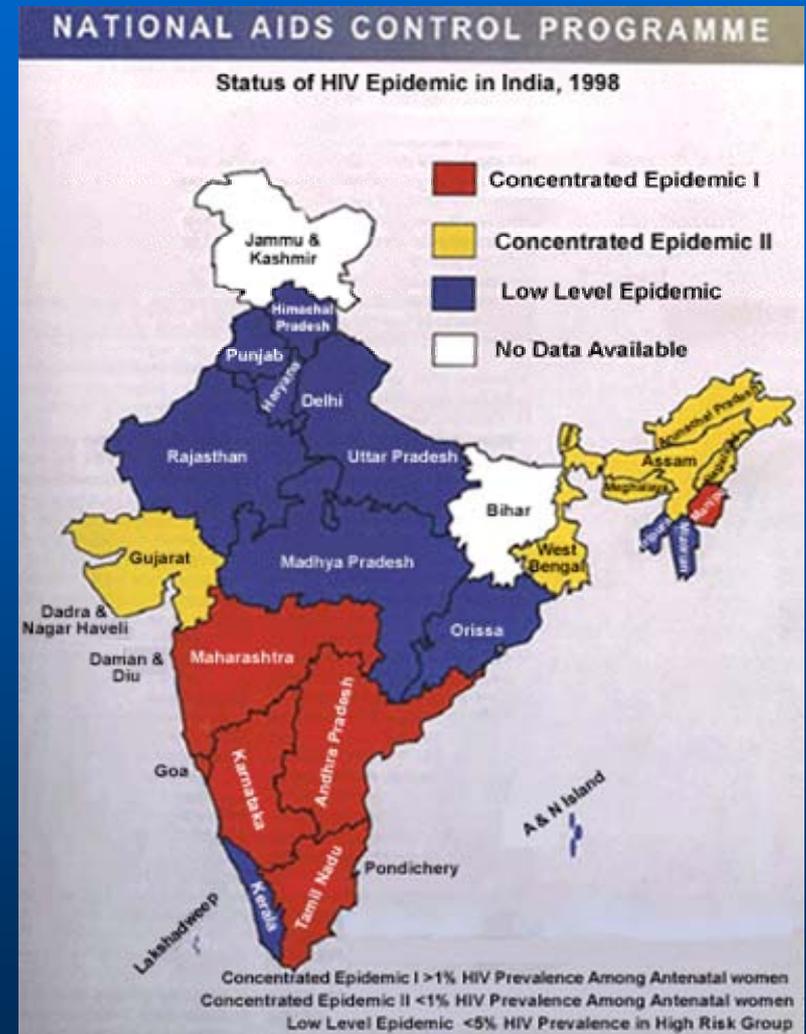
Population Density



Based Upon Survey of India Map.
The territorial Waters of India extend into the sea to a distance of 12 Nautical miles measured from the acceptable baseline.
The inter state boundaries between Arunachal Pradesh, Assam & Meghalaya shown on this map are as interpreted from the North - Eastern States (Recognition) Act 1971, but have yet to be verified.

Source: Censuses of India - 2001, Govt. of India

HIV Density



2. Who is HIV-infected in India?





HIV/AIDS Indian Scenario

HIV/AIDS Surveillance in India

(as reported to NACO as on 31st December, 2003)

AIDS CASES IN INDIA	Cumulative	This Month
MALES	44975	2413
FEMALES	16226	1007
Total	61201	3420

RISK/TRANSMISSION CATEGORIES			
	No. of cases	Percentage	
Sexual	52445	85.69	
Perinatal transmission	1665	2.72	
Blood and blood products	1574	2.57	
Injectable Drug Users	1368	2.24	
History not available	4149	6.78	
Total:	61201	100.00	
Age group	Male	Female	Total
0 - 14 yrs	1390	896	2286
15 - 29 yrs.	13660	7452	21112
30 - 44 yrs.	26473	7022	33495
> 45 yrs.	3452	856	4308
Total	44975	16226	61201

Key HIV Risk Groups in India?

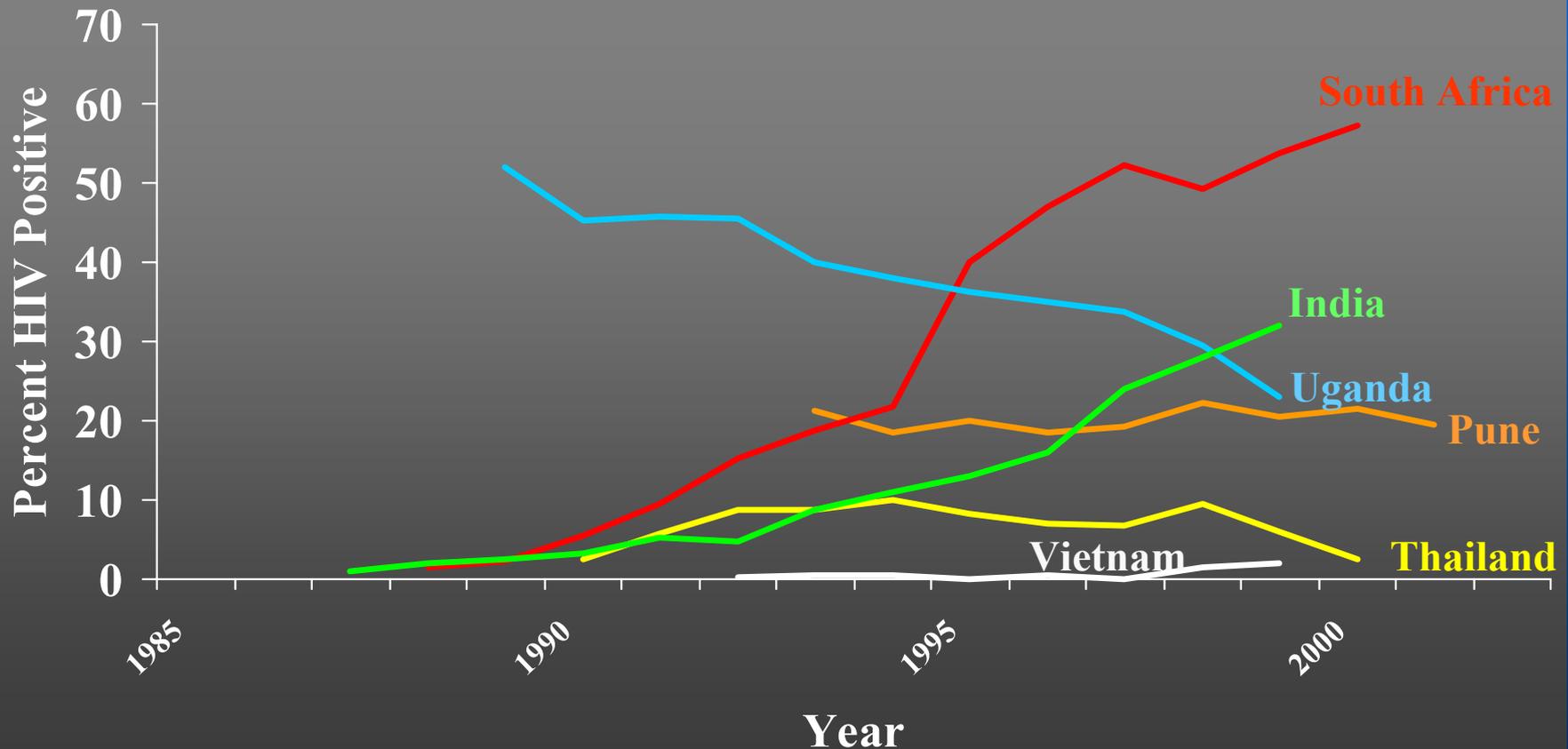
- Largest risk groups
 - Men who visit commercial sex workers
 - Commercial sex workers
 - The wives of infected men
 - The children of infected mothers
- Other important risk groups
 - IDU
 - MSM
 - Transfusion recipients
 - Urban youth
 - Health care personnel?
 - Medical injections?



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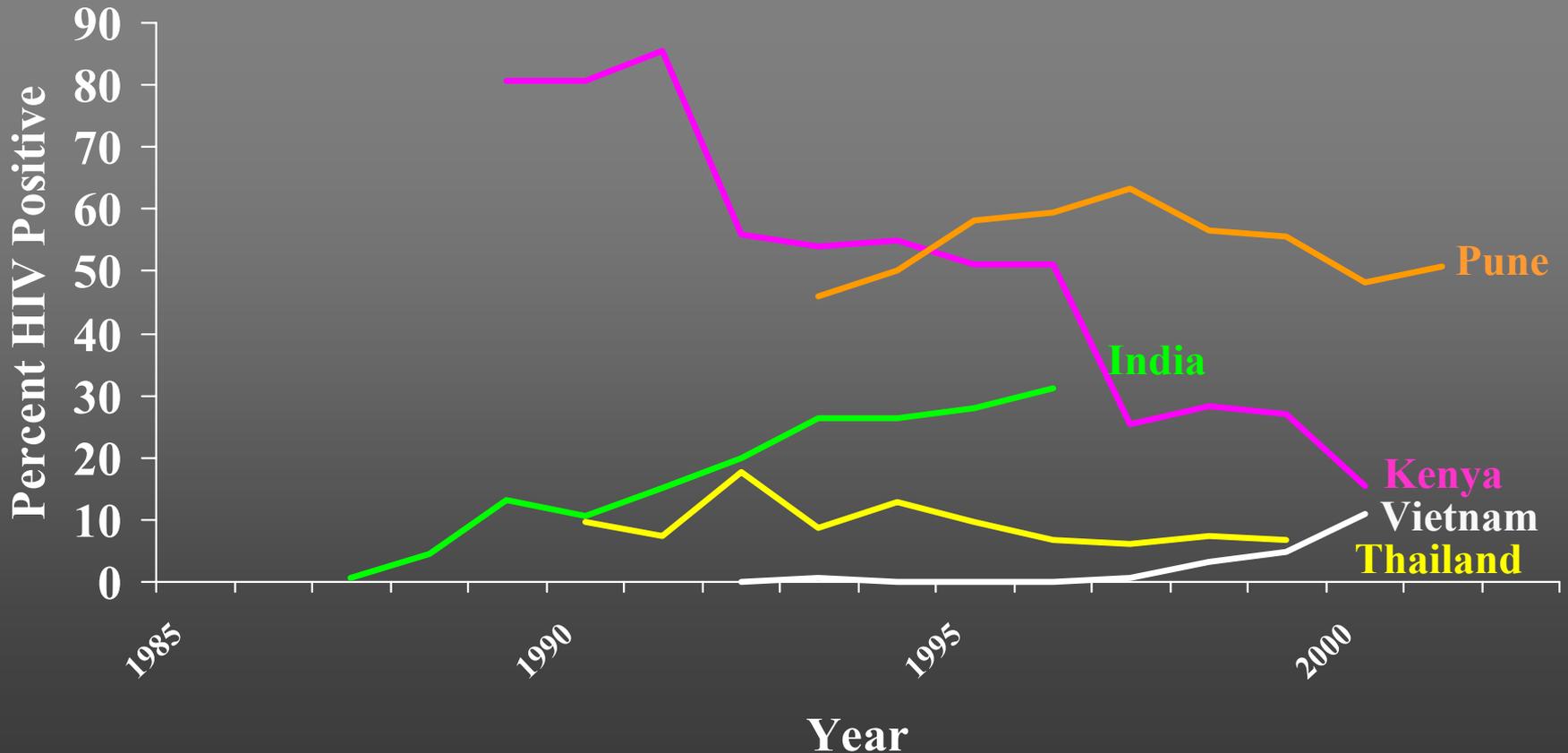
न नरहरी कालेकर अँड सन्स

HIV Prevalence in STI Patients



Sources: UNAIDS WHO County Fact Sheets
United States Bureau of Census
NARI

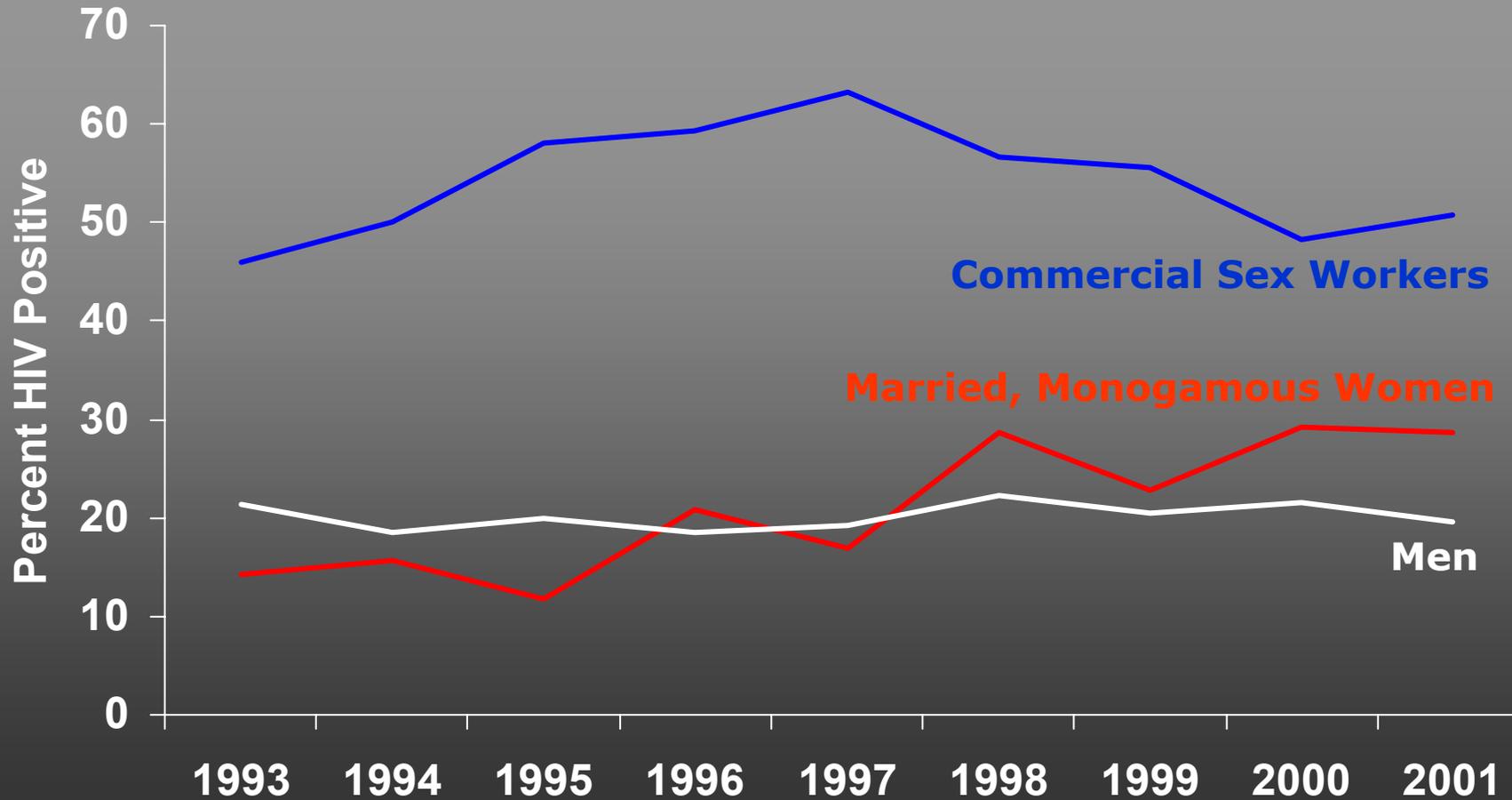
HIV Prevalence in Sex Workers



Sources: UNAIDS WHO County Fact Sheets
United States Bureau of Census
NARI

STI Patients in Pune, India 1992-2002

NARI, S. Mehta et al.



The HIV Epidemic In Chennai Remains Focused in High Risk Groups

Celentano, SriKrishnan et al. (YRG Care) WAC 2004 Bangkok

- Random adults (18-40) from community and wine shops surveyed in 24 urban slums (2000-02).
- HIV Prevalence
 - Community
 - Men: 1.0%
 - Women: 0.2%
 - Wine shops:
 - Men: 2.3%
 - FSW: 8.1%
- Unprotected, non-spousal sex among men
 - Community: 2.9%
 - Wine shops: 88.6%

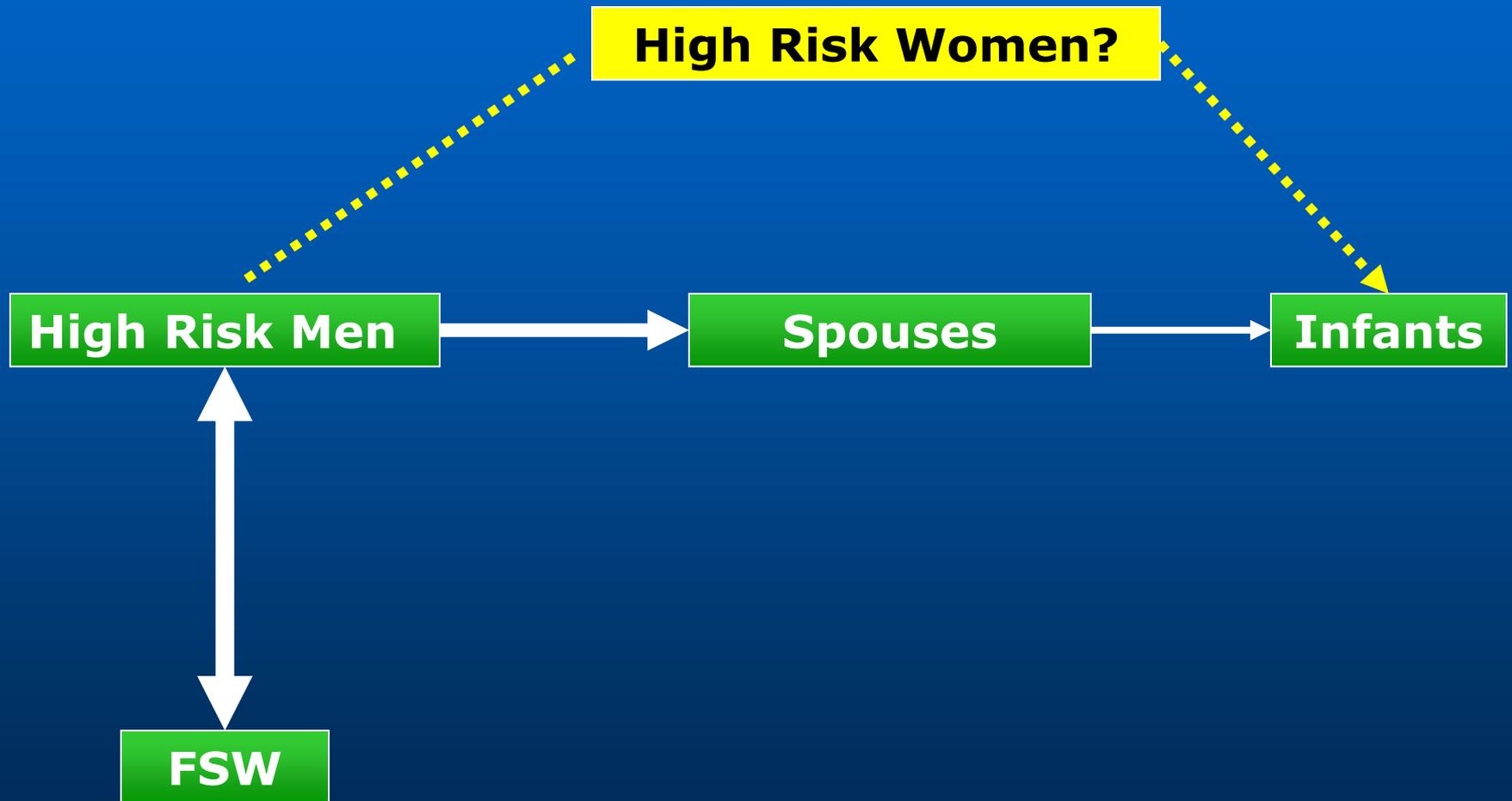
2001 HIV Risk Factors in Adults (15-49)

	India*		Kenya**		Zambia**	
HIV+ (%)	0.7		19.8		23.2	
Gender	M	F	M	F	M	F
Married (%)	65	78	53	63	51	58
Non-spousal partner in past year (%)	12	2	48	21	37	15
Consistent condom use with non-spousal partner (%)	34	27	12	21	25	24

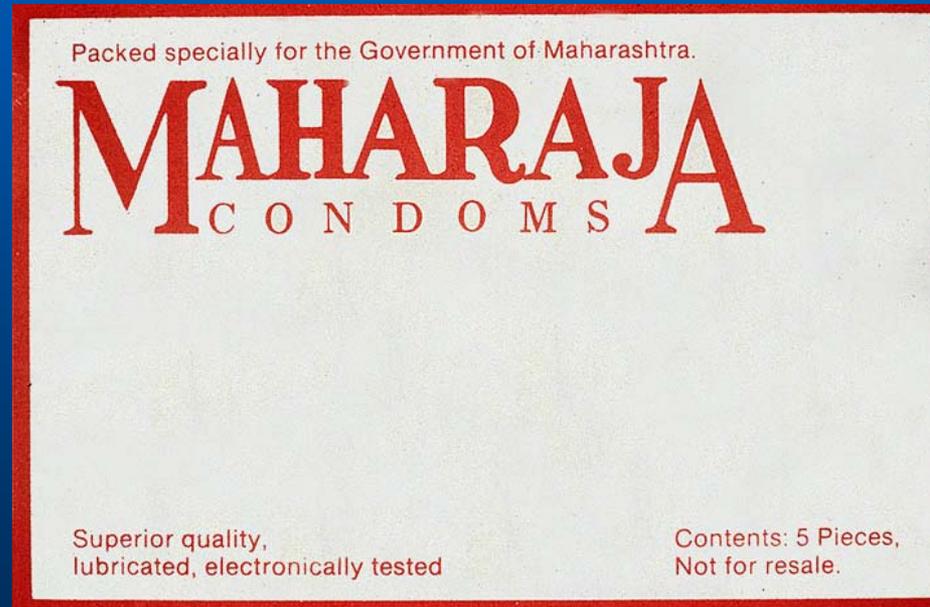
*BSS Survey 2001 in India

**Buve et al. Multi-centered study in sub-Saharan Africa

Key HIV Transmission Groups in India



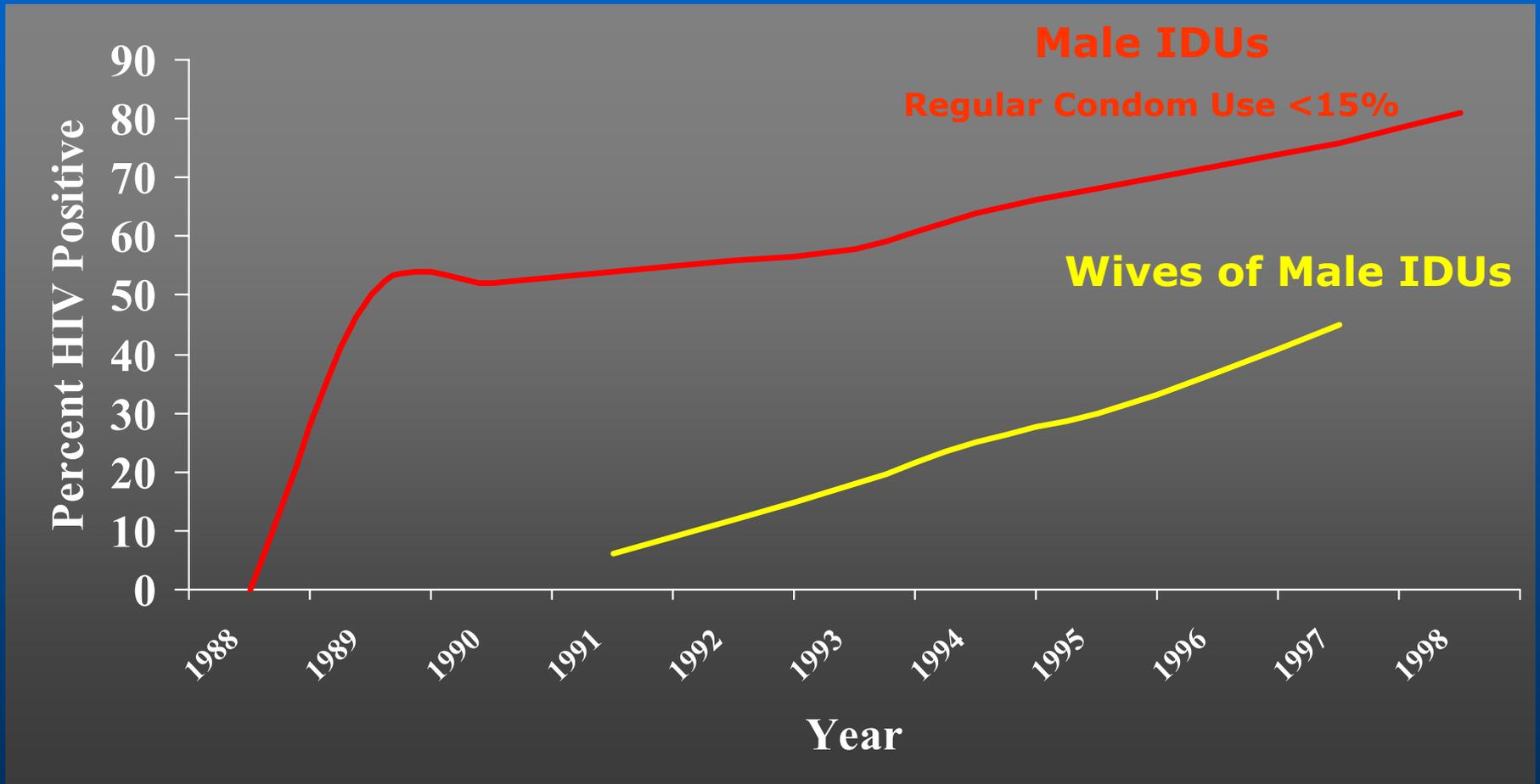
What will protect married, monogamous women
and
their children in India?



**Low Risk of HIV Seroconversion between Discordant Married
Couples in Pune, India, Related to Condom Use
NARI. Mehendale et al.**

Characteristic	Number of subjects	No. Seroconverted /Person-years	Incidence /100 Person-years	95% CI
Gender				
Males	50	2 / 34	5.88	0.71 – 21.24
Females	265	2 / 180	1.11	0.13 – 4.01
Age				
25 yr or below	96	2 / 65	3.08	0.37 – 11.11
26-30 yr	113	1 / 76	1.32	0.04 – 7.33
31-35 yr	60	1 / 38	2.63	0.08 – 14.66
Above 35 yr	46	0 / 35	0.00	---
Formal Education				
No	48	0 / 32	0.00	---
Yes	261	4 / 182	2.20	0.60 – 5.63
Sexual Partners				
Single	268	2 / 180	1.11	0.13 – 4.01
Multiple	44	2 / 32	6.25	0.75 – 22.56
Condom use				
Yes	208	0 / 146	0.00	
No	77	4 / 50	8.00	2.18 – 20.48
Genital ulcer disease				
No	296	3 / 197	1.52	0.31 – 4.45
Yes	14	1 / 12	8.33	0.25 – 46.42
Genital discharge				
No	269	3 / 180	1.67	0.34 – 4.87
Yes	41	1 / 29	3.45	0.10 – 19.21

Intravenous Drug Users in Manipur, India

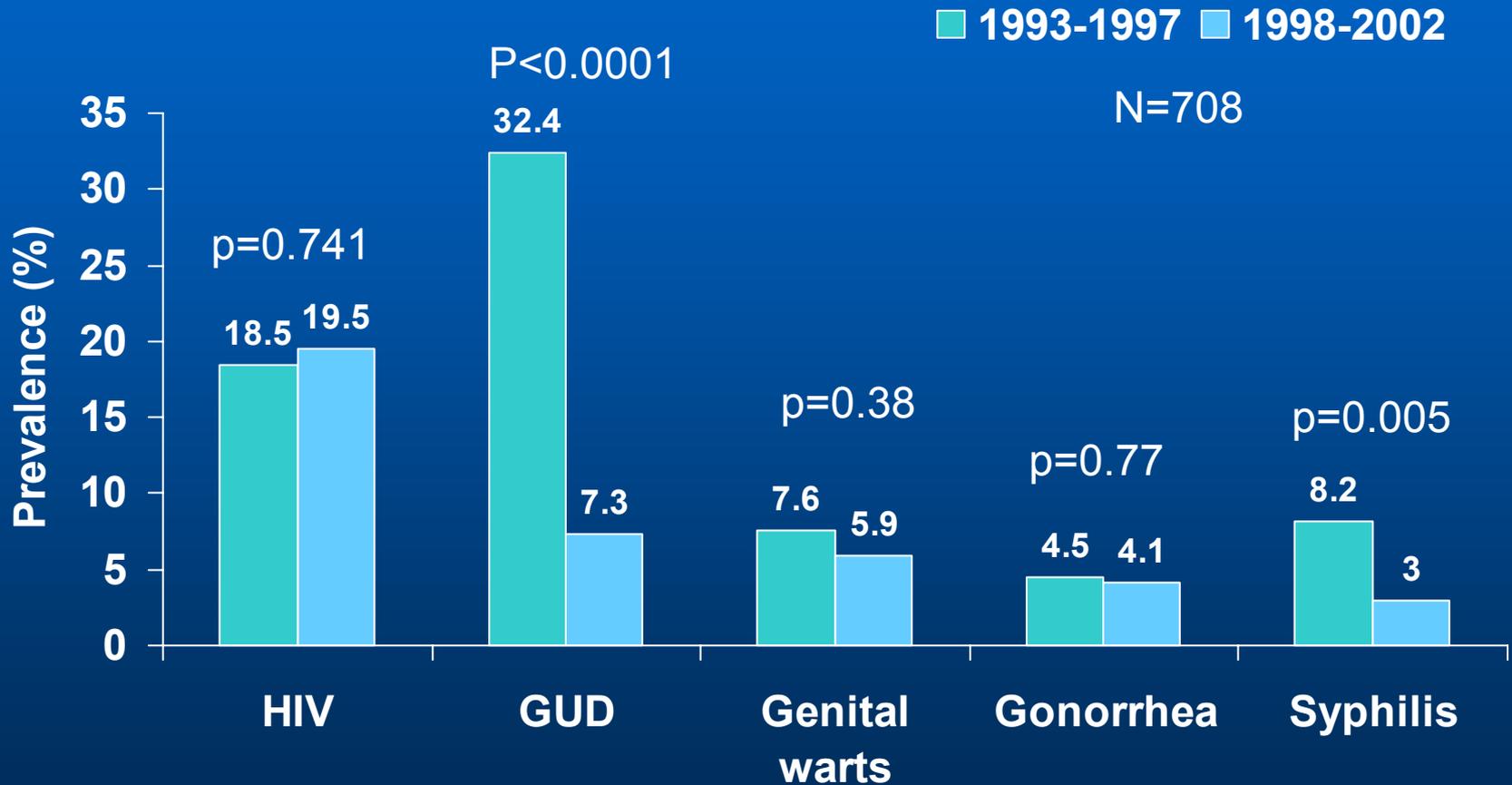


Sources: Int J STD AIDS. 2000 Jul;11(7):468-73

J Infect 1991;2:201-7

NACO

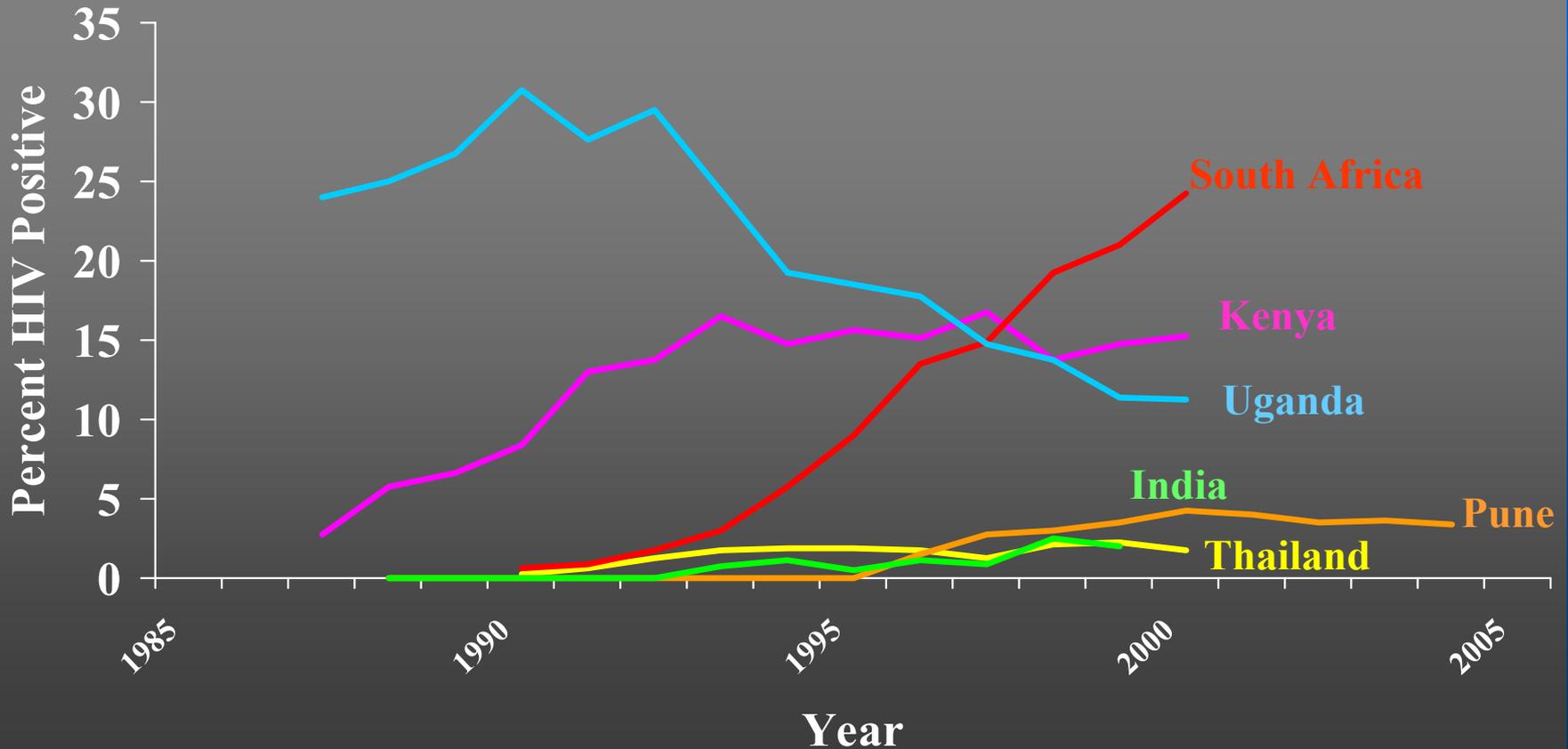
Trends of HIV and STI prevalence among MSM* attending STI clinics, 1993-1997 vs. 1998-2002, Pune India



*Any prior male contact (6.6% of male STI patients)



HIV Prevalence in Pregnancy



Sources: UNAIDS WHO County Fact Sheets
United States Bureau of Census
NARI

3. How many in India will become HIV-infected?

- With at least 4 million infected persons, India already faces a public health crisis!
- India has the second largest HIV burden in the world, at least 12% of the global infections and more than 20X the number of infections as Vietnam.
- 1/140 (0.7%) Indian adults are HIV-infected (More than twice the infection rate of Vietnam).
- Every fourth newly infected person in the world is a Indian.
- A 1% increase in adult HIV prevalence in India would mean at least 5 million more infections.

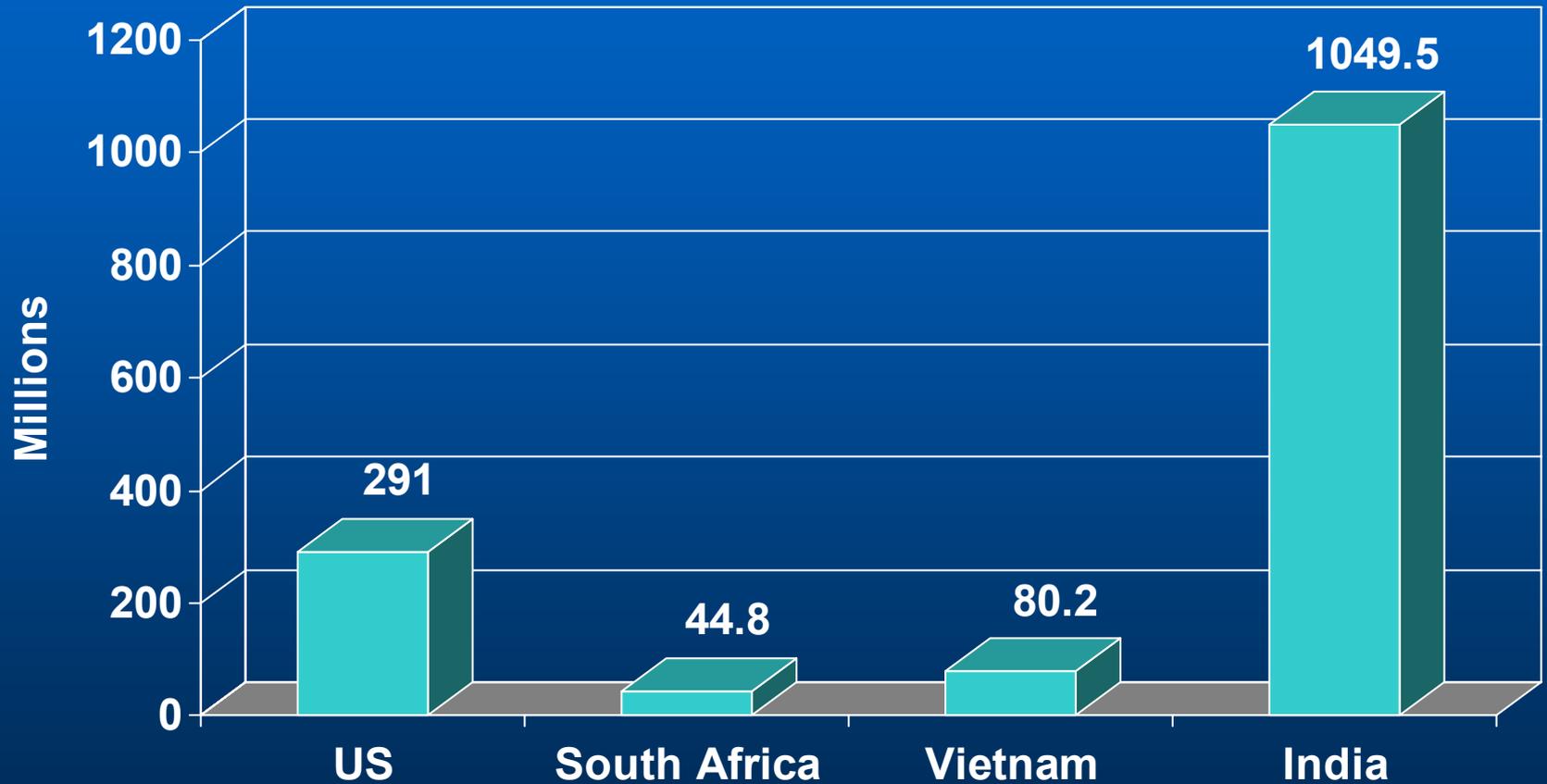
4. What is the impact of HIV on the health care system in India?



There have already been at least 500,000 HIV-associated deaths in India, most in the past 5 years.

Core Health Indicators 2002

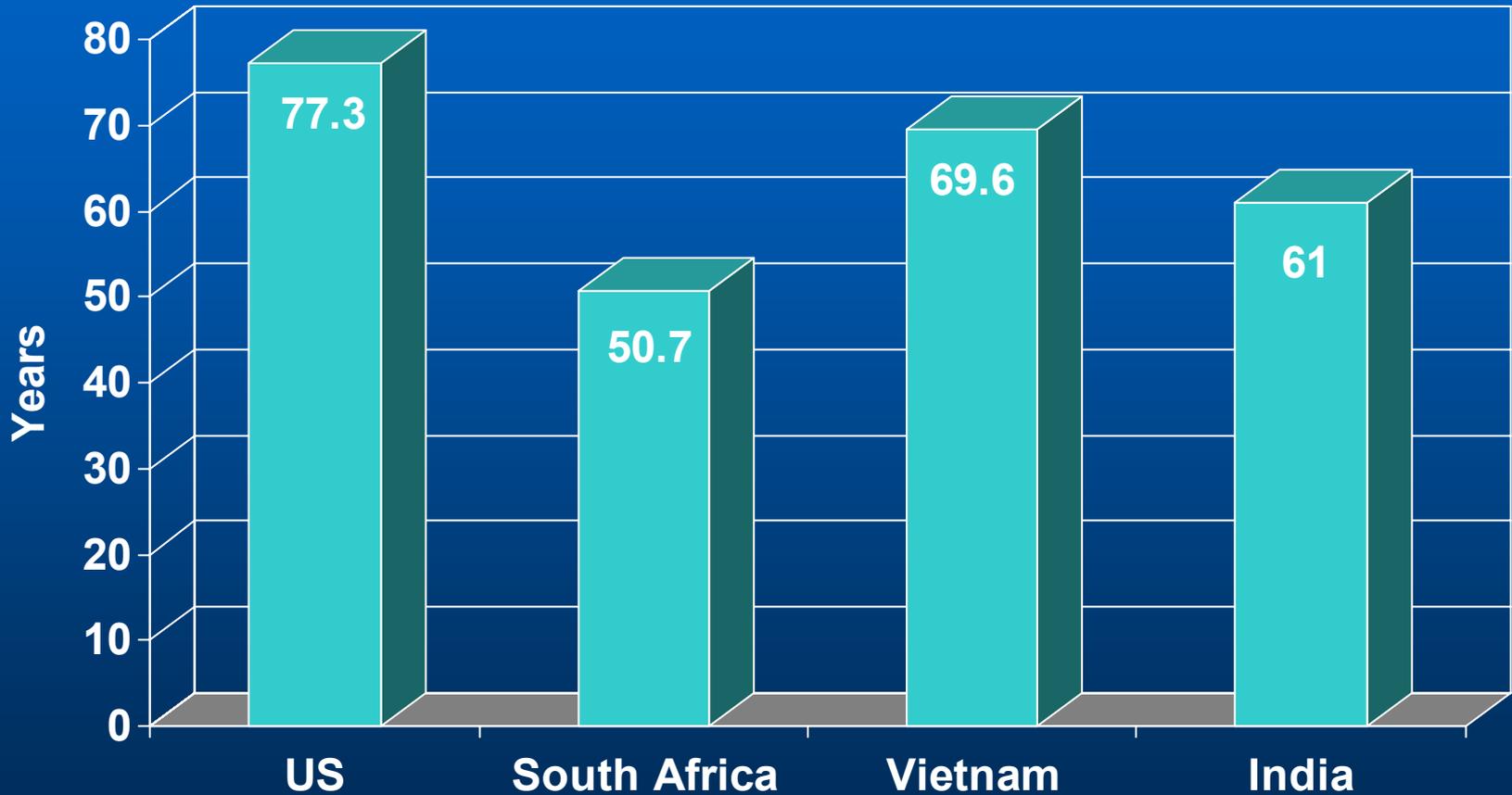
Total Population



Source: WHO

Core Health Indicators 2002

Life Expectancy

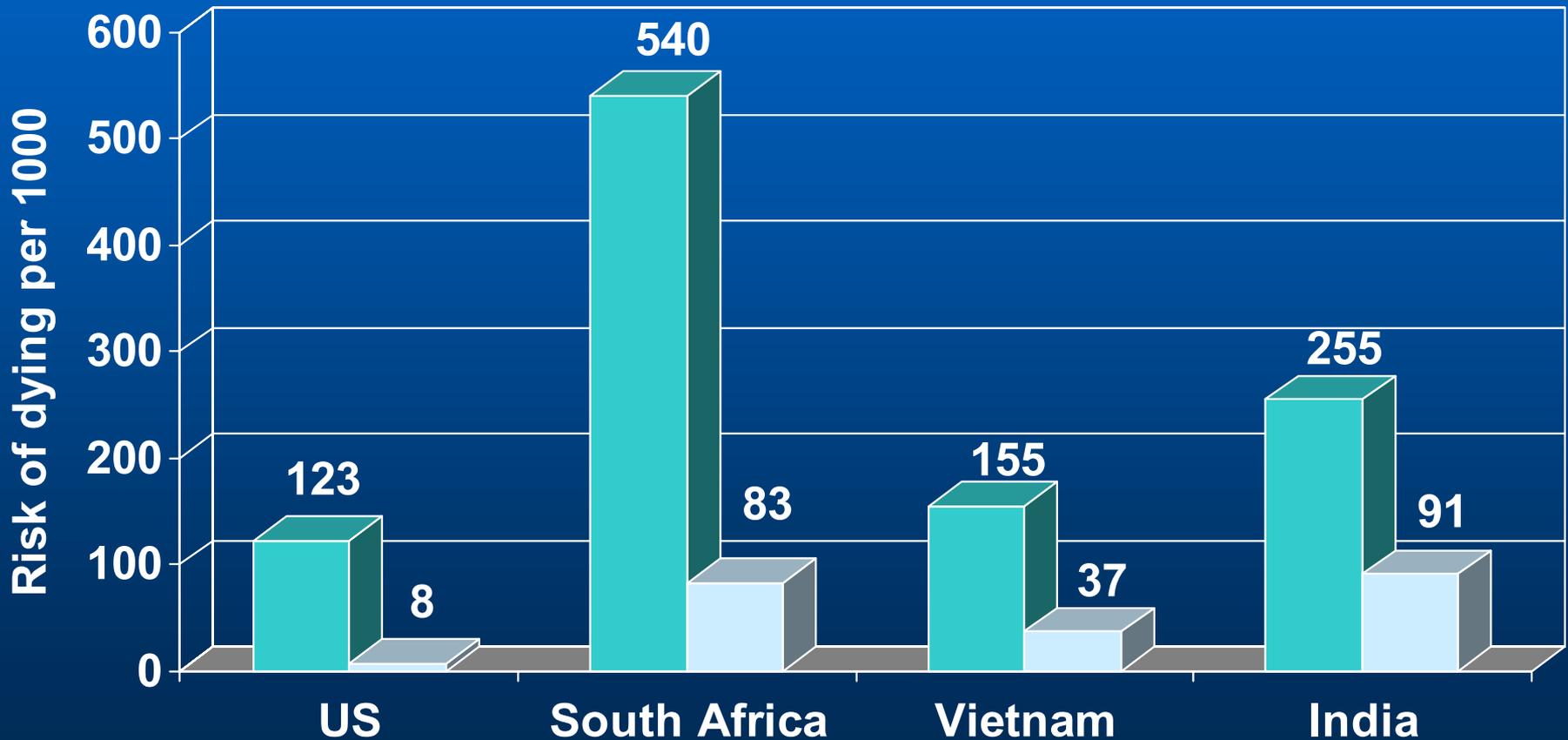


Source: WHO

Core Health Indicators 2002

Mortality

■ Adult (15-59) ■ Child (B-5)



Source: WHO

Infectious Disease Burden in Asia

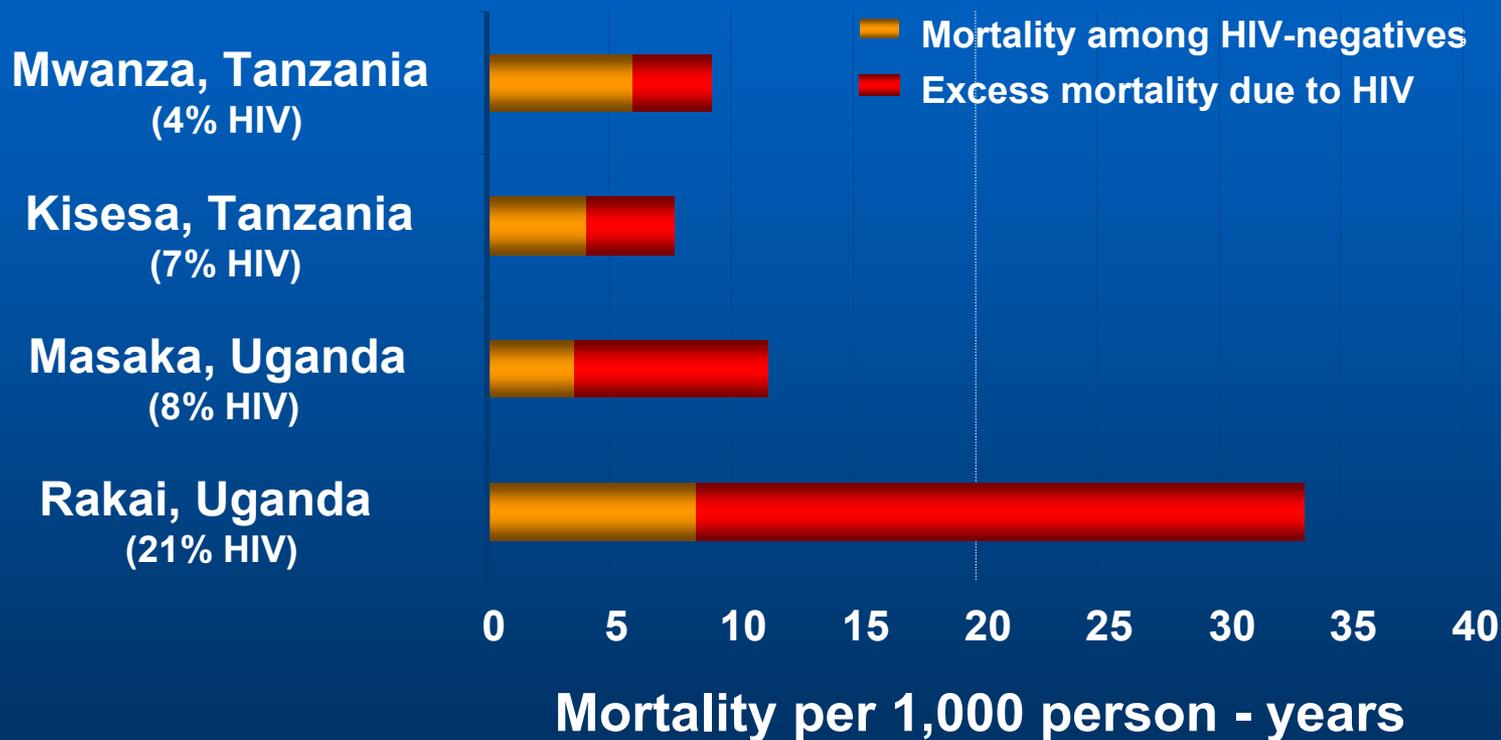
Estimated Deaths

Disease	Global (Rank)	Asia and Near East (Rank)
ALRI	3,452 (1)	1,257 (1)
HIV/AIDS	2,285 (2)	298 (5)
Diarrhea	2,219 (3)	894 (2)
EPI diseases	1,650 (4)	568 (4)
TB	1,498 (5)	682 (3)
Malaria	1,110 (6)	73 (6)

Deaths in thousands/year

Source: USAID

Adult mortality attributable to HIV, community-based studies in Africa, 1990-1996



Source: Boerma JT et al, AIDS 1998, 12 (suppl 1): S3-S14

01 July 2002 slide
number SSA-31

The public health system in India is already over-burdened.

Post-natal ward overflow (BJMC, Pune)



Potential for large numbers of HIV orphans.

Pediatric Clinic Waiting Room
BJMC, Pune



Limited resources available for HIV care.

Medical Ward
BJMC, Pune



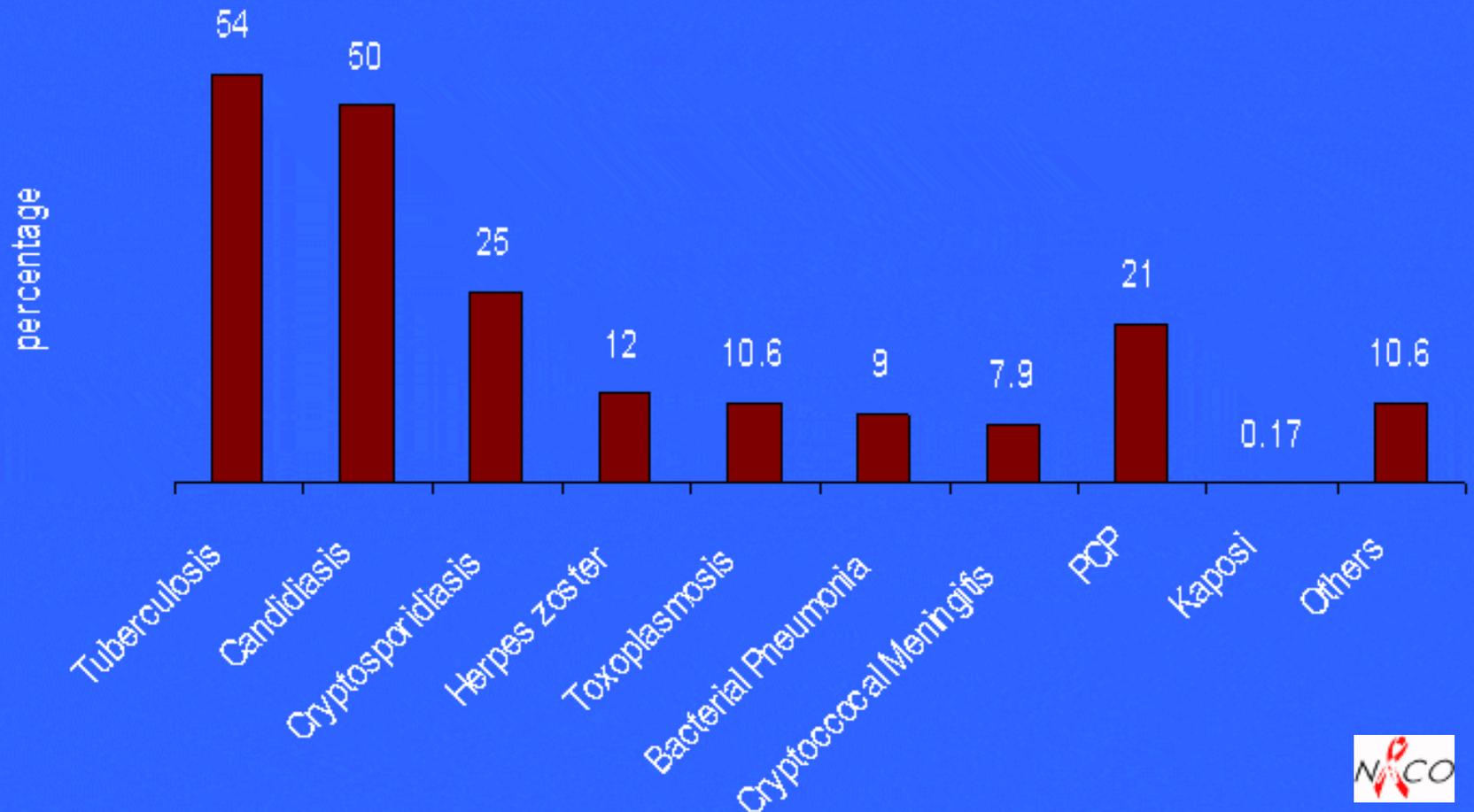
Clinical Profile of HIV-infected Hospitalized Patients in Pune, India (2002-3)

BJ Medical College, R. Farid et al.

	N=655
Gender	
Male	489 (75%)
Female	166 (25%)
Median CD4 Count	66 cells/cu mm
Diagnoses	
TB	365 (56%)
Diarrhea	28 (4%)
Cryptococcus	20 (3%)
PCP	12 (2%)
In-hospital Mortality	25%

HIV-patients access the health care system very late in their disease course.

Opportunistic Infections among AIDS cases in India
(1986- July 2000) n = 13304



**India already has the greatest number of TB infections in the world.
60% of all HIV-infected persons in India are also infected with TB.**



Cervical Cancer and HIV in India

- **Cervical cancer is already the third leading cause of death in Indian women.**
- **1990 estimates: 50,000 deaths/year**
- **3X the deaths from all western countries combined.**
- **Equal to the total deaths in China, plus all of Sub-Saharan Africa.**
- **Persistent HPV infection is more likely with HIV and leads to increased risk of cervical cancer.**

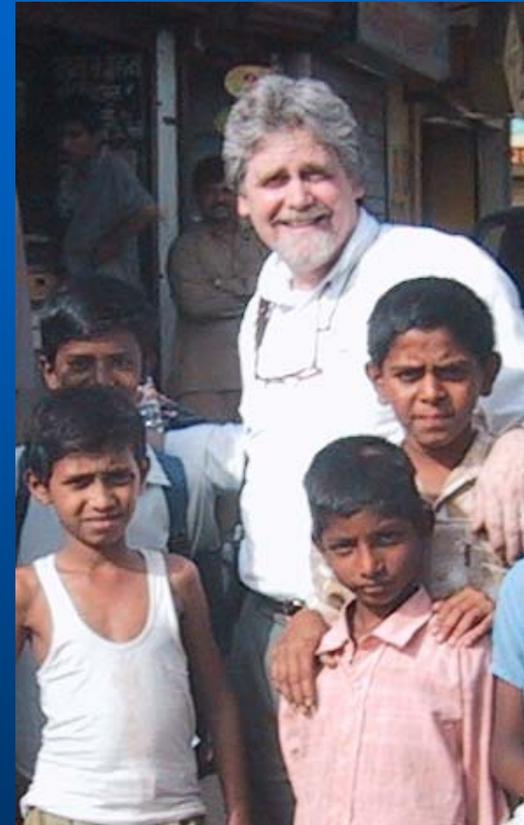
STIGMA

Dhanbad 1979



**Leprosy
Screening**

Pune 2003



**HIV
Screening**

Science April 23, 2004

Jon Cohen and Malcolm Linton



News Focus

HIV/AIDS:

CHENNAI—Pacing restlessly in front of her husband, who lies comatose in a hospital bed here, a 23-year-old woman spills out a tragic story. A bookbinder by trade, her husband, 29, has meningitis, caused by an opportunistic infection that flourishes during late-stage AIDS. She holds an infant in her arms and keeps an eye on their 4-year-old boy, whose birth transformed their lives. During that pregnancy a blood test determined that she was infected with HIV. “The doctor told my husband, not me,” the woman explains. “My husband tore up the results and told me there won’t be anything there. Then he quietly went to get tested himself.” She soon learned the truth, and a test of their son revealed that the virus had passed to him, too. The news quickly traveled to their neighbors. “They avoid us,” the woman says. “They are afraid.” So is she.

The couple have no income except for money her sister gives them. They live 400 kilometers from here, but in desperation they made the 9-hour train trip to the massive Government Hospital of Thoracic Medicine, the old Tambaram Sanatorium for tuberculosis. Located just outside Chennai (formerly Madras)—the sprawling capital of south India’s Tamil Nadu state—Tambaram has developed a reputation over 75 years for rescuing people from death’s door. “They come with lots of hope,” says one of the bookbinder’s doctors, Satagopa Kumar. “They think coming to Tambaram will be a cure. We have to tell them slowly.” Kumar and his colleagues are delivering their sad message to a staggering number of people these days.

Tambaram—which spreads out over 45 hectares and has cows and pigs roaming under the giant banyan trees that shade the grounds—sees more HIV-infected patients than any hospital in India. Last year alone, Tambaram admitted nearly 10,000 HIV-

This is the second in a series of articles on HIV/AIDS in Asia, leading up to the XV International AIDS Conference to be held in Bangkok, Thailand, in July. The first part, on southeast Asia, was published in the 19 September 2003 issue (www.sciencemag.org/sciext/aidsasia).

Reporting for this series was supported in part by a fellowship to Jon Cohen from the Kaiser Family Foundation. Photographs are by Malcolm Linton.

5. What HIV treatment is available in India?

Guidelines on Antiretroviral

Therapy

in

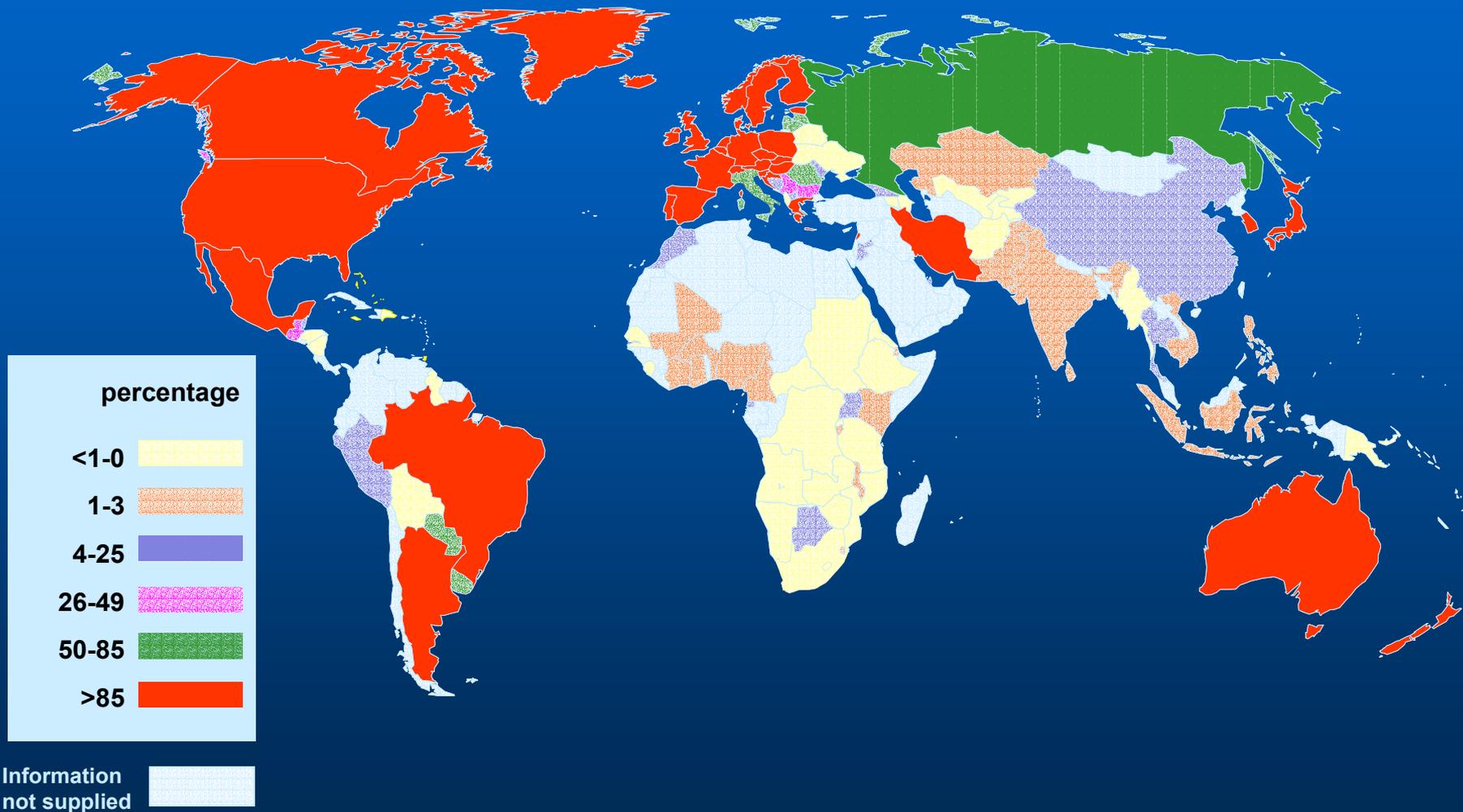
India



National AIDS Control Organization
Ministry of Health and Family Welfare
Nirman Bhavan, New Delhi – 110 011

February 2004

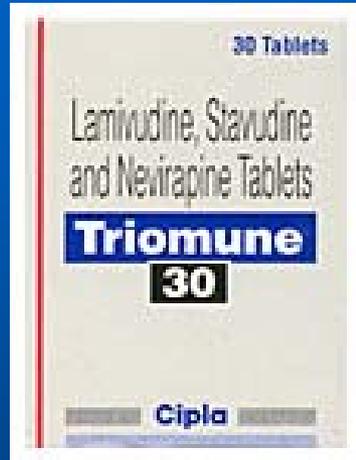
Percentage of adults with advanced HIV infection receiving antiretroviral treatment



Source: 'Progress Report on the Global Response to the HIV/AIDS Epidemic 2003, UNAIDS'

First Line Therapy for HIV in India

Generic



OR

Non-Generic



Fixed Dose Combination

2 Pills a Day

3 Separate Drugs

5 Pills a Day

The NACO Plan to Provide Free HAART in India

- Initiated in March 2004
- Mothers and children prioritized
- A few urban pilot sites with only a handful of patients
- Limited and uncertain supply of HAART
- >70% of health care is private. NACO plan is public.
- Sustainability and scale-up uncertain



दान येणारे रुग्ण व त्यांचे नातेवाईक
यांचेसाठी फक्त

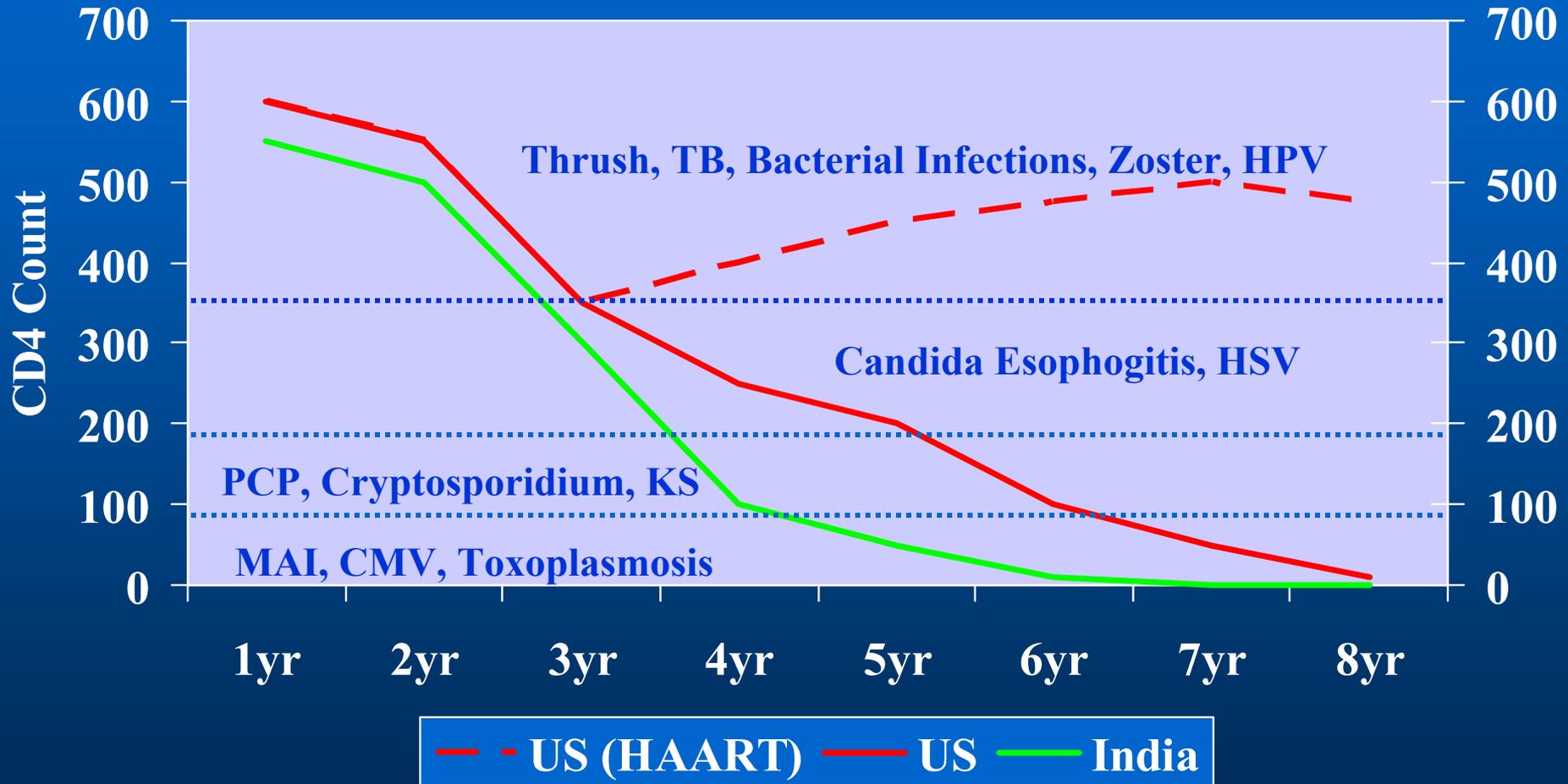




Many Other Challenges for Providing HAART in India

- Most FDC contain nevirapine, PIs are limited.
 - Risk of liver toxicity
 - NNRTI resistance will limit effectiveness of MTCT programs
- Significant anemia, particularly in women, limits use of ZDV containing regimens
- Risk of NRTI mitochondrial toxicity unclear
- Risk of ART drug resistance is very high
- Drug-drug interactions and reconstitution syndrome in TB co-infected patients
- Limited numbers of trained HCWs
- Impact of current guidelines on the communities burden of HIV-associated mortality is unclear

Natural History of Adult HIV Infection



6. What can we do to help?

- Increased support for HIV clinical care and prevention education (PEPFAR, USAID, CDC).
- Foster public-private partnerships for HIV care and prevention (PEPFAR, USAID, CDC).
- Increased support for Indo-US collaborative HIV research, including vaccine development (NIH, CDC).
- Increase support for public health research training (Fogarty, NIH, CDC, USAID).
- Provide support for HAART, clinical monitoring, OI diagnosis and treatment (PEPFAR, USAID, CDC, Global Fund).

**India has a great number of dedicated, educated people.
With more resources, India can overcome the HIV epidemic challenges.**



Why should we care?

- **India, a critical strategic economic and political partner, is vulnerable to an expanding HIV epidemic.**
- **Increased HIV and TB drug resistance in India will have a global impact.**
- **India has unique infrastructure and many talented people.**
- **India's success or failure will have an impact on the HIV epidemic throughout Asia, containing half the world's population.**
- **India has a window of opportunity, but must act decisively and now.**



India also has a lot to teach us



Western Reporter: “What do you think of Western civilization?”

Gandhi: “I think it would be a very good idea.”

