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.

Key Points from NACP-III PIP (Contd…)

- 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

S.No	Component	Current System in Place & Future Plans
1.	Behavioural Surveillance	Periodic Surveys; Plans for Integrated Biological & Behavioural Surveillance
2.	STI Surveillance	Plans underway for establishing (under STI Division)
3.	Incidence Surveillance	Proxy Indicators; Estimations & 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)
4.	HIV Surveillance	HIV Sentinel Surveillance
5.	AIDS Case Surveillance	Case Reporting; Reporting from ART Centres; HIV Case Reporting (Piloting Done; Plans to Develop)
6.	Mortality Surveillance	Estimations & Modeling; Death Reporting; Reporting from ART Centres;
7.	Drug Resistance Surveillance	Cohort Studies at select ART centres (Under CST Division)

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

	High Risk Groups	Bridge Population	General Population
	IDU/ MSM/ FSW	**STD patients/ SMM/ LDT**	**Pregnant Women attending Antenatal Clinics (ANC)**
Sentinel Site	TI Projects	STD clinic; TI Projects	Antenatal clinic
Sample Size	250	250	400
Duration	3 months	3 months	3 months
Frequency	Once a year	Once a year	Once a year
Sampling Method	Consecutive/ Random	Consecutive at STD; Consecutive/ Random at TI sites	Consecutive
Age Group	15-49 years	15-49 years	15-49 years
Testing Strategy	Unlinked Anonymous with informed consent	Unlinked Anonymous at STD; with Informed consent at TI Sites	Unlinked Anonymous
Blood Specimen	Dried Blood Spot	Serum at STD; DBS at TI sites	Serum
Testing Protocol	Two Test Protocol	Two Test Protocol	Two Test Protocol

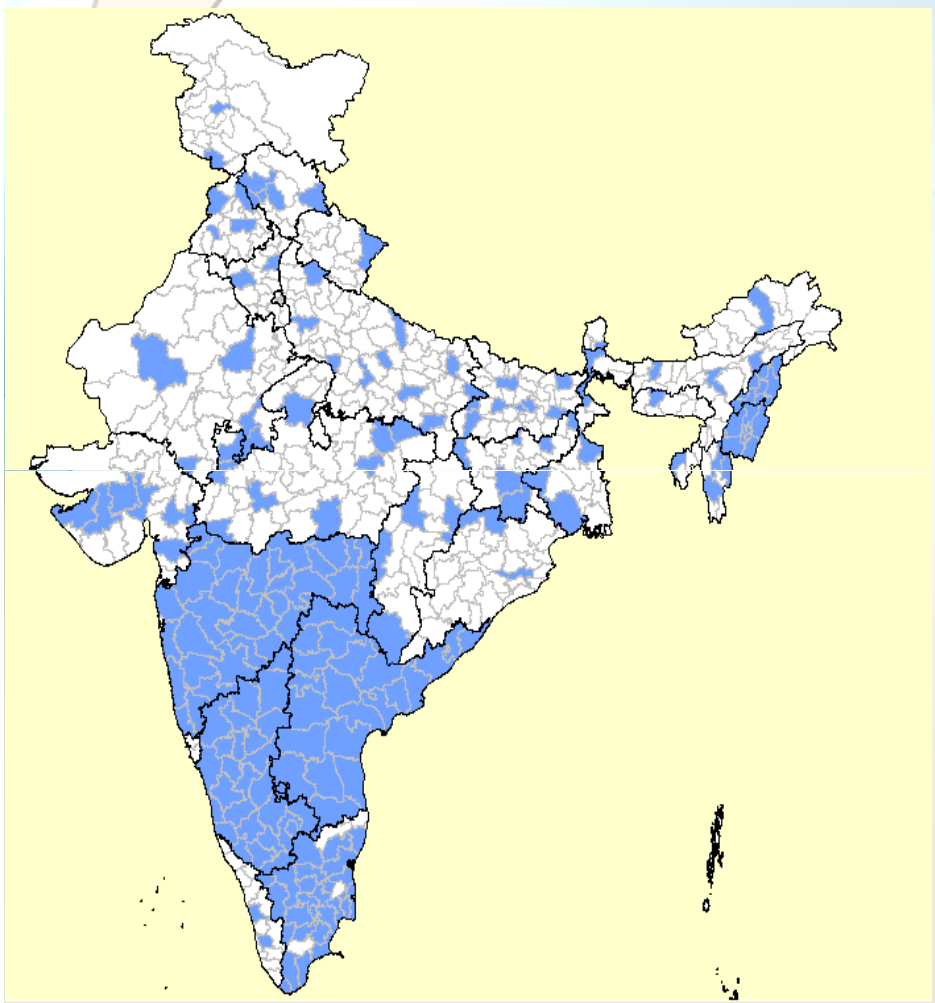
Development of HSS in India

- **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

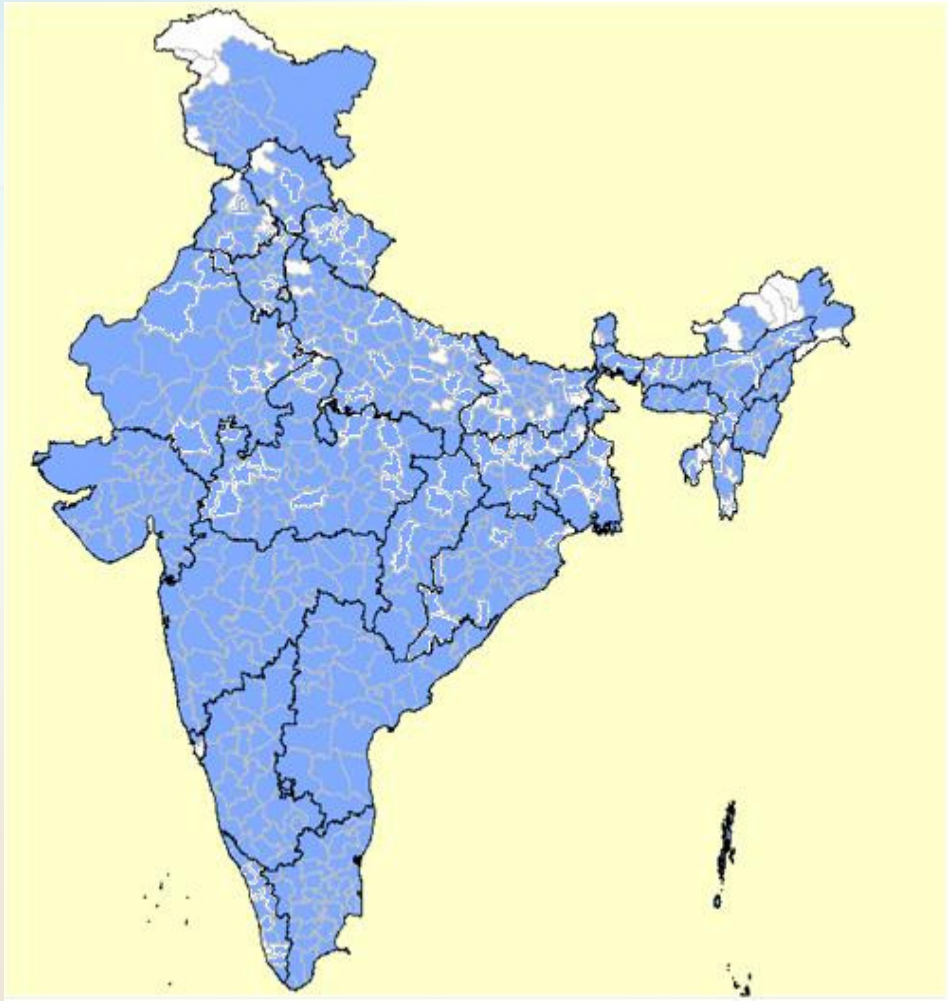
Expansion of Sentinel Sites 1998-2010

Site Type	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2010
STD	76	75	98	133	166	163	171	175	251	248	217	184
ANC	92	93	111	172	200	266	268	267	470	484	498	503
ANC (Rural)	-	-	-	-	-	210	122	124	158	162	162	182
ANC (Youth)	-	-	-	-	-	-	-	-	8	8	8	8
IDU	5	6	10	10	13	18	24	30	51	52	61	79
MSM	-	-	3	3	3	9	15	18	31	40	67	98
FSW	1	1	2	2	2	32	42	83	138	137	194	267
Migrant	-	-	-	-	-	-	-	1	6	3	8	20
Eunuchs	-	-	-	-	-	-	-	1	1	1	1	3
Truckers	-	-	-	-	-	-	-	-	15	7	7	17
TB	2	2	-	-	-	-	7	4	-	-	-	-
Fisher-Folk/ Seamen	-	-	-	-	-	1	-	-	1	-	-	-
Total	**176**	**177**	**224**	**320**	**384**	**699**	**649**	**703**	**1122**	**1134**	**1215**	**1361**

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 Outcomes
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/Block Level
Information Gaps

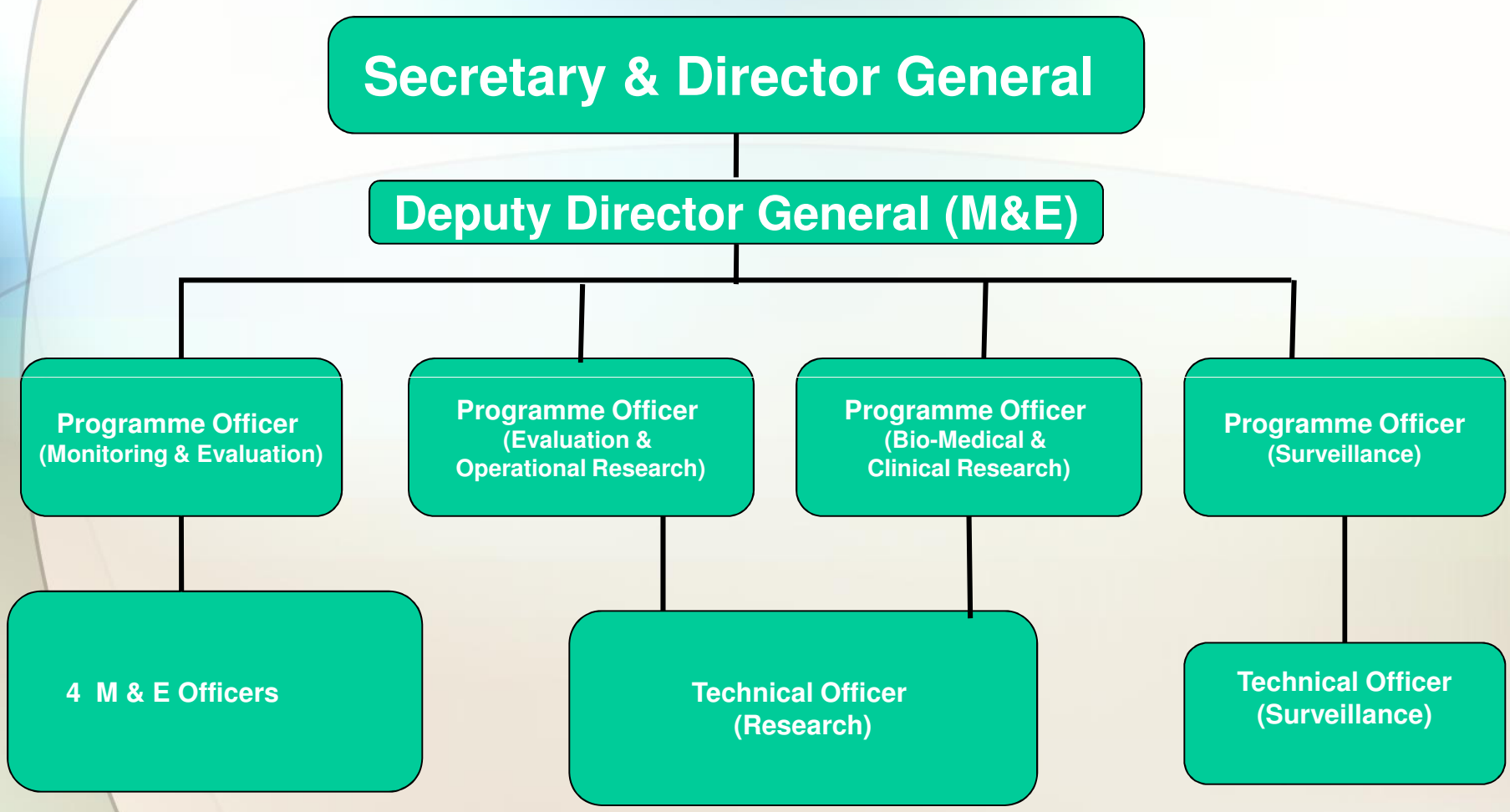
Plans for 2011-12 to promote data use

- 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

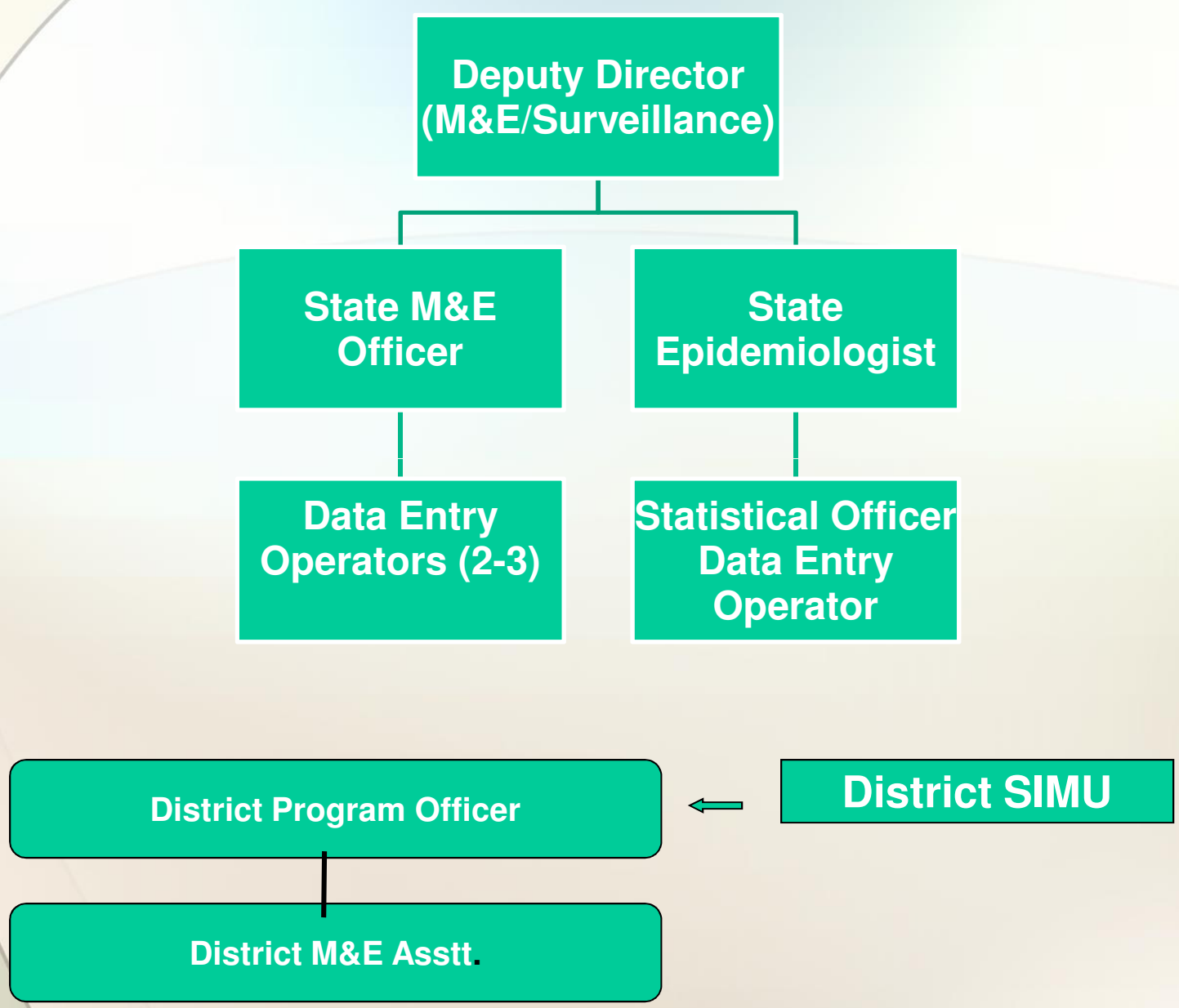
Key Issues for NACP-IV

- 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



Structure of SIMU at SACS & DAPCU



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…