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

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Neff Walker, UNICEF/UNAIDS

World Bank
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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

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### UNAIDS Workbook - projection

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#### Logistic parameters

- **t**: 19.8422
- **a**: 0.0313
- **alpha**: 1.3560
- **b**: 0.0000
- **beta**: 0.0000
- **SS**: 0.00005

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<td>0.80%</td>
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<td>1993</td>
<td>0.80%</td>
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<tr>
<td>1994</td>
<td>1.21%</td>
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<td>1995</td>
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<td>1997</td>
<td>2.80%</td>
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<td>1998</td>
<td>2.80%</td>
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<td>1999</td>
<td>3.00%</td>
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<td>2000</td>
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<td>2002</td>
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<td>2003</td>
<td>3.40%</td>
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<td>2004</td>
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<td>2005</td>
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#### Projection

![Graph showing the projection of HIV prevalence over time](image)
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
Surveillance data leads to EPP or Workbook, which in turn leads to adult HIV prevalence. UN Pop Division population estimates and UNAIDS epidemic patterns are also connected to Spectrum. Within Spectrum, there are several categories:

- Number infected
- New infections
- AIDS deaths
- Orphans
- Treatment needs
Spectrum allows various analyses
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
Integration of AEM & GOALS to link resources and impact in Asia

Programs
- Policy Interventions
- Prevention
- Care and treatment
- Mitigation
- Program support

Improved Policy environment

Behavior change
- age at first sex
- number of partners
- condom use
- STI treatment
- safe injections

Revised HIV trends for key populations

Increased care, treatment & mitigation

AEM Calculation Engine

$%
$
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

- **Current HIV**
- **New HIV**
- **New Death**

### Yearly Infections

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<td>4,797</td>
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<td>1992</td>
<td>7,574</td>
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<td>1993</td>
<td>11,236</td>
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<td>12,541</td>
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<td>1997</td>
<td>9,879</td>
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<td>8,815</td>
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<td>7,922</td>
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<td>5,521</td>
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<td>2001</td>
<td>7,546</td>
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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

Red line represents what might have been if behaviors had not changed.

Infections prevented.

Baseline — No Intervention

Brown & Walker - 2005
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…

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

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IDU — FSW — Gen male — Gen female — MSM
...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

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5% — 10% — 20% male clients
Delaying IDU epidemics buys time to prevent sex work epidemics.
Increasing condom use turns epidemics around
Asian epidemics vulnerable to focused prevention

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--- 30%  40%  50%  60%  70%  80% condom use in sex work

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And focused prevention works
The impact of focused prevention in Thailand

Red line represents what might have been if behaviors had not changed in Thailand.

Infections prevented

With behavior change
Without prevention
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

Source: WHO and UNAIDS

3 by 5 Progress Report, Dec 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

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]

- IDU
- Street FSW
- Client
- Wife->Husband
- Husband->Wife
- MSM
- MSW

Brown & Walker - 2005
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

Number of people in need of and on ART

- Not on ART
- On ART


- 0
- 50,000
- 100,000
- 150,000
- 200,000
- 250,000
- 300,000
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

**GOALS Model – Futures Group**

- **Policy Interventions**
  - Improved Policy environment

- **Prevention**
  - Behavior change
    - Age at first sex
    - Number of partners
    - Condom use
    - STI treatment
    - Safe injections

- **Care and treatment**
  - Increased care, treatment & mitigation

- **Program support**
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