

The AIDS Situation in Asia: Planning and Implementing Appropriate and Timely Responses

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AIDS in Asia – Boom or Bust?

- “HIV prevalence rates in the total sexually active population of most Asian-Pacific countries will not, in our opinion, ever reach 0.5%.” (Chin, Bennett and Mills 1998)
- "If the collective response does not match or surpass the pace of the epidemic, we could very well see rates of acceleration matching that of sub-Saharan Africa." (Chow, June 2005)

Critical questions for each country/state

- Is our epidemic growing?
- If so, how fast, where, and in what groups?
- What will most effectively slow or stop this growth?
- What are the implications for future support, care and treatment needs?

Tools available to answer these questions

- Surveillance, behavioral & response data
- UNAIDS Workbooks
- UNAIDS Estimation & Projection Package
- Spectrum
- Asian Epidemic Model

What determines the tools we can use?

- 1. Availability of
 - HIV prevalence data
 - Size estimates for key populations
 - Information about responses

Estimation & projection tools

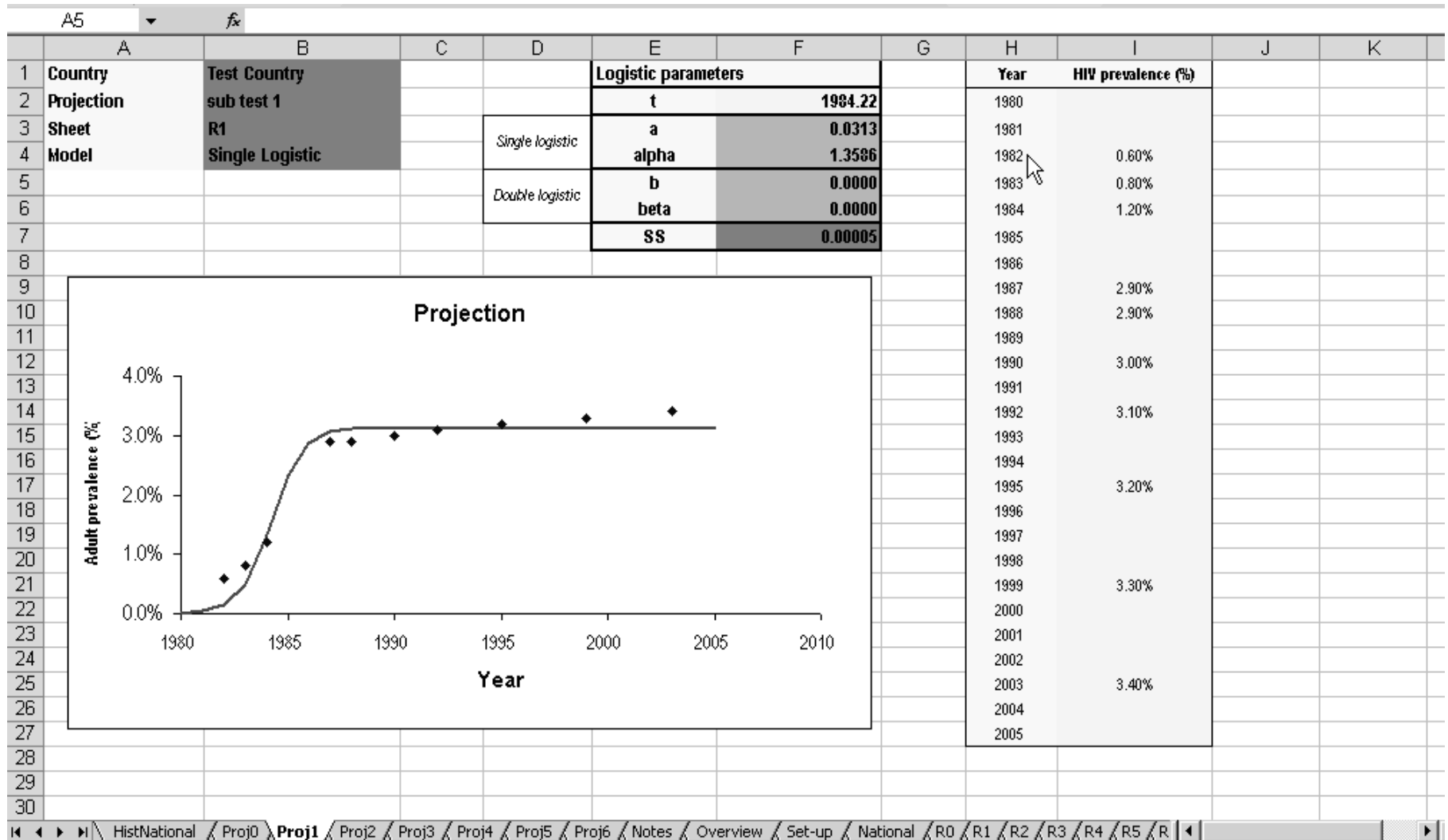
Low prevalence & concentrated epidemics in Asia

- UNAIDS workbook/spreadsheet approach
 - Prerequisites: sizes of key pops & prevalence estimates or limits
- Still most appropriate method for most of Asia due to data limitations

UNAIDS Workbook – prevalence estimation

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Test Country	sub test 1											
2	Region adult (15-49) population:	3,000,000											
3	% Urban population:	65%	Method used to calculate number of low risk infections										
4	Urban adult population:	1,950,000		Select only one:	x	Method A: Partners of high risk							
5	Year	2004				Method B: ANC data applied to low risk women							
6													
19													
20	2. Populations at lower risk (PLR) that are not already included in PHR												
21	Method A: Partners of high risk populations	Population Size Estimate		HIV prevalence Estimate (%)		Estimates of adults living with HIV/AIDS				Average number of adults living with HIV	Female statistics		
22		Low estimate	High estimate	Low	High	(Low Population x Low Prevalence)	(Low Population x High Prevalence)	(High Population x Low Prevalence)	(High Population x High Prevalence)		Percent (%) female in risk group	Number of women Infected	Percent (%) of infected who are women
23	Partners of IDU	500	800	2.00%	3.00%	10	15	16	24	16	65.0%	11	
24	Female partners of MSM	500	60	0.10%	0.50%	1	3	0	0	1	100.0%	1	
25	Partners of Clients of Sex workers	2,000	2,500	0.10%	0.15%	2	3	3	4	3	100.0%	3	
26	Optional LR1					0	0	0	0	0		0	
27	Optional LR2					0	0	0	0	0		0	
28	Optional LR3					0	0	0	0	0		0	
29	Sub-total	3,000	3,360							20		14	71.4%
30	Method B: ANC data applied to low risk women	Population Size Estimate		HIV prevalence Estimate (%)		Estimates of adults living with HIV/AIDS				Average number of adults living with HIV	Female statistics		
31		Low	High	Low	High	(Low Population x Low Prevalence)	(Low Population x High Prevalence)	(High Population x Low Prevalence)	(High Population x High Prevalence)		Percent (%) female in risk group	Number of women Infected	Percent (%) of infected who are women
32	Urban female low risk pop	967,590	971,393			0	0	0	0	0			
33	Rural female low risk pop	521,010	523,058			0	0	0	0	0			
34	Sub-total	1,488,600	1,494,450							0		0	
35	No Risk Population	2,951,640	2,964,600										
36	Sub-total PLR	3,000	3,360							20		14	71.4%
37													

UNAIDS Workbook - projection

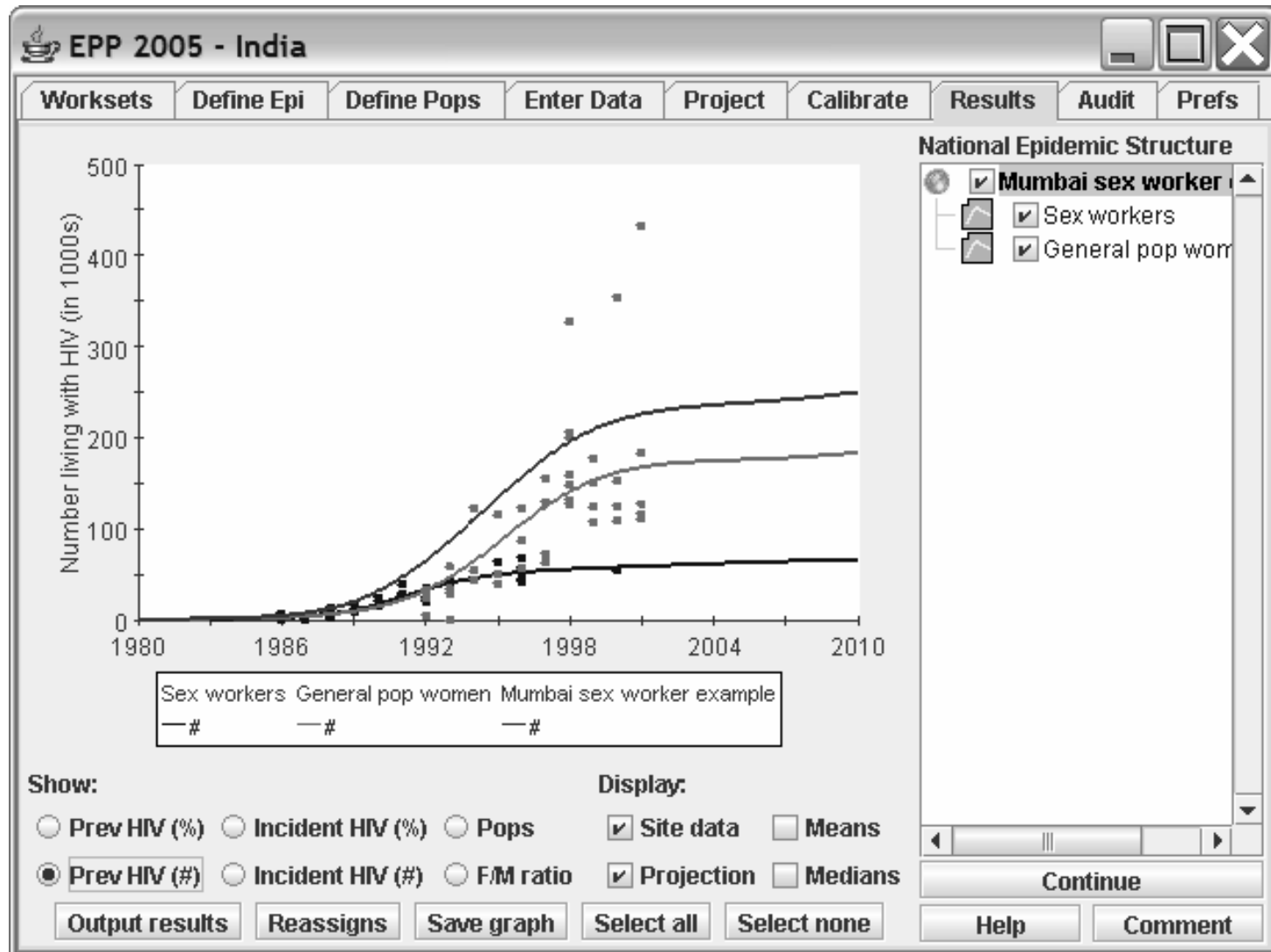


Estimation & projection tools

Low prevalence & concentrated epidemics in Asia

- Curve fitting models (EPP)
 - Prerequisites: HIV prevalence trends and sizes of key pops
- Applicable in a few countries with time series of data, but
 - Gaps in key populations
 - Changing surveillance systems
 - Questions about representativeness of data

UNAIDS EPP 2005

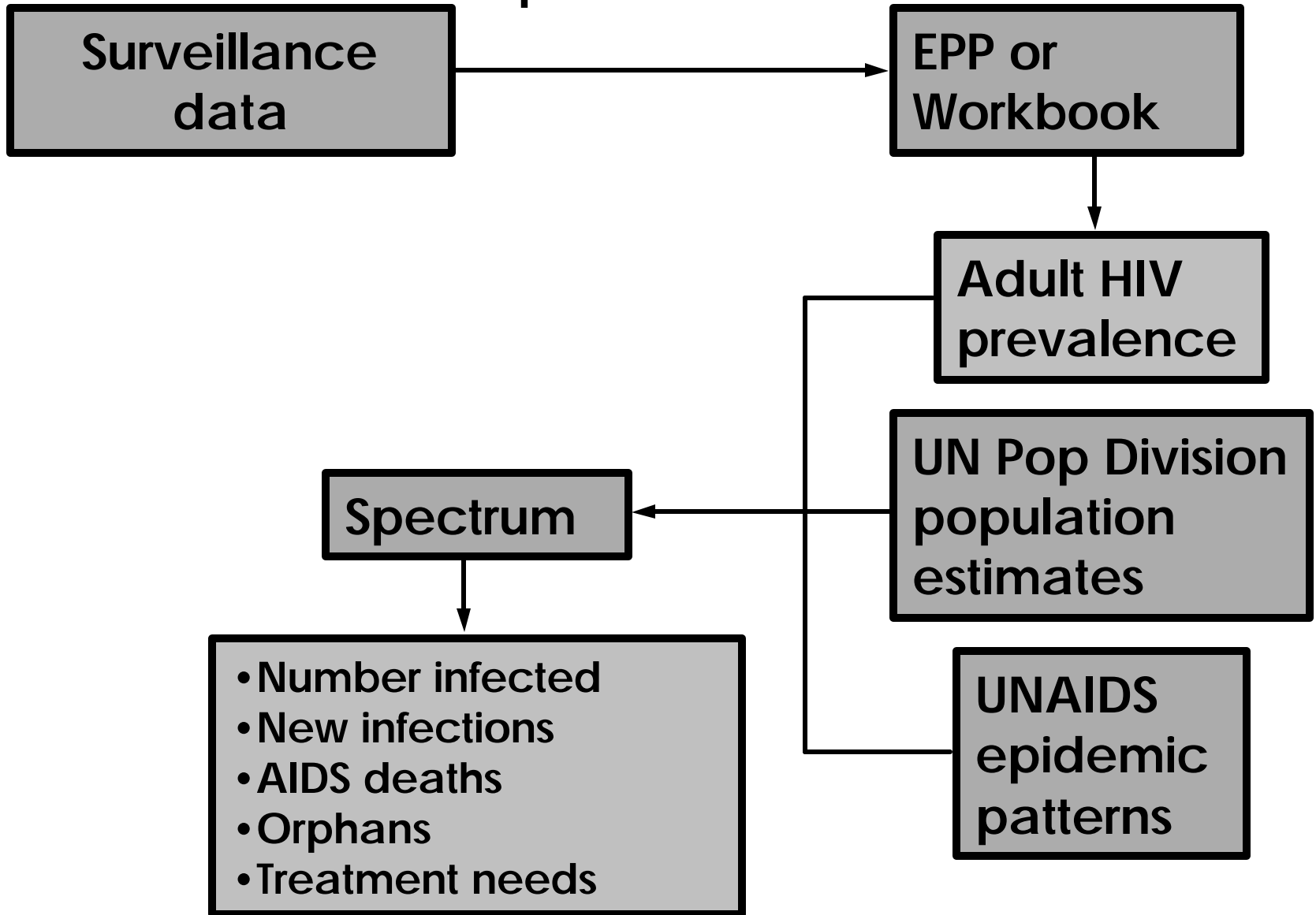


Estimation & projection tools

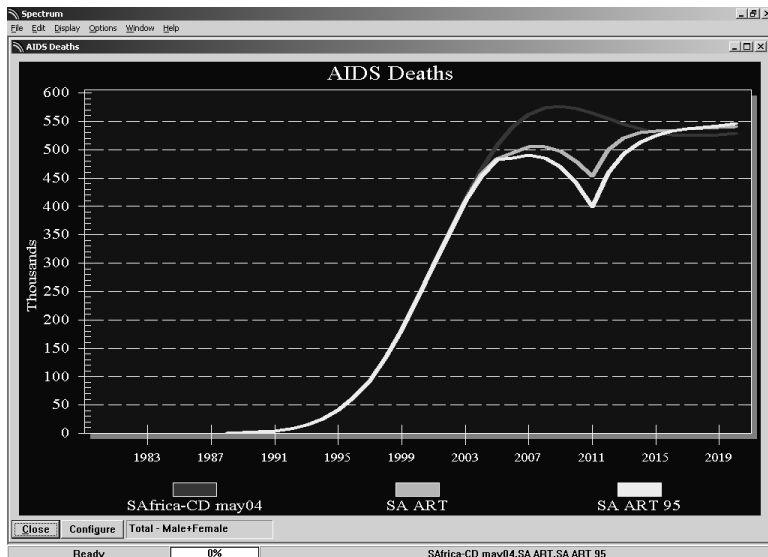
Low prevalence & concentrated epidemics in Asia

- Impact assessment tools - Spectrum
 - Prerequisites: HIV prevalence trends, HIV age structures, demographics, etc.
- Applicable in most countries
 - Can use trends from workbook or EPP

Spectrum

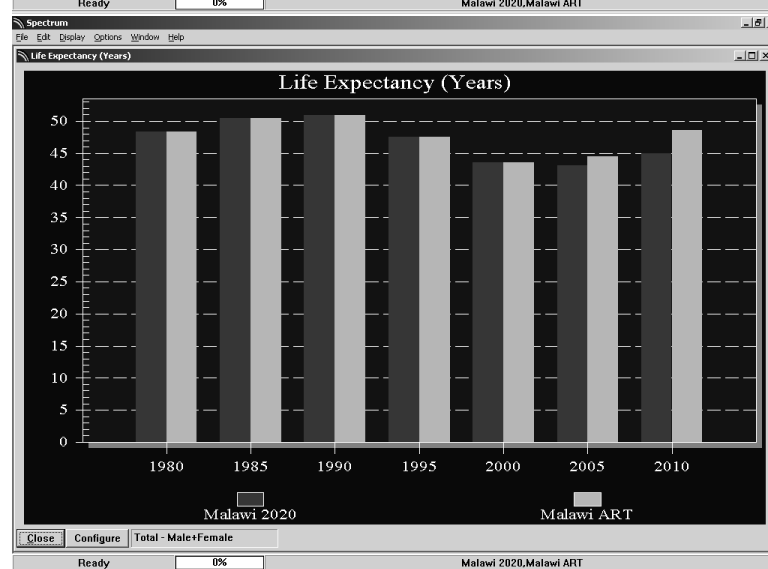
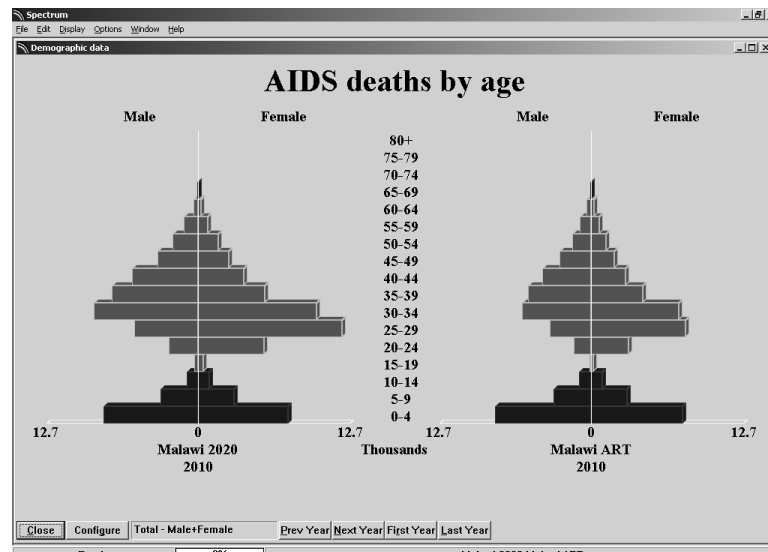


Spectrum allows various analyses



Adults 15-49 Summary - Total

	1980	1985	1990	1995	2000	2005	2010
Malawi 2020							
HIV population							
Total	0	18,066	204,553	564,106	747,134	862,021	1,009,694
Males	0	10,754	98,819	248,305	334,841	375,392	448,651
Females	0	7,312	105,736	315,801	412,293	486,629	560,943
Adult prevalence	0.00	0.37	5.32	12.85	14.34	14.13	14.25
New HIV infections							
Total	0	7,850	70,272	83,075	82,440	101,690	119,728
Males	0	4,064	33,141	36,491	39,316	45,887	54,382
Females	0	3,803	37,437	46,790	44,080	55,811	65,391
Adult HIV incidence	0.00	0.25	2.01	2.17	1.85	1.94	1.97
New AIDS cases							
Total	0	296	5,148	25,084	56,618	70,730	80,418
Males	0	249	3,238	14,325	25,605	31,539	36,554
Females	0	47	1,910	13,559	31,013	39,202	43,864
Annual AIDS deaths							
Total	0	156	3,124	21,712	51,087	67,893	77,196
Males	0	145	2,046	11,625	23,417	30,072	34,948
Females	0	12	1,078	10,087	27,670	37,821	42,248
Number newly needing ARV therapy							
Total	0	591	10,296	56,168	113,235	141,461	160,836
Males	0	498	6,476	29,030	51,210	63,037	73,108
Females	0	94	3,819	27,118	62,026	78,403	87,728
Number on ARV therapy							
Total	0	0	0	0	0	0	0
Total number needing ARV							
Total	0	591	10,296	56,168	113,235	141,461	160,836
Adult population 15-49							
Total	2,708,271	3,169,491	3,705,705	4,289,030	5,210,127	6,101,759	7,084,933
Male	1,292,964	1,518,817	1,783,861	2,133,088	2,570,885	3,062,551	3,605,140
Female	1,415,407	1,650,673	1,921,844	2,256,842	2,639,452	3,039,208	3,479,793
Malawi 2020							
HIV population							
Total	0	18,066	204,553	564,106	747,134	875,726	1,092,529
Males	0	10,754	98,819	248,305	334,841	391,600	473,244
Females	0	7,312	105,736	315,801	412,293	484,126	619,285



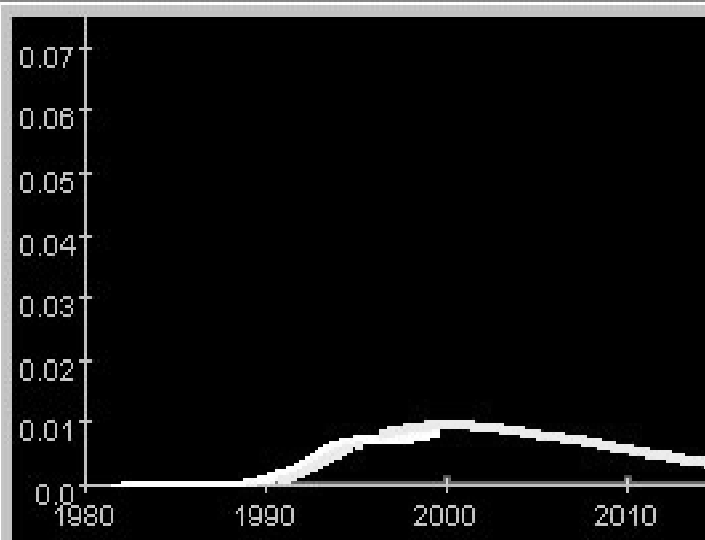
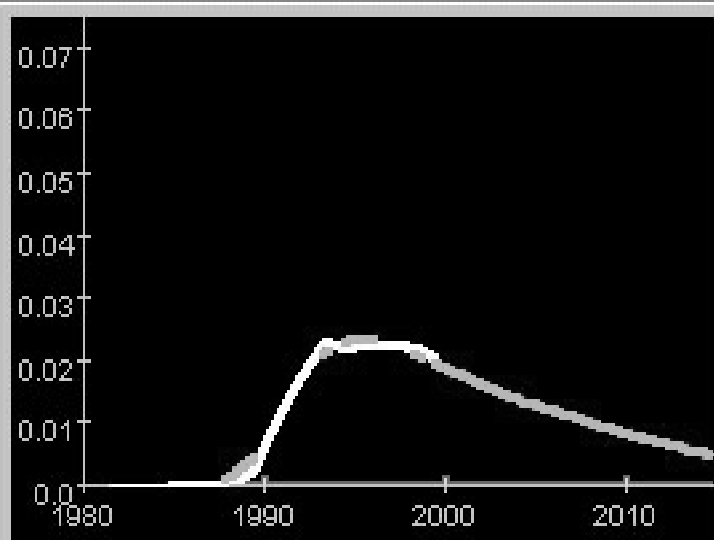
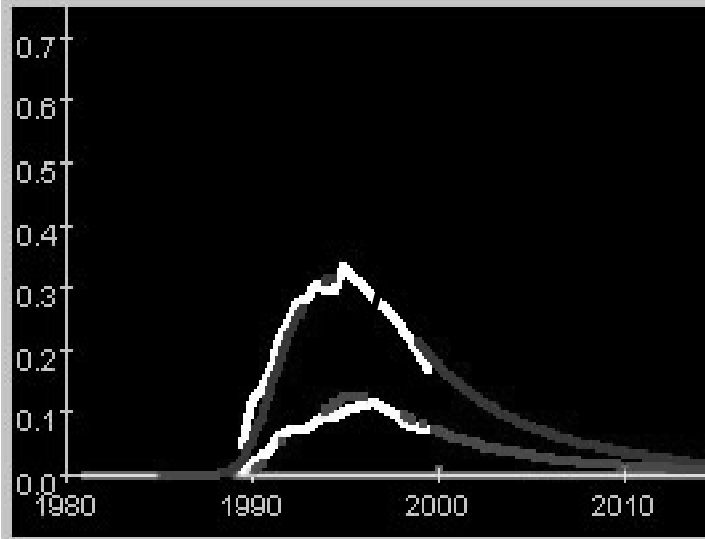
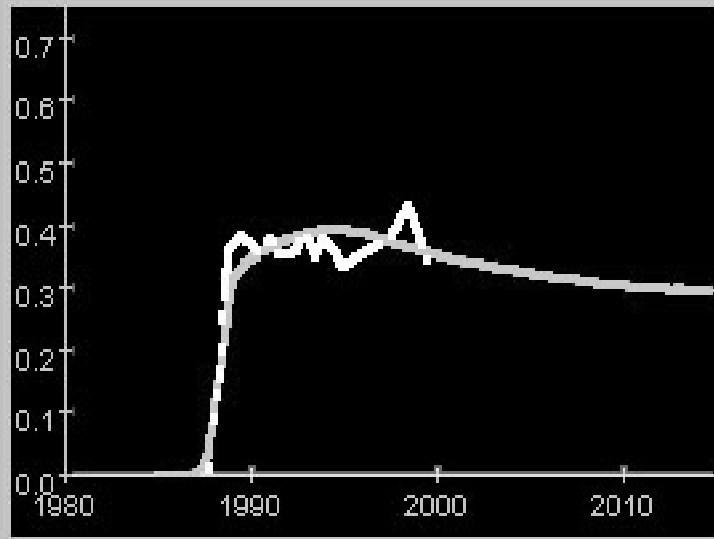
Estimation & projection tools

Low prevalence & concentrated epidemics in Asia

- Simulation models (Asian Epidemic Model)
 - Prerequisites: time trends in epi, behavior and responses
- Applicable in places with extensive data
 - Requires critical analysis of the inputs
 - Extracting trends is time consuming

Asian Epidemic Model Fit for Thailand

All General Male General Female Sex Worker Drug User



Start Year

< 1985.0 >

IDU Start Year

< 1985.0 >

End Year

< 2022.0 >

Pid

< 0.0042 >

Pf_m

< 5.6E-4 >

Pm_f

< 0.00193 >

Cstd_m

< 50.0 >

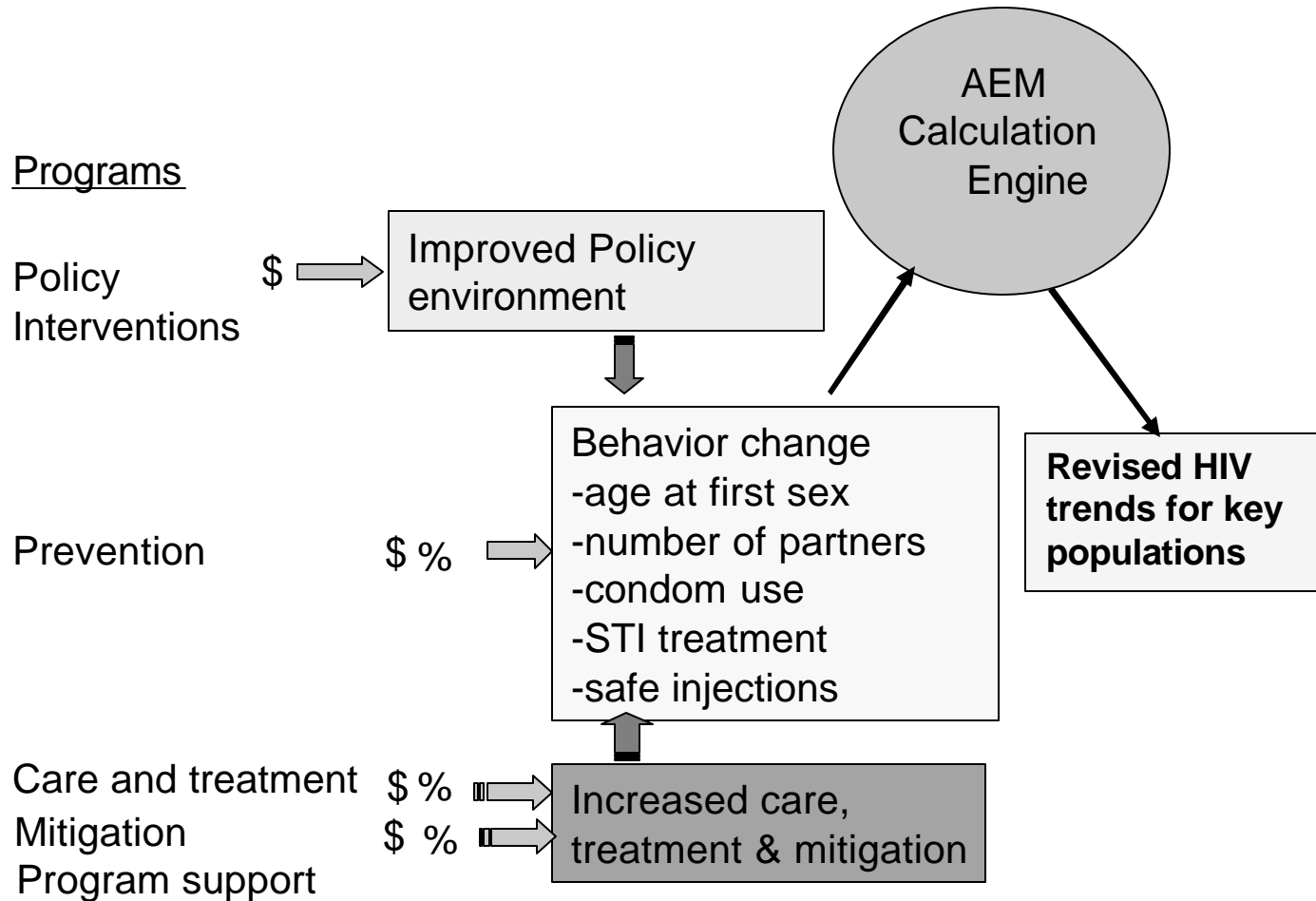
Cstd_f

< 10.0 >

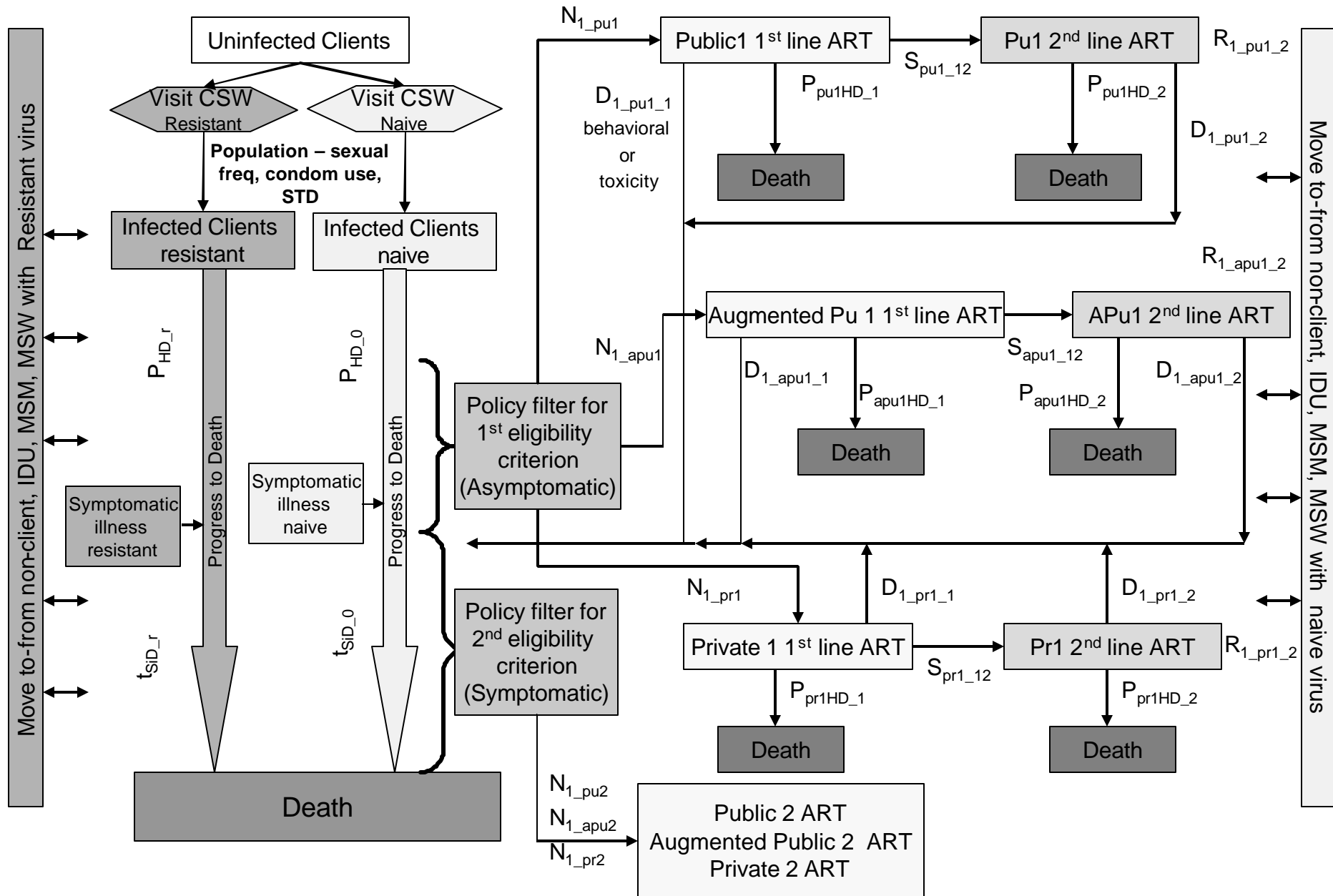
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Integration of AEM & GOALS to link resources and impact in Asia



Client compartment of AEM model with ART



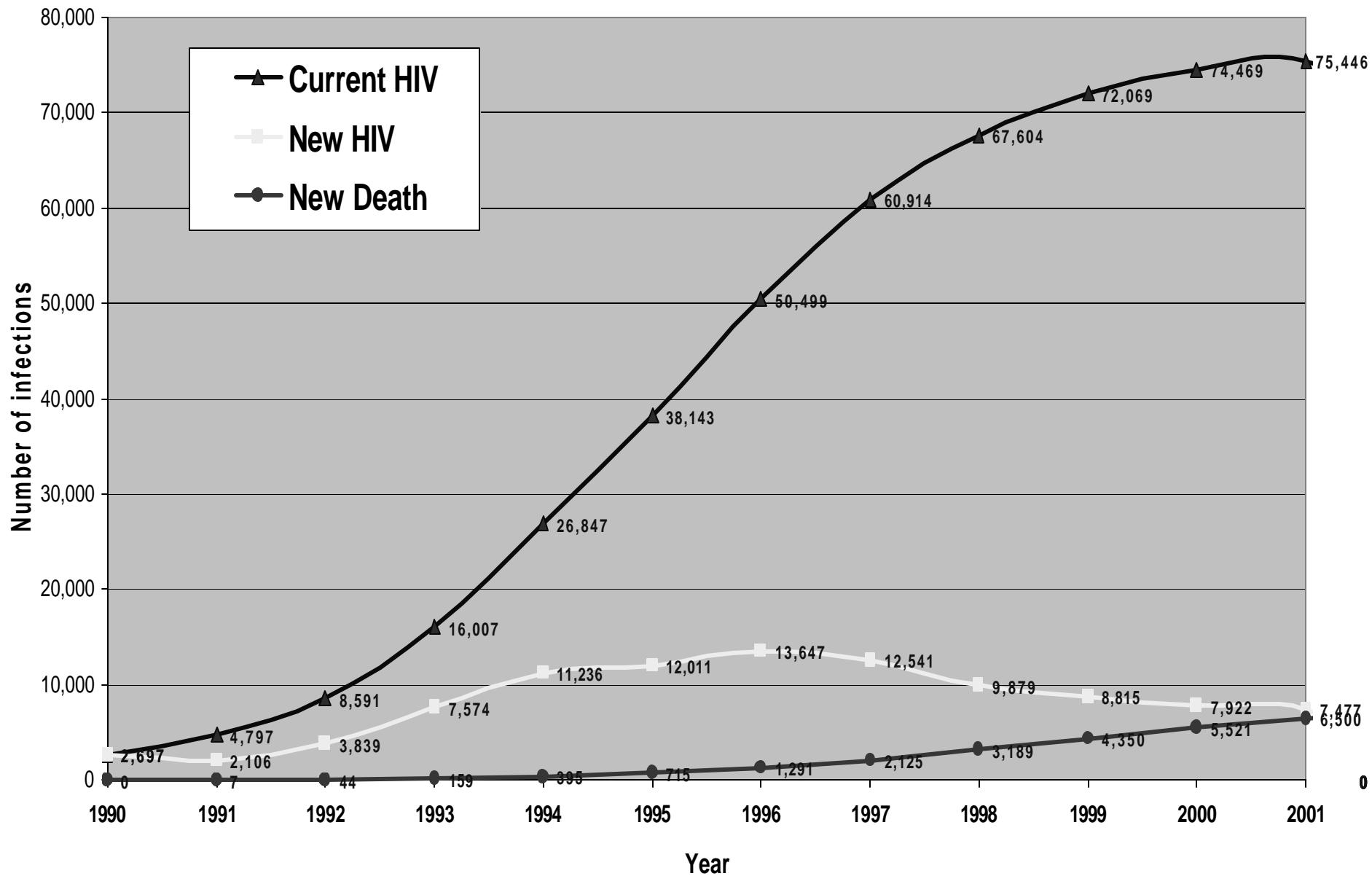
What models can give us IF we have enough data

- Workbooks
 - High-low estimates of numbers of infections & short term trends

What models can give us IF we have enough data

- Workbooks
 - High-low estimates of numbers of infections and short term trends
- EPP
 - Numbers of current infections (prevalence)
 - Numbers of new infections (incidence), and
 - Short term projections

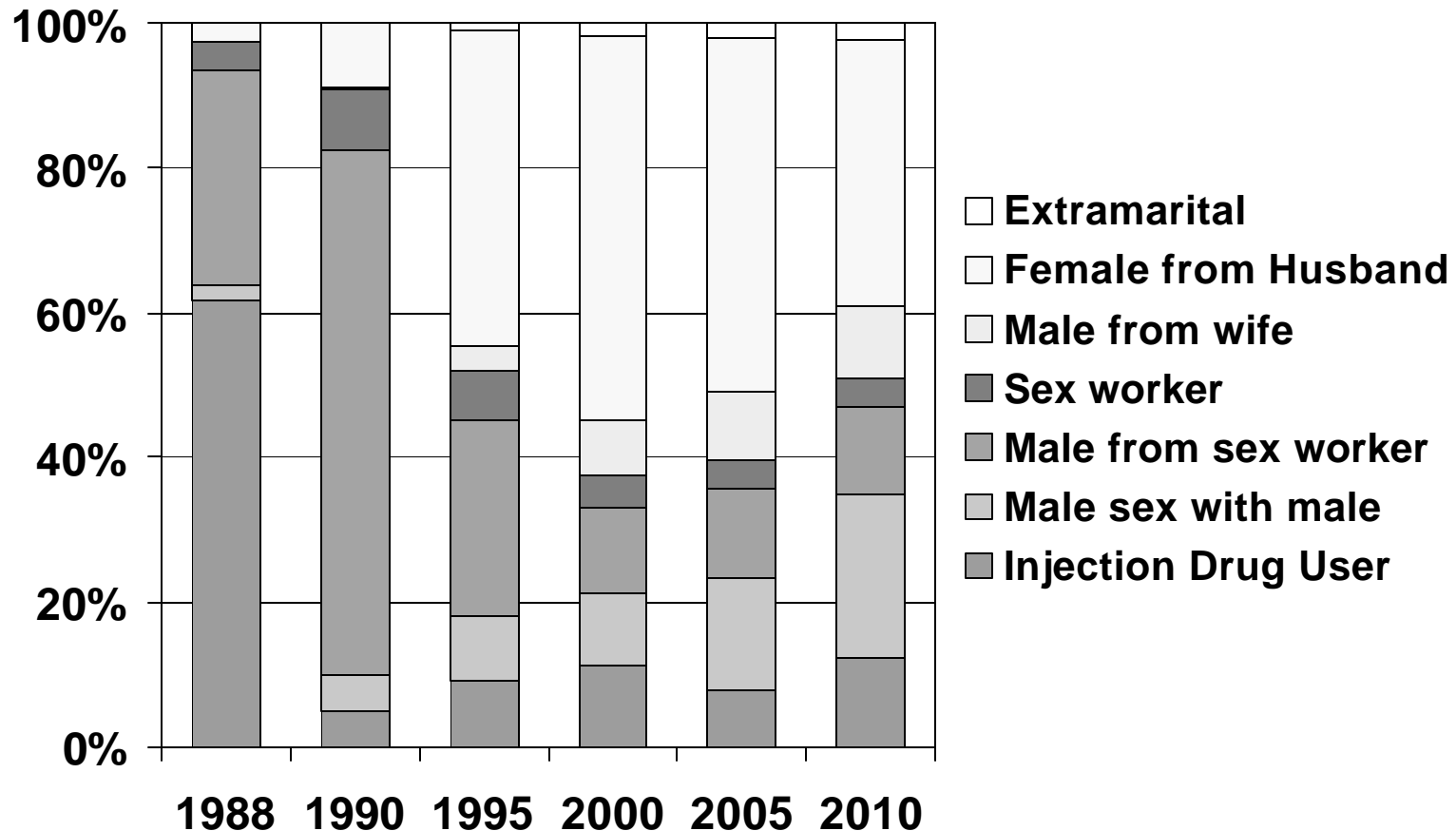
Number of HIV infections among female in Cambodia



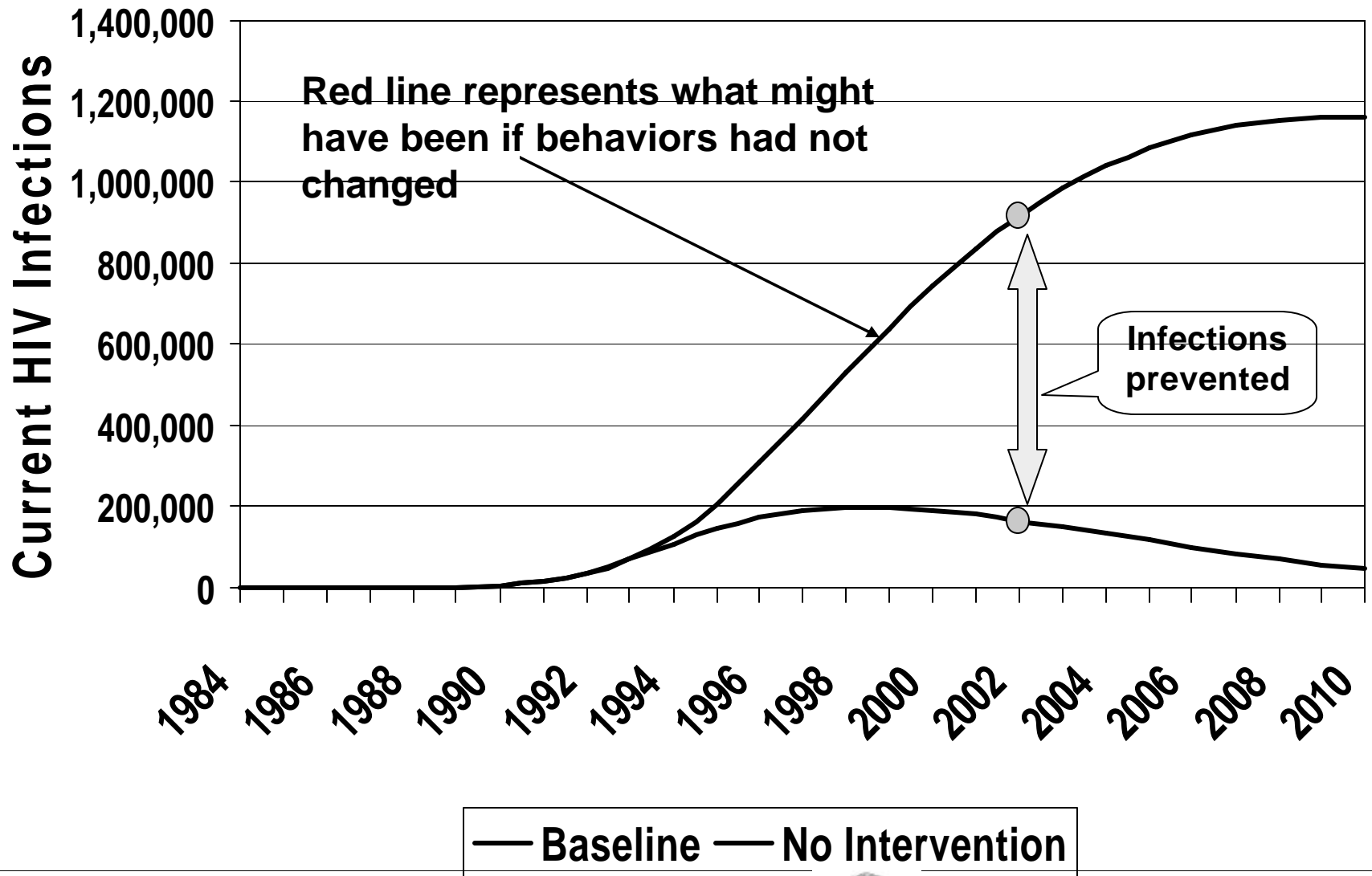
What models can give us IF we have enough data

- AEM
 - Past history of epidemic –where to focus
 - Impacts of past & future behaviors on HIV/STI
 - With additional analysis – national/state response effectiveness
 - Long term projections, if future behaviors assumed
 - Comparisons of policy/program alternatives

In an evolving epidemic, we must adapt responses as the epidemic changes



Evaluation of past prevention efforts and future course of the epidemic



What models can't give us

- Models cannot “construct” epidemics in low prevalence settings where
 - HIV has not yet spread
 - Trend data is not available in key pops
- Models cannot substitute for data gaps
 - Models are only as good as their inputs
 - A more sophisticated form of ignorance
- Models cannot accurately predict the future
 - But they can show what's plausible IF they fit all available data

What determines the tools we can use?

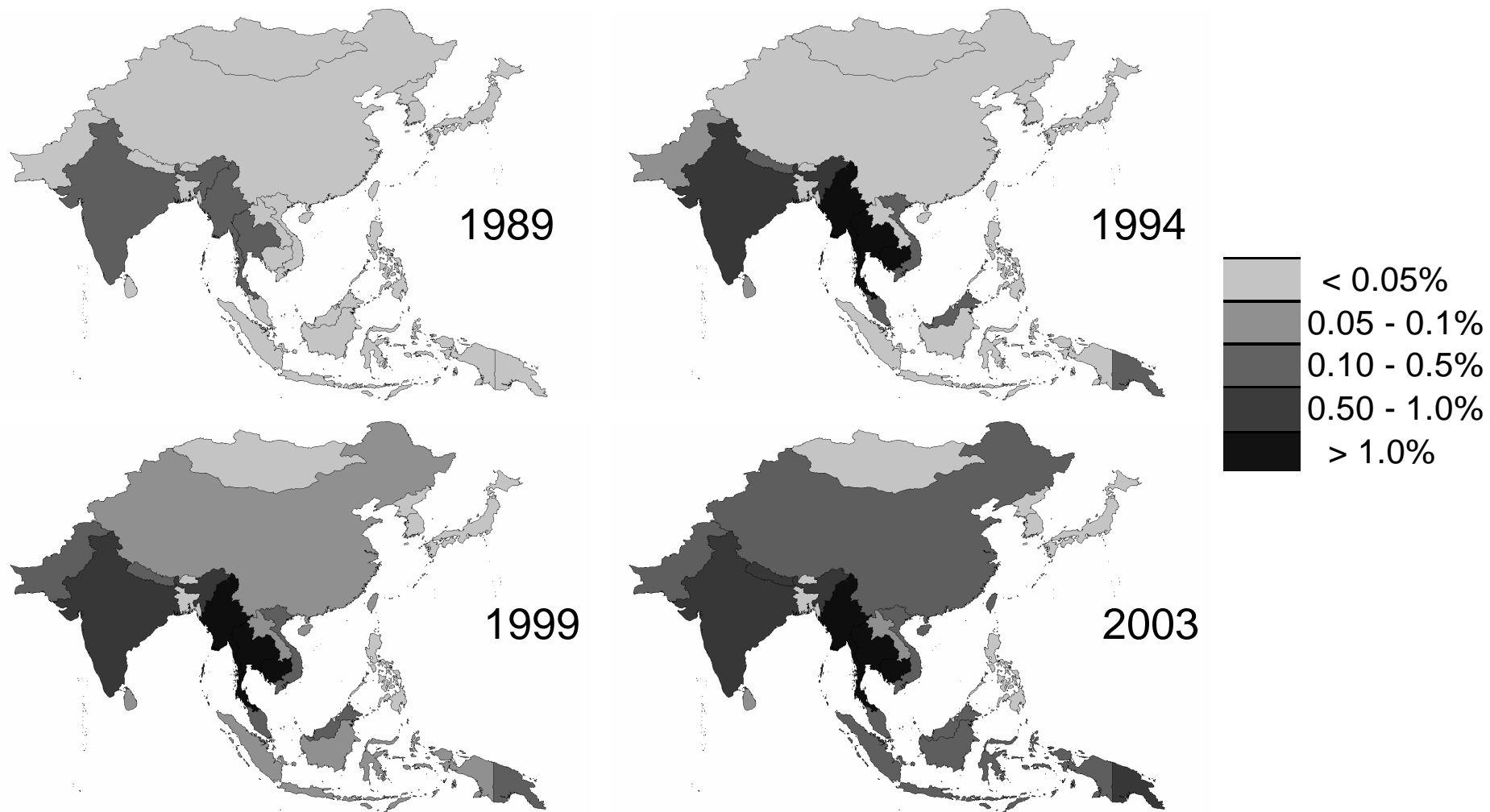
- 2. International, national and sub-national capacity to apply these tools
 - Critical analysis of available data for quality, representativeness, and validity
 - Appropriate training and skills for applying the tools
 - Staffing and time to apply the tools, do the analysis, and disseminate results

A little knowledge is a dangerous thing

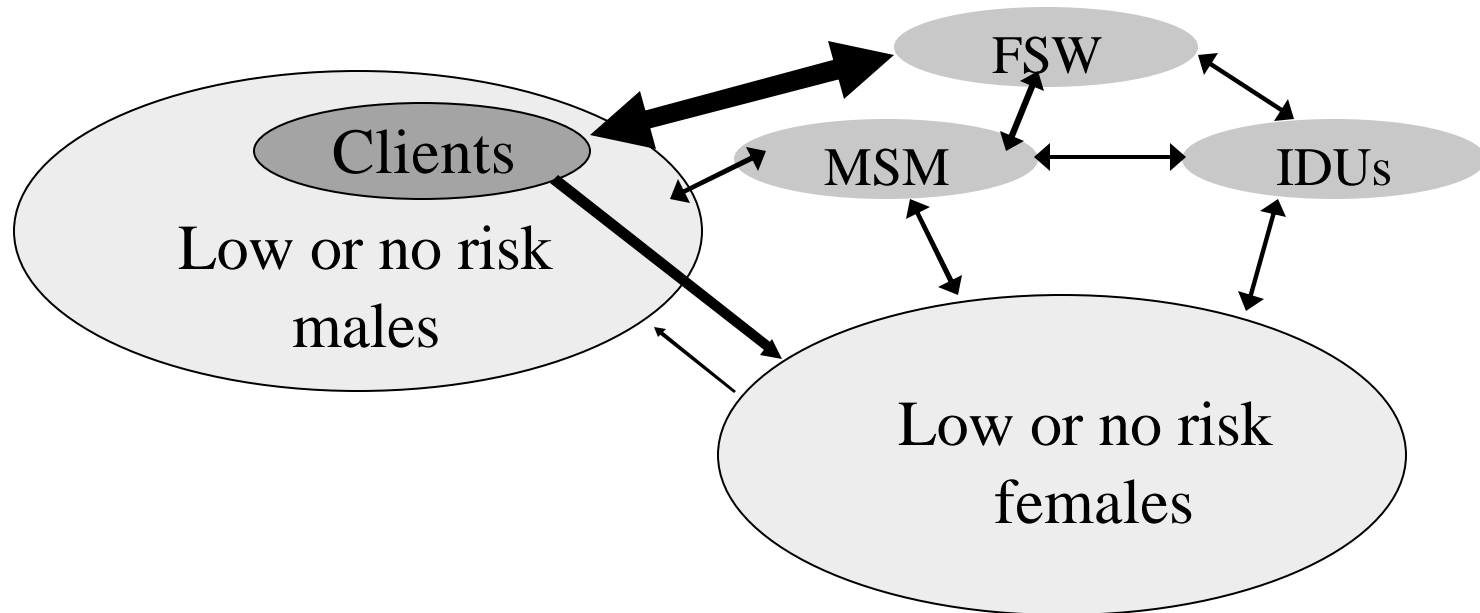
So what do these tools tell us about epidemics in Asia?

Asian epidemics show great diversity

Both epidemiologically and temporally....



Asian epidemics remain focused in specific populations & their partners...



- No “generalized” spread
- Focused prevention effective

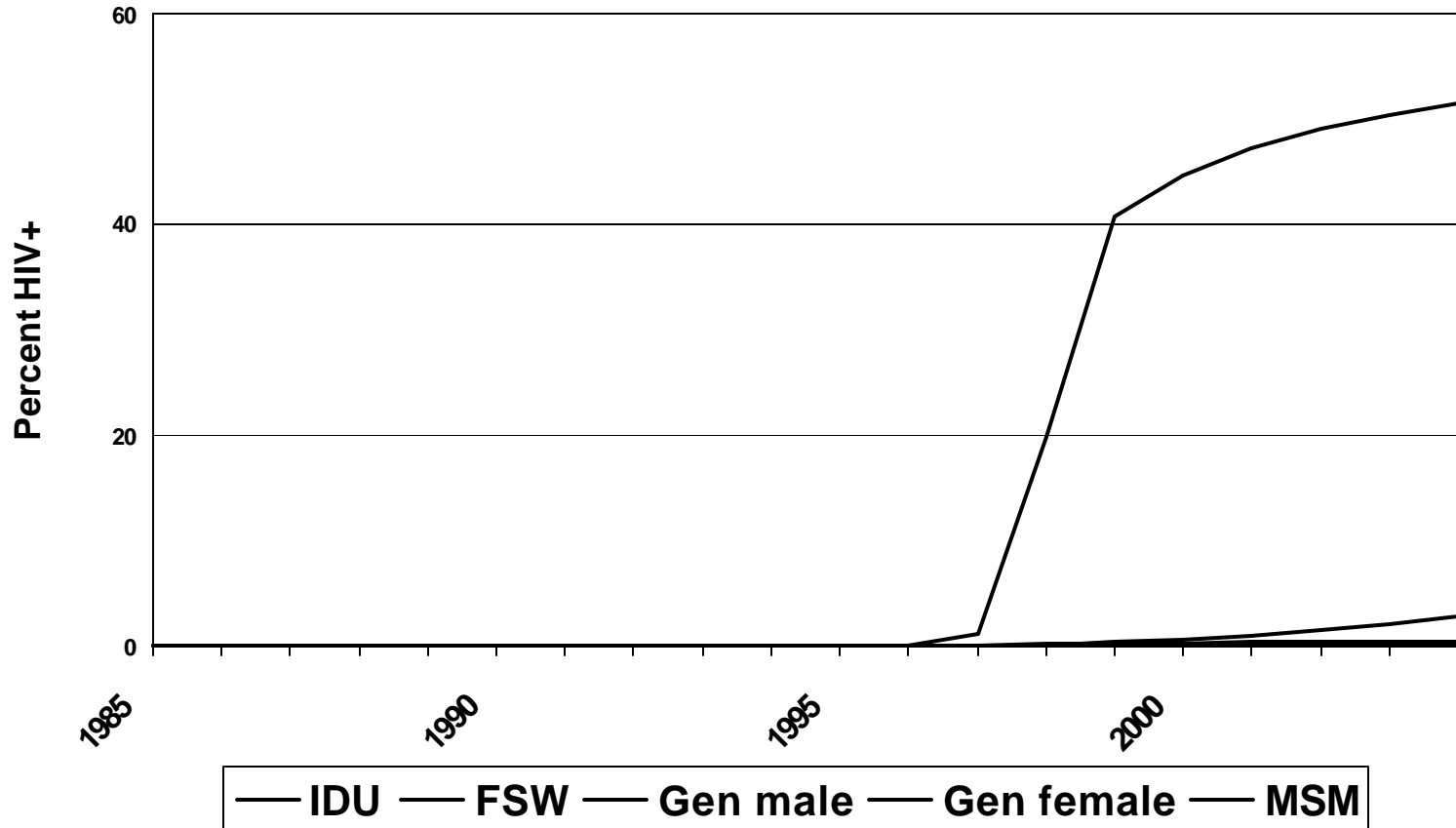
A number of factors may explain the variations seen in Asian epidemics

- Levels of risk
 - Sizes of at risk populations, esp. clients
 - Frequency of sexual activity
- Populations contributing to the epidemic
- Linkages among at-risk sub-populations
- Time of introduction of HIV
- Behavior change in response to prevention
- Biological factors such as STI and circumcision

An “average” Asian epidemic scenario...

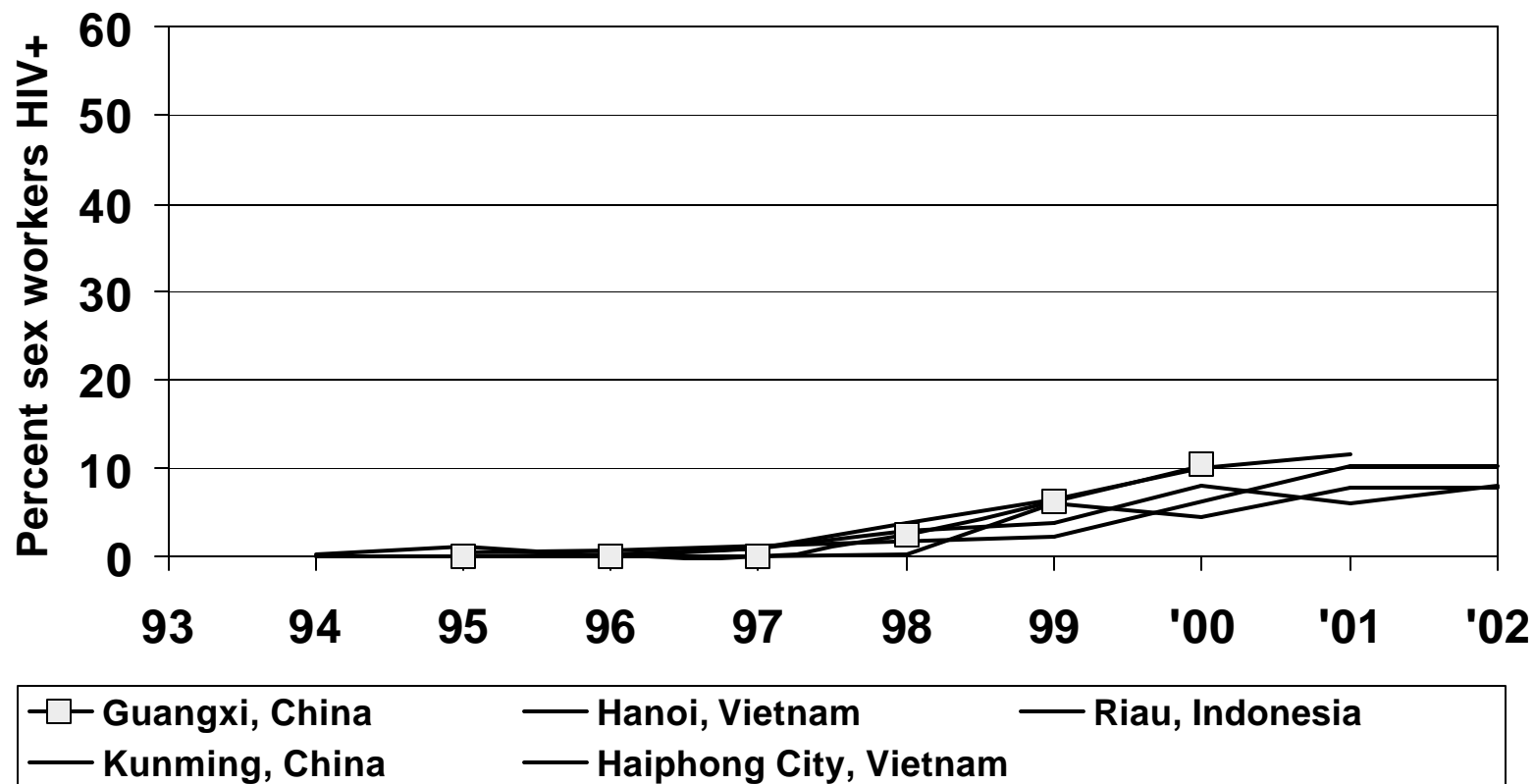
At-risk population	Size (in % of 15-49 y/o)
Clients of sex workers	10% of males
Female sex workers	0.4% of females with one client per day, 30% condom use
Injecting drug users	0.5% of males, epidemic begins 1995
Men having sex w/men	2.0% of males

...produces a late developing epidemic



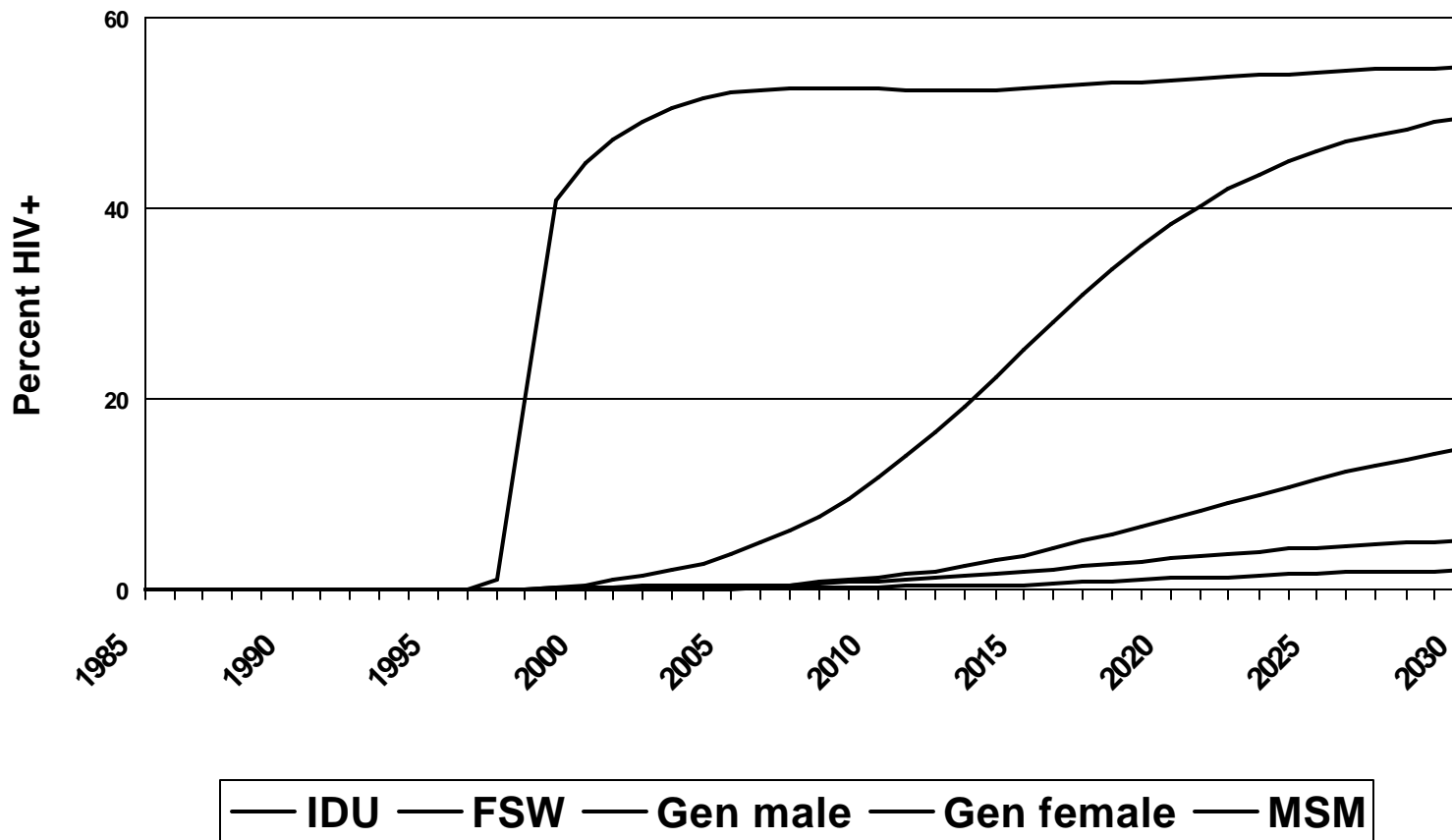
Not unlike epidemics in much of Asia

Slow HIV growth among sex workers in Asian locations



Source: US Bureau of the Census HIV Surveillance Database

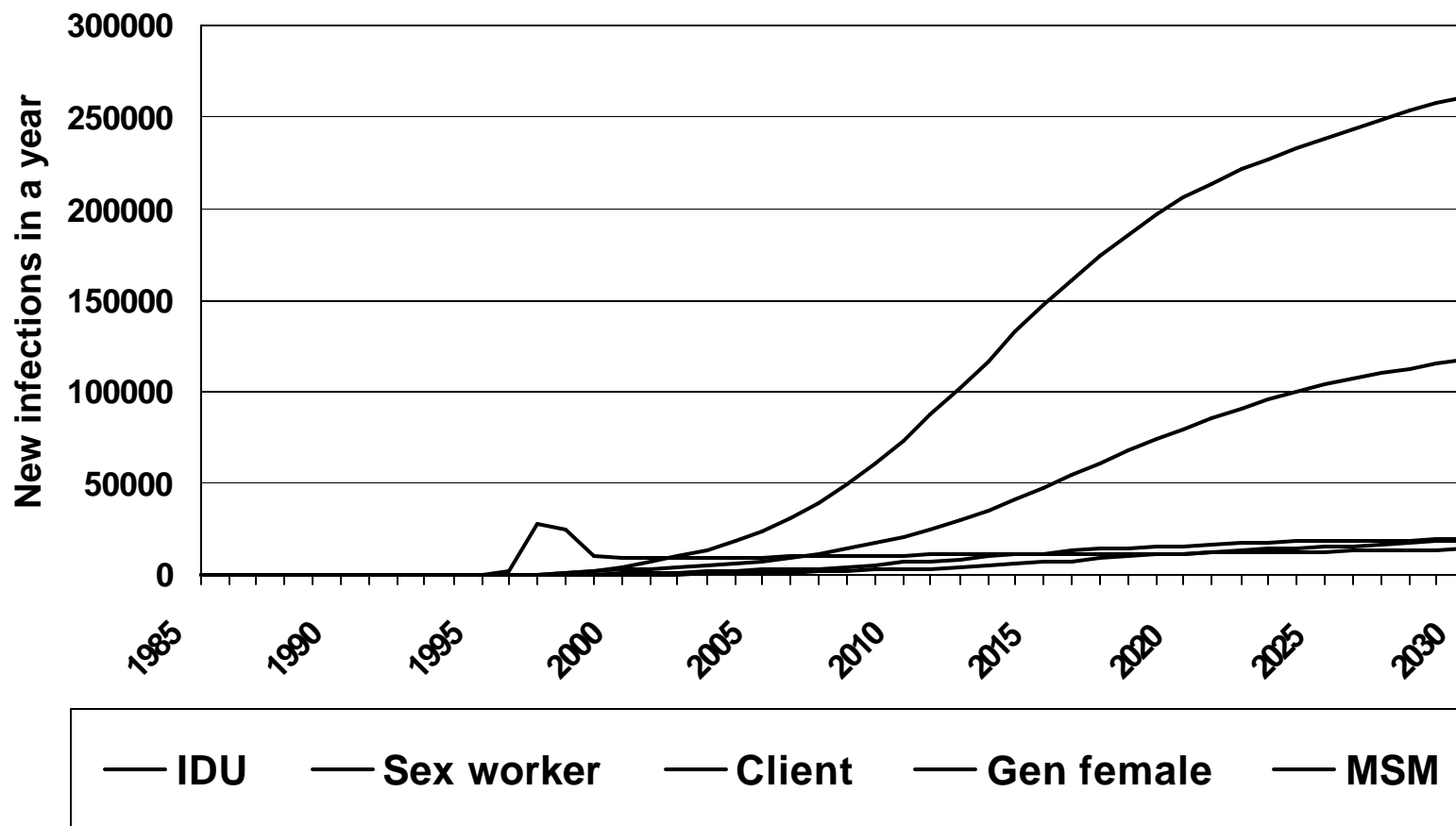
But looking further into the future....



By 2030,
5% of
males,
2% of
females
HIV+

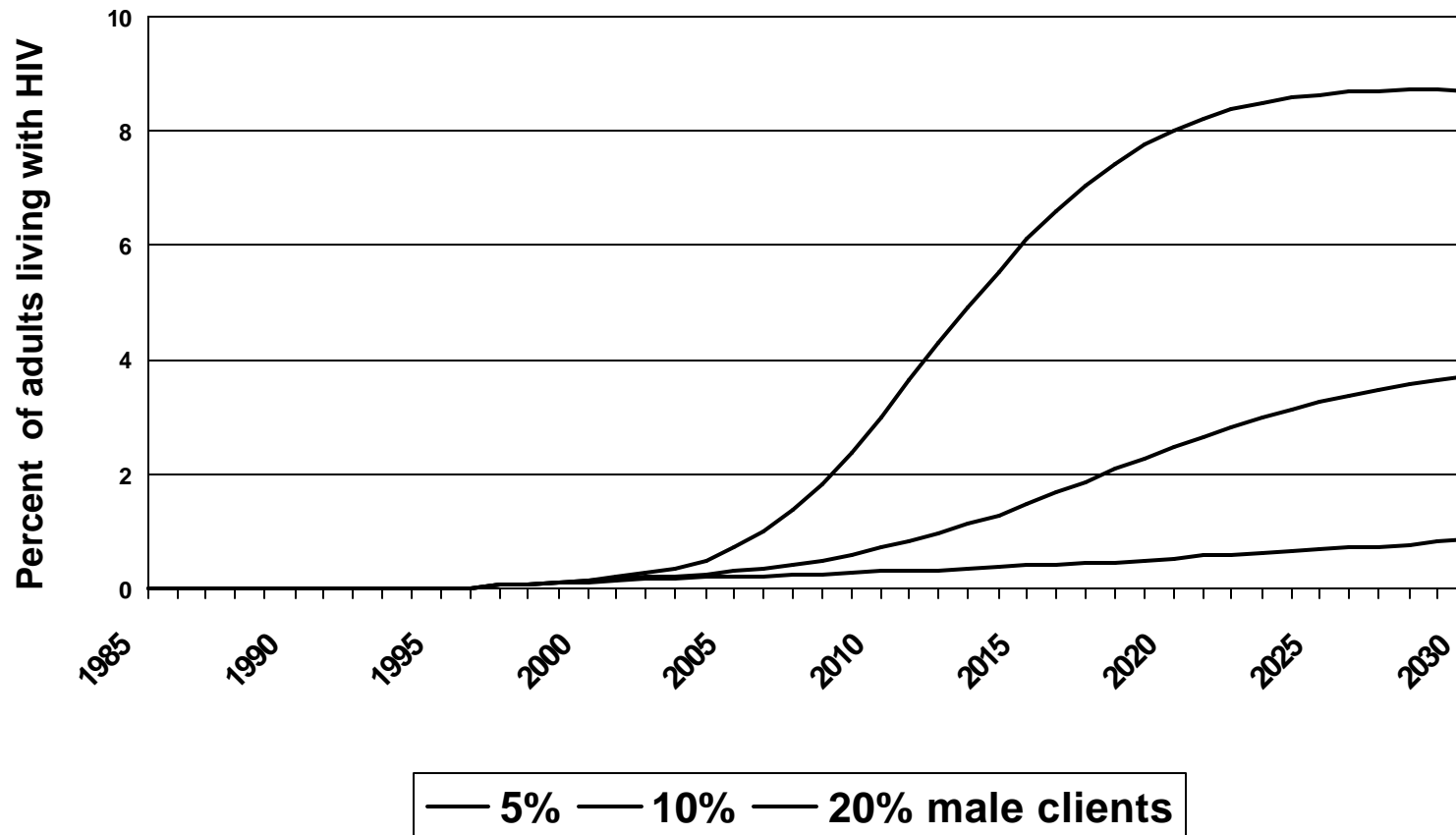
...new infections grow rapidly in number

Total national population is 100 million

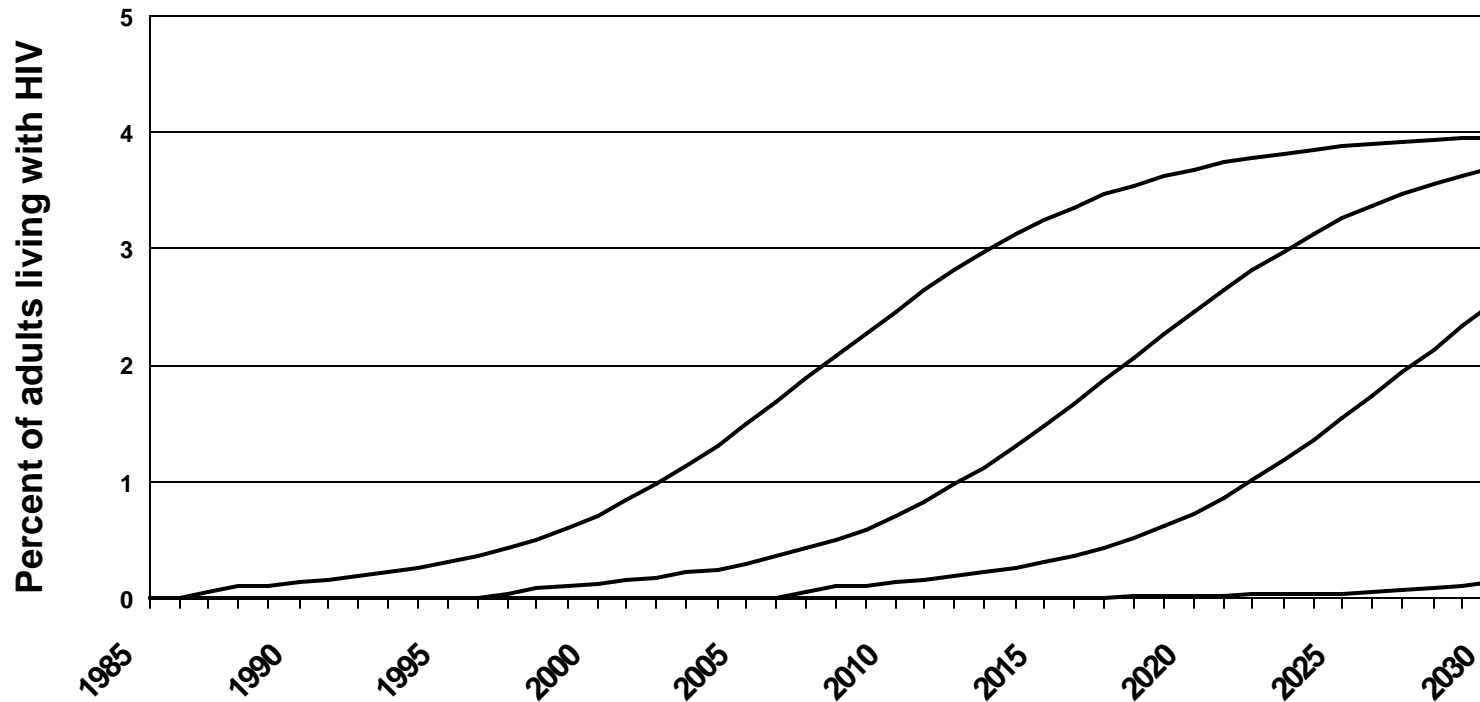


So what do such models tell us about the variations in HIV epidemics in Asia?

The number of clients largely explains differences in speed & severity



Delaying IDU epidemics buys time to prevent sex work epidemics

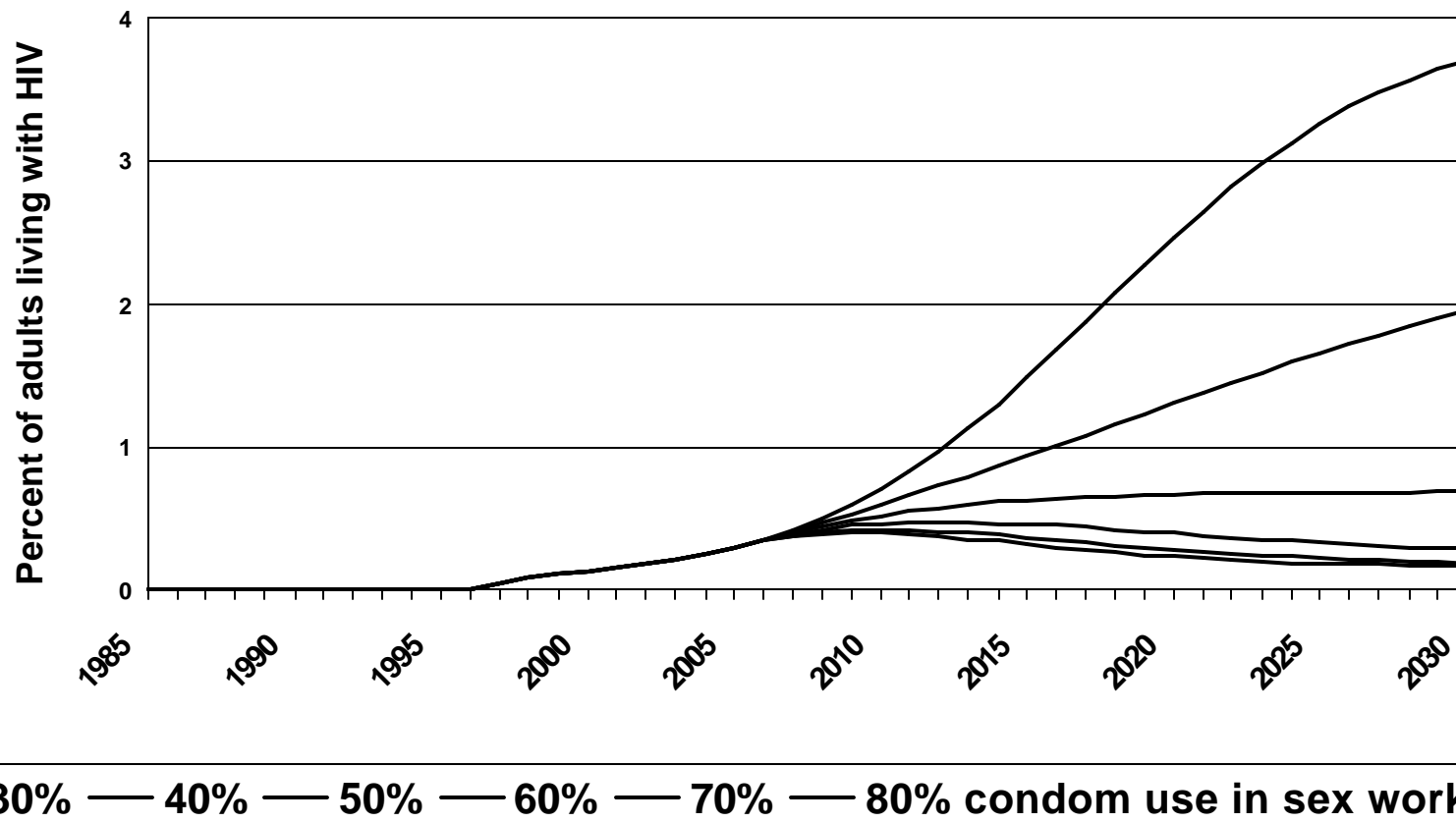


Start year
of IDU
epidemic

— 1985 — 1995 — 2005 — Never

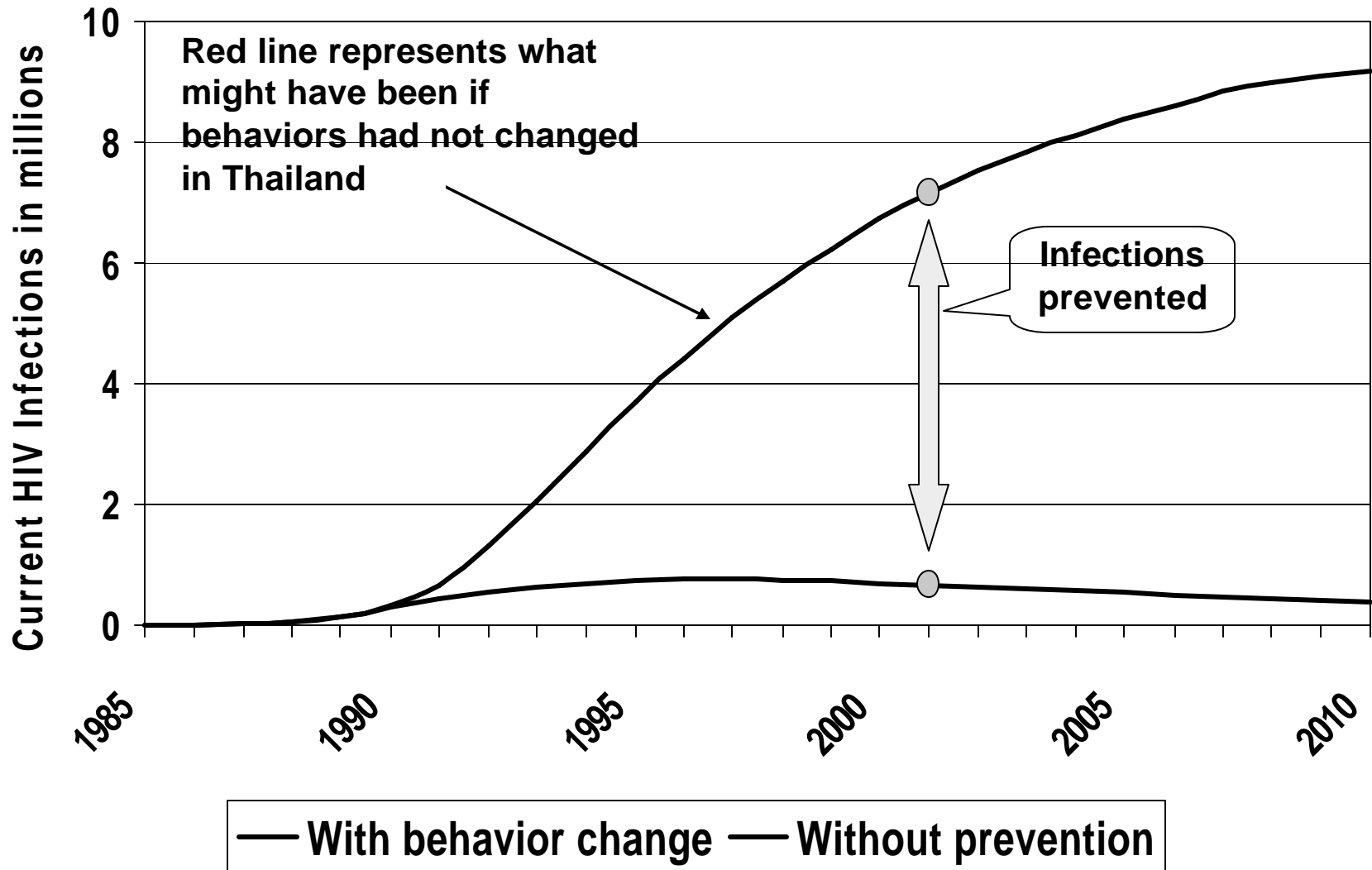
Increasing condom use turns epidemics around

Asian epidemics vulnerable to focused prevention



And focused prevention works

The impact of focused prevention in Thailand

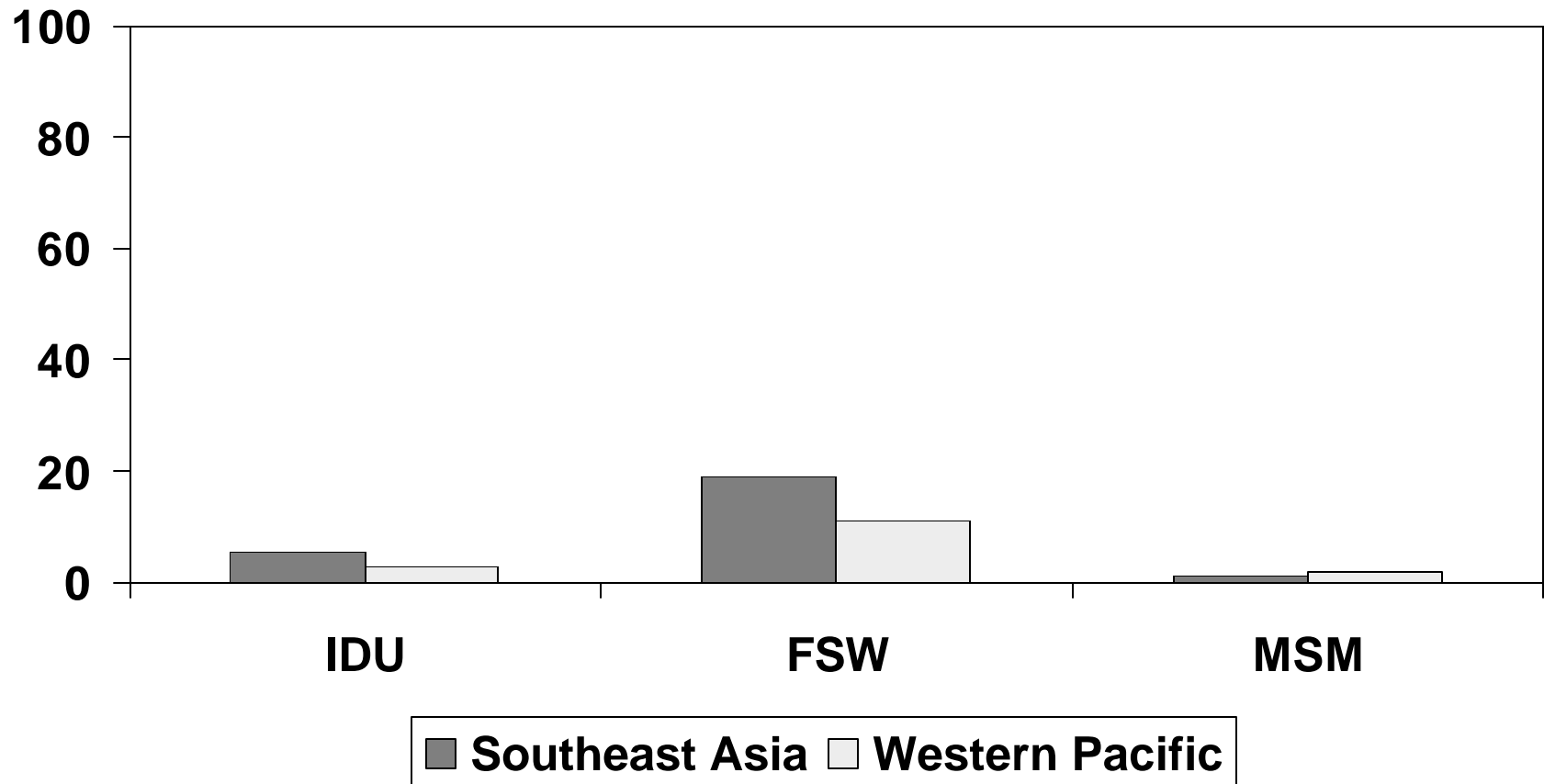


Take home messages

- Later “takeoff” is natural evolution, not immunity
- Slowly evolving epidemics fly below the radar
- “General population spread” will not drive Asian epidemics, we must focus resources properly
- We are far from the levels of prevention needed
- We can control Asian epidemics, but only if we have the courage to make the right decisions

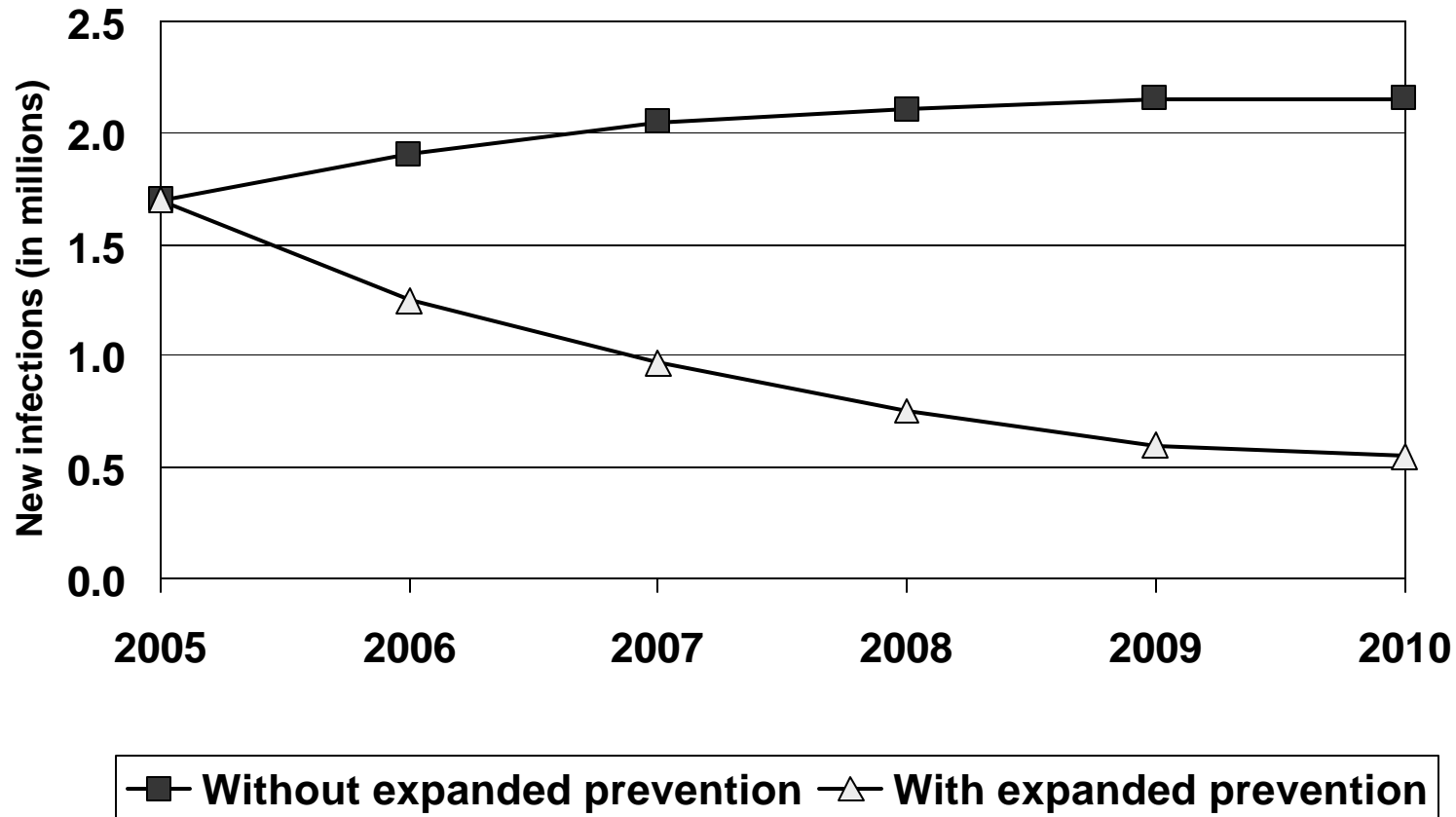
What is the current prevention situation and what are the key issues in prevention?

...and yet, prevention coverage in Asia and the Pacific of these populations is low



Source: USAID, UNAIDS, WHO, UNICEF and POLICY Project, Coverage of selected services for HIV/AIDS prevention, care and support in low and middle income countries in 2003

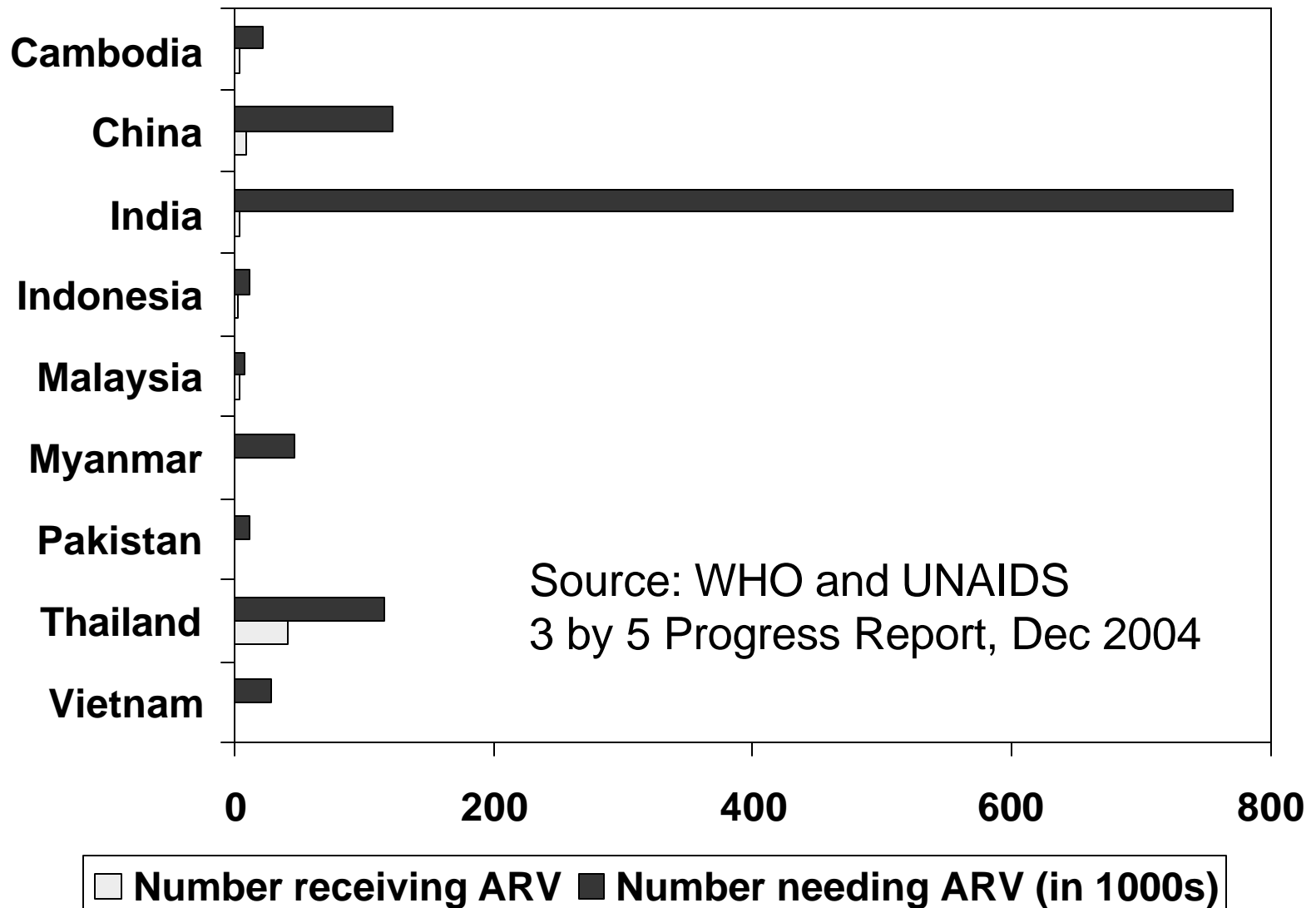
...and the number of new infections continues to grow steadily



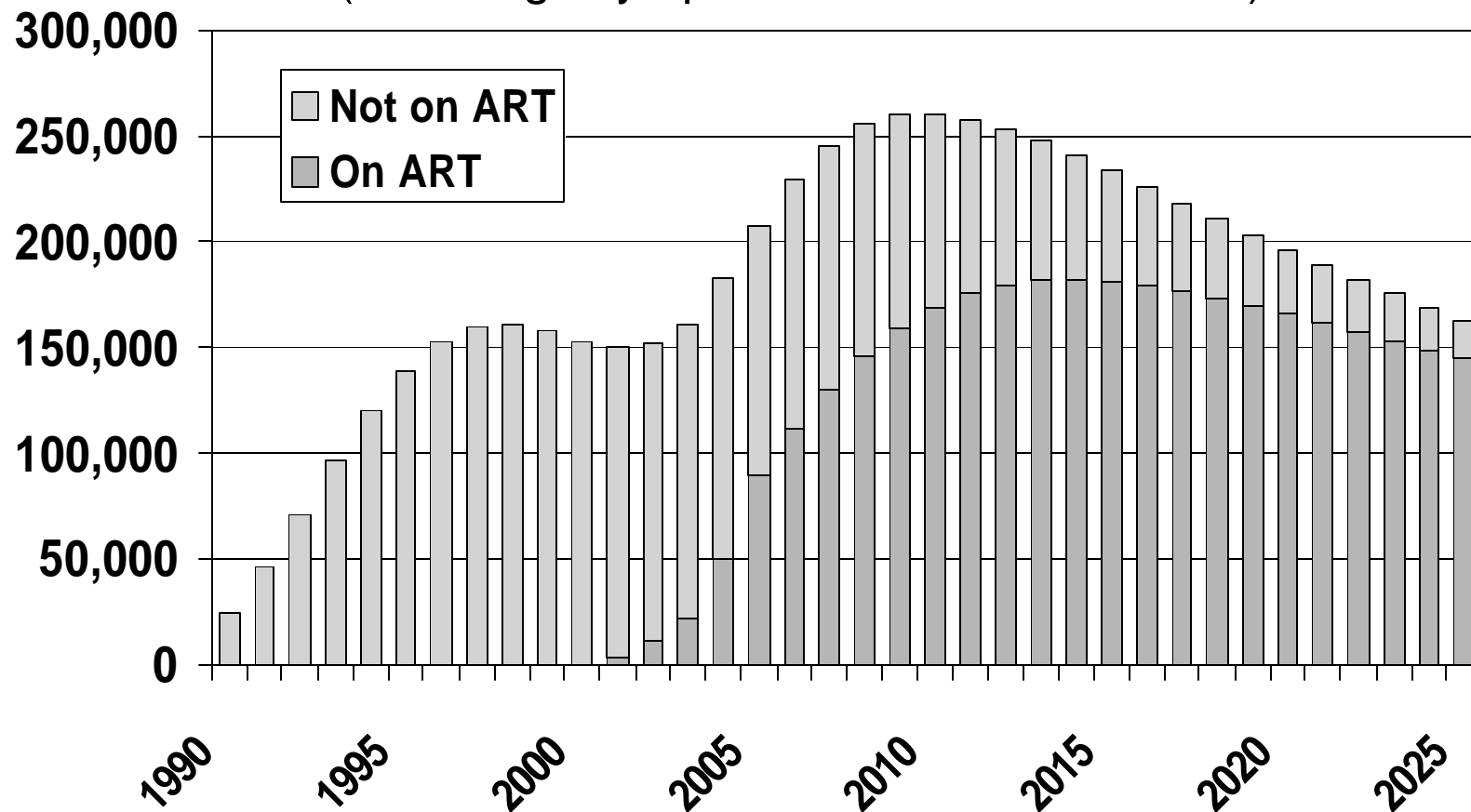
Source: UNAIDS, A scaled-up response to AIDS in Asia and the Pacific, 2005

What is the current situation and key issues in terms of treatment?

Demand for and coverage of ART programs in Asia & the Pacific – December 2004

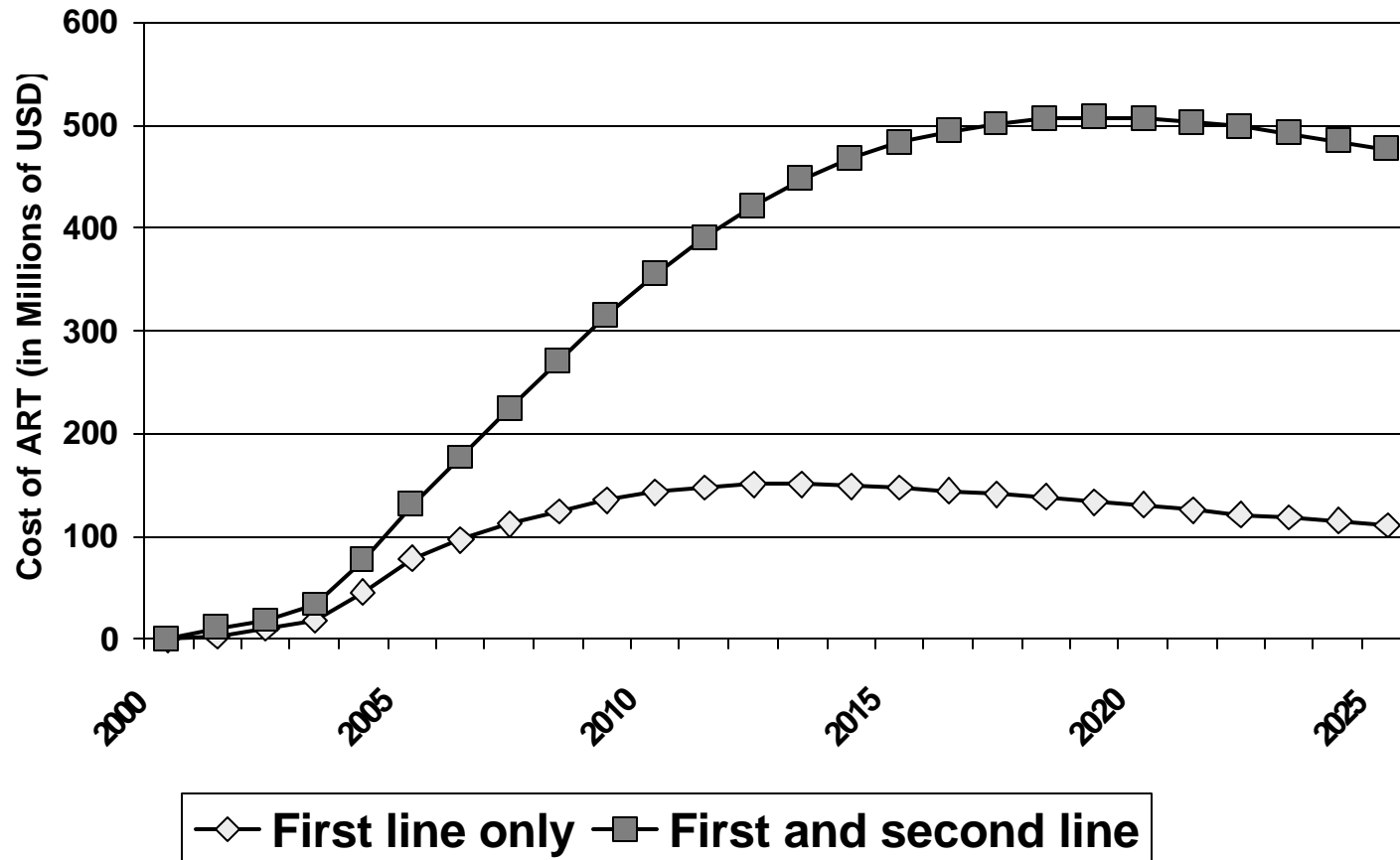


Number of people with HIV/AIDS needing ART in National Access (NAPHA) Scenario (including asymptomatics with CD4 < 200)



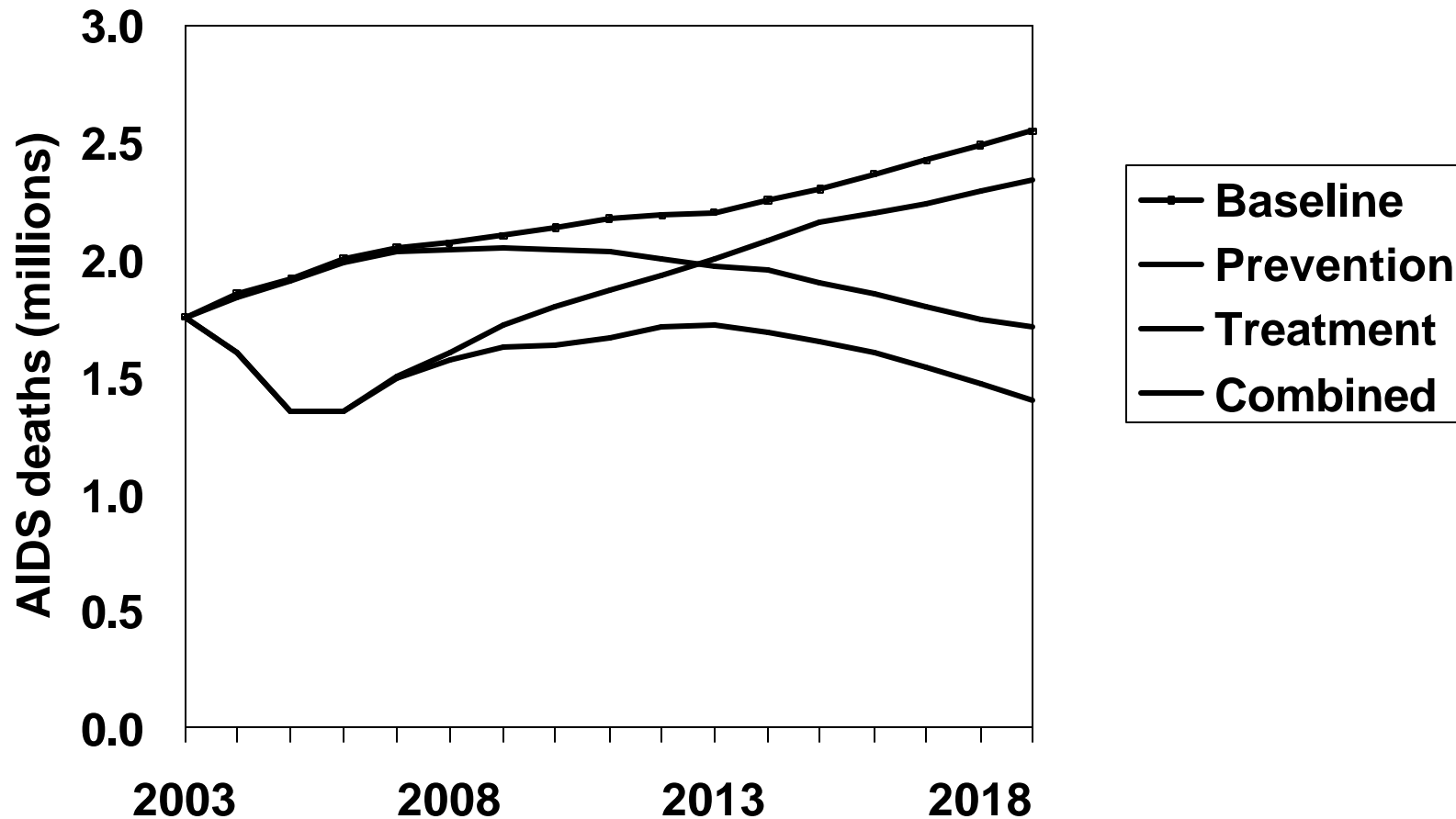
Source: Thai MOPH, World Bank, East-West Center, Expanding Access to ART in Thailand, forthcoming

Costs of ART in Thailand with first line and second line therapy



Source: Thai MOPH, World Bank, East-West Center, Expanding Access to ART in Thailand, forthcoming

Impact of varying the balance between prevention and care on AIDS deaths

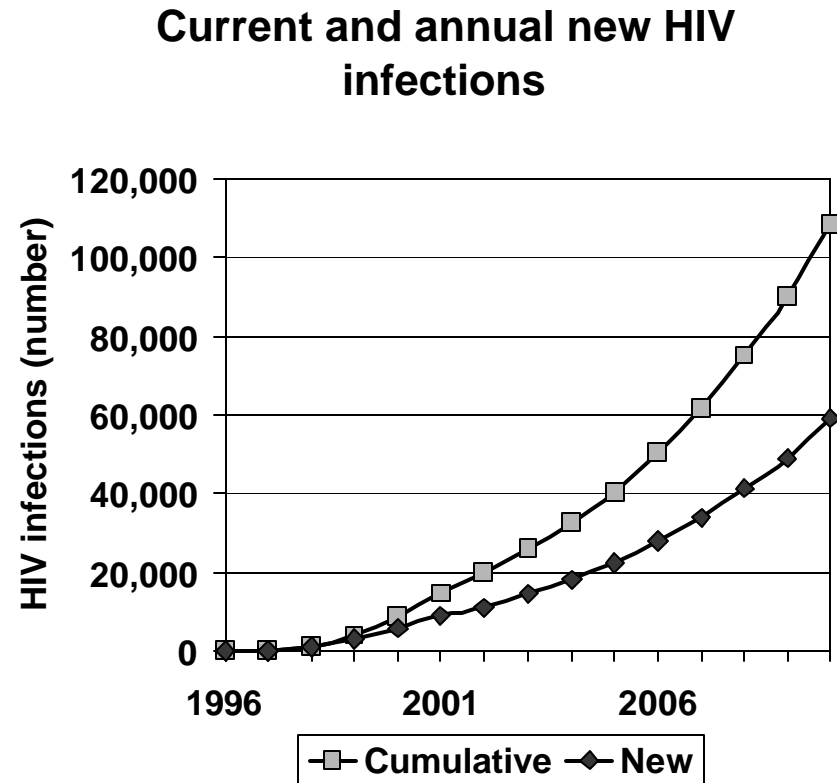


Source: Saloman et al., Integrating HIV Prevention and Treatment: From Slogans to Impact, PLoS Medicine 2005

How can we use the available tools to intelligently plan for a coordinated response to HIV in our country?

1. Make a country specific assessment

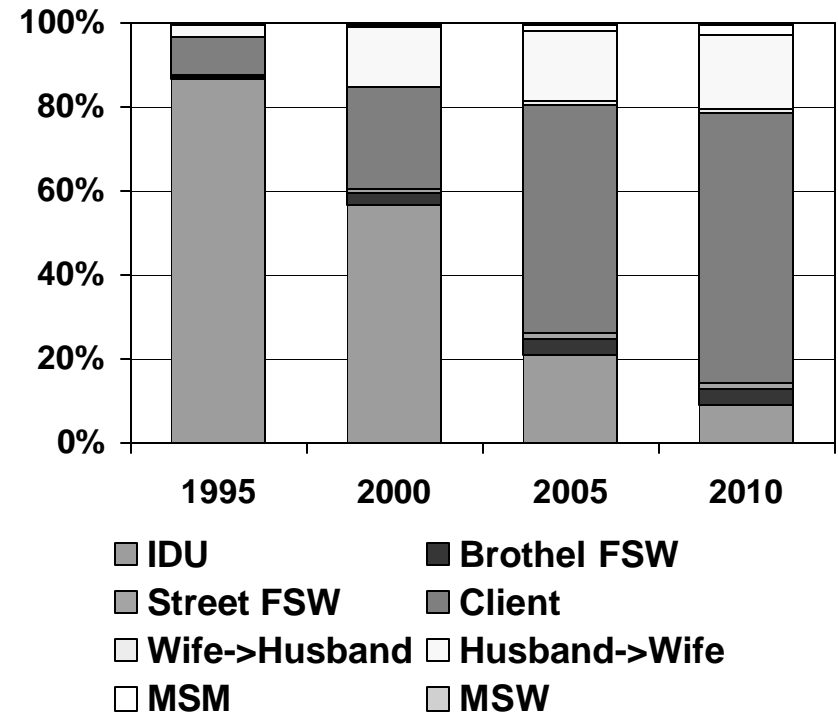
- Determine levels of current and new infections in the country
- Make projections to assess needs
- Make prevention assessments
 - What's being done?
 - Coverage levels?
 - What's working?



2. Determine where to focus prevention and set targets to contain epidemic

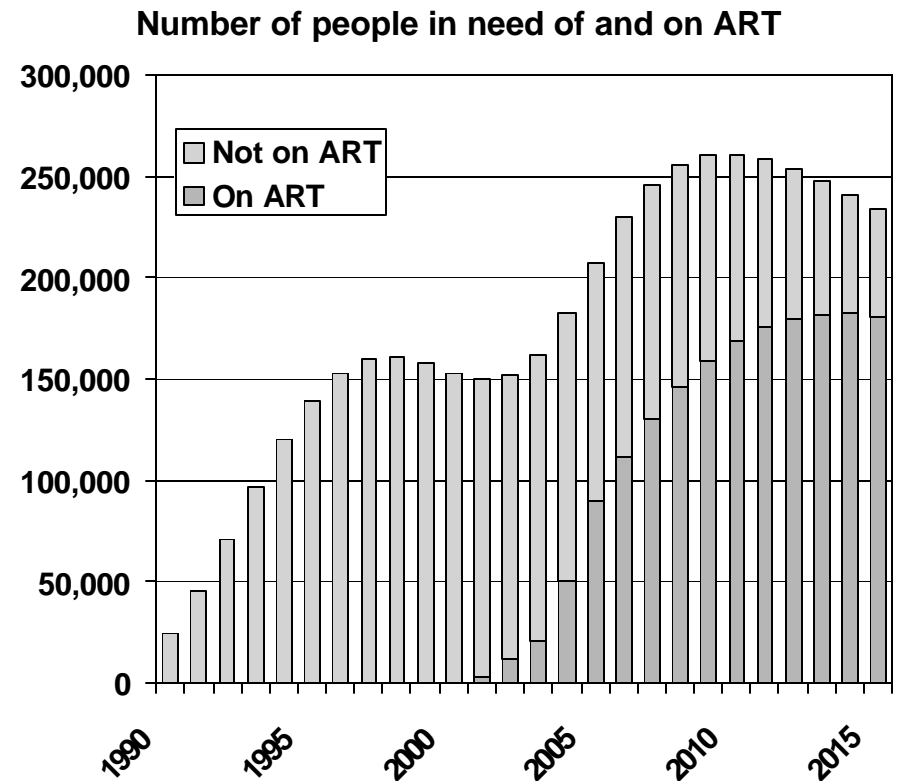
- Appropriate focus with effective programs
 - Clients and sex workers, IDU, MSM
 - At advanced stages husband to wife & MTCT
- Involvement of communities
 - offer ART
- Coverage, coverage, coverage
- No wasted programs – do what is effective to contain the epidemic

Contribution to new infections



3. Assess size of future treatment needs and infrastructure development required

- Assess future needs
- Determine regimens & policies to make them available
- Develop ways to get people into treatment
- Involve affected communities and civil society in supporting those affected

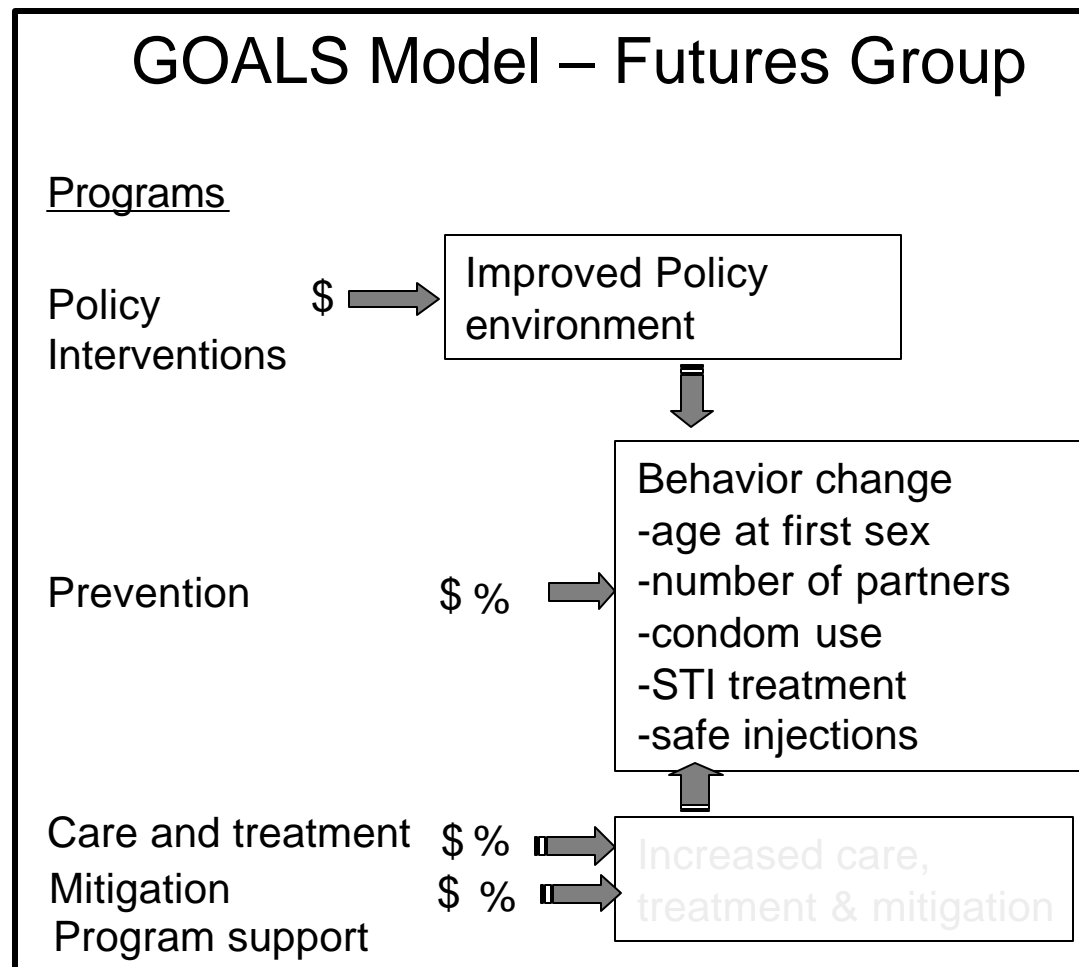


4. Look for local opportunities to integrate prevention and care

- Incorporate ART information into community prevention programs
 - Informed community on pros and cons
 - Link communities to treatment services
- Incorporate prevention into treatment programs
- But don't force it – VCT and community programs both needed

5. Cost out the respective prevention and treatment approaches

- Use existing tools, e.g., GOALS
- Plan for sustainability
 - Community involvement and support
 - Choose policies that increase sustainability



6. Mobilize the appropriate resources nationally and internationally

- Be realistic about what's needed
- Use cost-benefit analysis to show benefits of prevention today to keep care costs & impacts low in the future

Cost of doing prevention:

1.5 billion

Cost of NOT doing prevention:

18 billion

7. Implement and monitor impacts of both prevention and treatment programs

- Strengthen both epi & behavioral surveillance and in-country analysis capacity
 - Systems are NOT strong in this region
 - Link them to prevention & treatment programs so they adapt to evolving epidemic

So what do we need?

- Country-specific analysis
- Expanded capacity within country to analyze and model the local epidemic
- Tools & training to use local models to evaluate prevention & care alternatives
- Links and advocacy within the policy and planning process to ensure effective alternatives chosen

Problems in Asia at present

- Weak surveillance systems
 - Limited access to and inclusion of key populations
 - Limited geographic coverage for size
- Limited analysis of epidemiological and behavioral data
- No analysis of large-scale response impact because nobody tasked with it & no positions available

Conclusions

- The Asia-Pacific region has a tremendous opportunity
 - With good prevention, we can keep antiretroviral needs low and affordable
 - We know what works, but we're not doing it to scale
- We need better capacity and staffing to
 - Understand local epidemics
 - Improve our data systems
 - Evaluate alternative strategies quantitatively
 - Advocate for taking the right approaches