HIV Surveillance & Epidemiology

Current Strategy, Status & Planned Initiatives

NACP-IV Planning Meeting, 05 May 2011

Strategic Information Management Unit
National AIDS Control Organisation
Department of AIDS Control
First Meeting of Sub-Group on Surveillance & Epidemiology for NACP-IV Planning

• To discuss the topics/issues outlined in TOR, with respect to current strategy, gaps and challenges, key questions & plan for NACP-IV

• To identify the areas that need further review/analysis/consolidation before firming up recommendations

• To distribute the work of preparing a document for NACP-IV planning among members
Areas for Discussion (As per TOR)

- Strategy for Surveillance Activities including review of current system
- Incidence Surveillance
- Other Components of Surveillance
- Involvement of Private Sector
- HIV Estimations
- Promoting Data Use
- System and HR Requirements
- Other Epidemiological Work
Key points from NACP-III plan document

- Number of surveillance sites in the northern states requires strengthening.
- Coverage in urban and rural areas and high risk populations needs expansion.
- The information obtained in surveillance programmes needs to be more completely analyzed and more robust management systems need to be developed.
- Under NACP-III, the surveillance system will focus on: tracking the epidemic, identifying pockets of HIV infection and estimating the burden of infection in the country.
- Given that the PPTCT programme successfully monitors HIV among ANC attendees, NACP-III will explore the possibilities of integrating PPTCT surveillance and ANC surveillance systems.
- The possibility of integrating HSS with Integrated Biological and Behavioural Surveillance (IBBS) every 2-3 years among High Risk Populations will also be explored.
Surveillance activities will involve:

- BSS and HSS including measurement of HIV incidence
- STI surveillance and tracking of other surrogate markers, e.g. Hepatitis B, Hepatitis C etc.
- AIDS case reporting
- HIV associated morbidity and mortality
- Anti-retroviral and STI drug resistance surveillance
- other methods /sources of data (e.g. ongoing surveys).
- Conducting two types of BSS, namely, a) annual risk assessment at the district level and b) methodologically rigorous BSS at state level, at least once in three years
- Initiating sentinel surveillance of OIs
- Conducting periodic studies (once in two years) to estimate mortality from AIDS to validate the results of model based estimation
- Strengthening the capacity of SACS to carry out district-wise estimation using available models/software
## Components of HIV/AIDS Surveillance

<table>
<thead>
<tr>
<th>S.No</th>
<th>Component</th>
<th>Current System in Place &amp; Future Plans</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Behavioural Surveillance</td>
<td>Periodic Surveys; Plans for Integrated Biological &amp; Behavioural Surveillance</td>
</tr>
<tr>
<td>2.</td>
<td>STI Surveillance</td>
<td>Plans underway for establishing (under STI Division)</td>
</tr>
<tr>
<td>3.</td>
<td>Incidence Surveillance</td>
<td>Proxy Indicators; Estimations &amp; Modeling; Bio-Assay Studies on HIV Positive Samples (Plans to roll out in 2011); Population Cohort Studies (BMGF Supported Study in Guntur District, AP in progress)</td>
</tr>
<tr>
<td>4.</td>
<td>HIV Surveillance</td>
<td>HIV Sentinel Surveillance</td>
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<tr>
<td>5.</td>
<td>AIDS Case Surveillance</td>
<td>Case Reporting; Reporting from ART Centres; HIV Case Reporting (Piloting Done; Plans to Develop)</td>
</tr>
<tr>
<td>6.</td>
<td>Mortality Surveillance</td>
<td>Estimations &amp; Modeling; Death Reporting; Reporting from ART Centres;</td>
</tr>
<tr>
<td>7.</td>
<td>Drug Resistance Surveillance</td>
<td>Cohort Studies at select ART centres (Under CST Division)</td>
</tr>
</tbody>
</table>
Objectives of HSS

- To monitor levels & trends of HIV infection among general population as well as high risk groups in different parts of the country
- To understand the geographical spread of HIV infection and identify emerging pockets
- To provide epidemiological evidence for prog. planning, prioritisation of resources & prog. impact evaluation on a continuous basis
- To estimate current & future HIV burden in the country
## Groups Monitored & Methodology

<table>
<thead>
<tr>
<th></th>
<th>High Risk Groups</th>
<th>Bridge Population</th>
<th>General Population</th>
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<tbody>
<tr>
<td><strong>Sentinel Site</strong></td>
<td>TI Projects</td>
<td>STD clinic; TI Projects</td>
<td>Antenatal clinic</td>
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<tr>
<td><strong>Sample Size</strong></td>
<td>250</td>
<td>250</td>
<td>400</td>
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<tr>
<td><strong>Duration</strong></td>
<td>3 months</td>
<td>3 months</td>
<td>3 months</td>
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<tr>
<td><strong>Frequency</strong></td>
<td>Once a year</td>
<td>Once a year</td>
<td>Once a year</td>
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<tr>
<td><strong>Sampling Method</strong></td>
<td>Consecutive/ Random</td>
<td>Consecutive at STD; Consecutive/ Random at TI sites</td>
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<tr>
<td><strong>Age Group</strong></td>
<td>15-49 years</td>
<td>15-49 years</td>
<td>15-49 years</td>
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<tr>
<td><strong>Testing Strategy</strong></td>
<td>Unlinked Anonymous with informed consent</td>
<td>Unlinked Anonymous at STD; with Informed consent at TI Sites</td>
<td>Unlinked Anonymous</td>
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<tr>
<td><strong>Blood Specimen</strong></td>
<td>Dried Blood Spot</td>
<td>Serum at STD; DBS at TI sites</td>
<td>Serum</td>
</tr>
<tr>
<td><strong>Testing Protocol</strong></td>
<td>Two Test Protocol</td>
<td>Two Test Protocol</td>
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</table>
Development of HSS in India

- 1985 - First started by ICMR among blood donors
- 1992 - NACO Formulation; Initiated Sentinel sites in Metros
- 1998 - Annual Sentinel Surveillance initiated with 176 sites, most of them in South India; ANC attendees as proxy for general population & STD patients as proxy for HRG and Bridge groups; No HRG sites in the beginning
- 2003 - HRG sites established; ANC sites expanded to peri-urban/rural settings
- 2006 - Major expansion of sites to cover all districts
- 2008 - Strategic Improvements in HRG Surveillance
- 2010 - Expansion of HRG Surveillance; Enhanced Focus on Quality
- Currently testing around 4 lakh samples annually
Expansion of Sentinel Sites 1998-2010

<table>
<thead>
<tr>
<th>Site Type</th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
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<th>2002</th>
<th>2003</th>
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<td>75</td>
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<td>133</td>
<td>166</td>
<td>163</td>
<td>171</td>
<td>175</td>
<td>251</td>
<td>248</td>
<td>217</td>
<td>184</td>
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<tr>
<td>ANC</td>
<td>92</td>
<td>93</td>
<td>111</td>
<td>172</td>
<td>200</td>
<td>266</td>
<td>268</td>
<td>267</td>
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<td>484</td>
<td>498</td>
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<tr>
<td>ANC (Rural)</td>
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<td>ANC (Youth)</td>
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<td>83</td>
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<td>1</td>
<td>6</td>
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<td>Fisher-Folk/Seamen</td>
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<tr>
<td>Total</td>
<td>176</td>
<td>177</td>
<td>224</td>
<td>320</td>
<td>384</td>
<td>699</td>
<td>649</td>
<td>703</td>
<td>1122</td>
<td>1134</td>
<td>1215</td>
<td>1361</td>
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</tbody>
</table>
Surveillance network spans entire country

2003 – 699 Sites

2010 – 1361 Sites
Key Developments in 2006

- Major expansion of STD and ANC urban sentinel sites in low prevalence states of North India,
- Addition of some more rural ANC sites in high prevalence states,
- Initiation of special ANC sites for 15-24 year old pregnant women to monitor new infections
- Expansion of sentinel sites among FSW, MSM & IDU and
- Initiation of sentinel sites among Long Distance Truckers, Single Male Migrants and Transgenders.
- Introduction of composite sites
- Involvement of five leading public health institutions in the country as Regional Institutes for providing technical support, guidance, monitoring and supervision for implementing HSS
Key Developments in 2008

- Undertaking thorough technical validation of new sentinel sites by RIs
- Dropping STD sites in high prevalence states
- Introduction of Dried Blood Spot Method (DBS) of sample collection from HRG sites
- Introduction of Informed Assent/Consent at HRG sites
- Piloting random sampling method of recruitment
- Standardisation of the training protocols
- Decreasing the number of testing labs for ANC and STD samples
- Initiation of Epidemiological Investigation into unusual findings
- Strengthening of State Surveillance Teams
- Two new Regional Institutes to strengthen HSS in the North Eastern States
Key Developments in 2010 (1)

- Expansion of HRG & Bridge Population sites
- Initiation of Rural Composite ANC sites to capture effect of migration in heavy out-migration districts
- Random Sampling Method adopted in 8 states at HRG sites
- DBS Method at select ANC/STD sites in remote places
- User-specific Operational Manuals and site-specific Wall Charts developed & centrally printed
- Testing of ANC/STD samples limited to State Reference Laboratories
- Expanded network of DBS Testing Labs
- Reporting of lab results de-linked with data forms
- Streamlining External Quality Assurance Scheme (EQAS) for HSS
Key Developments in 2010 (2)

- Introduced Bi-lingual data forms for the first time in HSS
- Data forms translated into Hindi and 7 regional languages
- General Information captured in a box through stamp or pre-printed stickers
- Instructions to fill data forms are printed overleaf for quick reference
- Double Data Entry at Regional Institutes
- New Site codes developed and issued
- Integration of Data Management System for HSS into Strategic Information Management System (SIMS)
- Online Data entry through SIMS Application for HSS, with Data Matching functions, Data Monitoring functions, validation checks and customised report generation in-built into the system
- Increased focus on quality through enhanced supervision from RIs, Labs and in the field; Involvement of DAPCUs
Key Issues/ Gaps in HSS

- Delay in Central Procurement of DBS Consumables
- Inadequate logistics management of central supplies
- Late initiation in some states due to delays in procurement at state level and training
- Poor quality of training in some states
- Less responsiveness from some SACS to the feedback and instructions from RIs
- Acute Crisis of HIV test kits
- Need to further systematise real time lab monitoring and field monitoring, feedback and corrective actions
- Any Other?
Behavioural Surveillance

- Two National Rounds of BSS conducted in 2001 & 2006
- 10 Rounds in Tamil Nadu and 4 Rounds in Maharashtra
- BSS 2009 conducted in six states (AP, Kar, Mah, TN, UP, Manipur)
- 2 Rounds of Integrated Biological & Behavioural Assessment (IBBA) under Avahan Programme in 23 districts
- Integrated Biological & Behavioural Surveillance (IBBS) among HRG in select districts in a phased manner to be rolled out from 2011-12
Key Issues for NACP-IV

- Key Gaps in Implementation of HSS
- Timing & Periodicity of HSS & IBBS
- Moving from HRG HSS to HRG-IBBS
- Additional Groups to be covered under HSS
- Additional Bio-markers for sero-surveillance
- Use of PPTCT & TI data for Surveillance purposes
- HIV Incidence as a part of regular national surveillance
- Other components - Mortality Surveillance; STI Surveillance
- Moving towards HIV Case Reporting
- Involvement of Private Sector in Surveillance
- Use of data from other general health surveys for surveillance
- Integration with data collection activities under NRHM
Estimation of HIV Burden in India

- HIV Sentinel Surveillance data is used to estimate adult HIV prevalence, new infections/ Incidence, number of people living with HIV, AIDS-related mortality, HIV infected persons needing ART & pregnant women needing PPTCT
- Epidemic projections are made at state and national level using epidemiological assumptions and demographic information
- Calibration with population-based HIV prevalence data (NFHS) is undertaken
- Statistical packages - Estimation Projection Package (EPP) & Spectrum Packages are used
- Packages are customised with Indian Data on population
- Guidance provided by WHO/UNAIDS Global Reference Group on HIV Estimations and Projections, Geneva and TRG comprising of national & international experts
- National Institute of Medical Statistics (ICMR), New Delhi is the nodal agency for HIV estimations
HIV Estimations 2008 & 2009

- HIV Estimates based on HSS 2008-09 round of HSS developed using EPP & Spectrum, have been finalized and released on World AIDS Day (1st Dec 2010)
- Dissemination meetings of the new estimates will be conducted during Jun & Jul 2011.
- NACO plans to conduct capacity building workshops in EPP & Spectrum during 2011 to build pools of expertise in HIV modeling in the country.
Key Issues for NACP-IV

• Review various models available for HIV estimation and projections, identify the advantages and limitations of each, and develop a systematic plan for using different models in the programme

• Mechanisms for institutional strengthening and capacity building for HIV modeling and estimations at state and district level

• Propose an expert committee for the same?
DATA USE - An Approach, A Mindset

Need for

- Developing the approach of using data for decision-making and programme planning at all levels
- Inculcating, among programme managers, a habit of looking at data regularly
- Encouraging simple analytical methods that anyone can employ
- Emphasising the importance of local knowledge and contextual understanding
- Capacity-building of state & district level institutes/personnel for sustainability
- Not discarding data due to poor quality, but, Emphasising that Data Use is the key to improve Data Quality
System Strengthening for Data Use - A long term process...

- Trigger the interest in data analysis and use
- Make programme managers work on data of their own state/district & reflect upon the insights
- Expose them to real time examples that demonstrate the use of data for decision making & programme planning
- Develop guidelines & tools to assist them in data use
- Develop HR plans that sustain the interest & facilitate data use as an on-going process
Important Examples of data use in NACP-III

- Development of Annual Action Plans (District Plans → State Plans → National Plan)
- Development of new programme strategies (Migrant Strategy, Mid-media IEC strategy, Strategy of Link ART Centres etc.)
- Epidemiological Profiling of HIV/AIDS Situation at District & Sub-district Level Using Data Triangulation
- District Categorisation and Recategorisation for Priority Attention
- Prioritisation of districts and areas for greater supportive supervision by programme divisions
District Epidemiological Profiling using Data Triangulation

- Undertaken in 25 states - 567 districts with the objectives of
  - Identifying districts and focus areas within a district for priority attention in the Program
  - Resource & information collection in a systematic manner to understand the epidemic and response gaps in the district and facilitate evidence-based planning at district & state level
  - Capacity building of district & state programme managers and M&E personnel in data analyses, triangulation and use of data for planning & program review
Two Key Features of Implementation

- **Institutional Strengthening**
  - A public health institution or medical college was identified as State Coordinating Agency
  - built a resource pool in HIV/AIDS analysis in every state
  - fostered linkages between programme units and academic institutions that will help address any future strategic information needs

- **Capacity Building of programme staff**
  - Involvement of district level programme managers and staff of service delivery units in the entire process
  - built the capacities of the peripheral functionaries in handling and analyzing data
  - enabled them to understand the importance of the data they generate and the need for ensuring its quality
  - appreciate the use of data for programme review, decision-making and effecting improvements
Important
Cleaned & Validated Prog. data since 2004
Systematic compilation of all data on HIV
Capacity Building in data cleaning, analysis & use
District Reports
Enhanced understanding of HIV epidemic & response
More Effective District & State AAPs
Reprioritisation of districts
Prioritisation at Taluk/Bloc Level
Information Gaps
Important Outcomes
Plans for 2011-12 to promote data use

- Capacity building workshop for state personnel in analysis and report preparation from surveillance data after the completion of the current round; Publication of state HSS report to be mandatory
- Finalisation of district reports & district fact sheets from District Epidemiological Profiling; Discussion in a National Workshop
- Consultations with SACS on Re-categorisation of districts based on new framework using data from multiple sources; Identify priority districts and blocks/talukas for greater programme focus; Identify different priority areas for focus in different districts
- Dissemination of district profiles and a systematic plan for promoting the culture of data use for decision making among the national, state and district level programme managers
- Promote development of status papers from states on major information gaps, data quality issues and specific SI activities required in the state
Key Issues for NACP-IV

- Develop mechanisms for timely preparation of reports, archiving, analysis and interpretation.
- Develop mechanisms to effectively utilize surveillance data in evidence-based planning at all levels.
- Develop mechanisms for transfer of technical knowledge to all levels for capacity building.
- Suggest innovations in data management and data use.
- Propose Mechanisms for institutional strengthening for regular development of district epidemiological profiles and suggest appropriate periodicity.
- How to highlight ‘Data Quality & Data Use’ as the central theme of all SI efforts under NACP-IV?
Structure of SIMU at NACO

Secretary & Director General

Deputy Director General (M&E)

Programme Officer (Monitoring & Evaluation)

Programme Officer (Evaluation & Operational Research)

Programme Officer (Bio-Medical & Clinical Research)

Programme Officer (Surveillance)

Technical Officer (Research)

Technical Officer (Surveillance)

4 M & E Officers
Key System & HR Issues for NACP-IV

- **Proposal:** Dedicated Data Analysis Cell/ Epidemiology Unit at NACO, comprising of 1-2 epidemiologists, 1-2 statisticians, 1 communication expert, exclusively for data archiving, analysis, bringing out reports, publications & policy briefs, and providing inputs to the programme divisions on a regular basis; to work in close coordination with experts in institutions & medical colleges; to guide data analysis, use and publications at state & district levels

- Any Other suggestions to strengthen Surveillance & Epidemiology activities?
Other Epidemiological Work

- System evaluation and preparatory work for HIV Case Reporting
- Epid. Studies to generate Indian data to inform the assumptions used in HIV Estimations & Modeling
- Mechanisms for Cohort tracking of HRG/PLHA/ART Patients etc.
- Specific epid. Studies to understand emerging epidemics such as MSM epidemics, dual risks among HRG, migration-driven epidemics, mechanisms to control spousal transmission etc.
- System for identifying and generating early warning indicators for emergence of HIV epidemic in a region
- In-depth epid. Investigations/studies into select region-specific epidemics
- Studies on newer forms of risk behaviours and sex work patterns
- Any other areas?
Other Key Issues for NACP-IV

- Integration with NRHM in data collection and data use aspects
- Use of data from other general health surveys
- Working with SRS, RGI, Census, etc. to strengthen information that can be useful for HIV programme
- Other Innovative approaches
OPEN FOR DISCUSSION...