National Consolidated Guidelines on Strategic Information of HIV Response in Nepal

Ministry of Health
National Center for AIDS and STD Control

Teku, Kathmandu

2017 (2074/75)

National Consolidated Guidelines on Strategic Information of HIV Response in Nepal

FOREWORD

FOREWORD

Strategic information is very critical for evidence-based planning and informed policy and programme decisions. For the effective response to HIV, the country requires strategic information systematically collected, collated, analysed, disseminated and applied. Globally, a 90-90-90 ambitious target has been adopted to end the AIDS epidemic by 2030. Aligned with a global vision, Nepal HIV strategic plan 2016-2021 has envisioned ending the AIDS epidemic as a public health threat by 2030. The consolidated guideline is essential to generate strategic information for informed policy and programme decisions.

Currently, M & E guideline, Surveillance guideline, and National HIV research agenda are used to collect strategic information for HIV response in Nepal. This guideline consolidates all three strategic components to generate information by prioritising the indicators in three levels, i.e. Global, national and additional indicators. These indicators will be used to fast-track HIV response to achieve 90-90-90 and NHSP targets along with global reporting requirements.

This guideline has developed M & E framework for measuring the progress of NHSP indicators and link to result in chain framework, provide a road map for data sources, data collection, analysis and use of program implementation, information flow, and information products within the M&E system. This document will guide all relevant stakeholders on their M & E roles.

NCASC took overall responsibility for the development of the consolidated guideline. A technical working group was formed under the leadership of NCASC comprising AHF, FHI360, Save the children, UNAIDS, UNICEF, WHO and representatives from community organisations. I would like to thank technical working group including community representatives for providing technical input during the development process as well as during consultative workshop, and finalisation of the guideline.

I strongly recommend all partners and stakeholders working together for HIV response to use this guide to generate strategic information for evidence-based policy and programme decisions.

Dr Tarun Paudel
Director

PREFACE

Since the first case of HIV was detected in 1988, an epidemic of HIV in Nepal rose sharply in the mid-1990s and was in peak during mid-2000s. Nepal has transitioned from 'low-level epidemics' to 'concentrated epidemic' with rapid spread among key population, i.e. Female Sex Workers (FSW), Men having sex with Men and Transgender (MSM/TG), People who Inject Drugs (PWID) (Male and Female), Male Labor Migrants (MLM) and their spouses and Clients of Sex Workers (CSW). The national response to HIV is guided by "National Policy on HIV and STI, 2011" and "Nepal HIV vision 2020" with a vision of ending the AIDS epidemic as a public health threat in Nepal by 2030. The national consolidated SI guideline aims to design an appropriate framework for measuring progress of Nepal HIV Strategic Plan targets and indicators at different levels, i.e. impact, outcome and output level, including definitions of core indicators and specifications for data collection and provide a roadmap for data sources, data collection, analysis and its use for improvement in implementation of the programme.

This consolidated guideline is organized into six chapters. The first and second chapters deal with introduction and process of developing the guideline. The first chapter starts with HIV epidemic situation in Nepal followed by current policy and structural response to HIV. A brief on Nepal HIV strategic plan (NHSP) provides an overview of key strategic directions to achieve the targets set by NHSP. The need for strategic information and its importance and need for the consolidated guideline is further highlighted in second chapter.

The third chapter explains strategic framework and result chain for strategic information. It starts with HIV results chain: from input to impact, and explains five elements and how these elements help to assist measurement of linkage of service from prevention to care continuum. After that, it explains the concept of cascade and the importance of monitoring the cascade of HIV prevention, care and treatment. Then, it elaborates the process used for the selection and prioritization of indicators and the basis adopted.

The fourth chapter deals with the principles of strategic information. It elucidates 12 components of functional M & E system of Nepal followed by "three one's principle" of M & E. The fifth chapter focuses on national M & E framework, core indicators and province level indicators. The underlying logic of the National M&E Framework is results based: programme outputs should lead to desired outcomes, which in turn will lead long-term impact. There are a total of 48 indicators developed as per country's need and relevancy. It includes the name of the indicator, the source of data, the frequency of data collection and, the agency responsible for measuring and reporting on the indicator. Currently, Nepal is in a transitional phase and the discussions to move into a federal system, and the structure of the government is under discussion and being implemented. Thus, to further guide each province, a brief description of its key population, epidemic situation and HIV services are detailed out with a list of possible indicators for each province to track HIV response.

The sixth chapter deals with the management of strategic information. It explains the sources of data for strategic information. Nepal has adopted multiple approaches for collecting the data required for monitoring and evaluation of the HIV programmes in the country. Data are mainly collected from routine programmes (HTS, ART, PMTCT, OST and targeted intervention programme), surveillance surveys and size estimation of the key populations. Next subsection in this guideline covers data collection and explains methods of current and proposed data collection strategy for management of information. The present guideline emphasises the need for electronic data to fulfil strategic information required for programme improvement. Furthermore, this chapter explains the importance of good data management. The data management system shall assure accessibility, reliability and timeliness of data to satisfy the needs of the data users. For this, an effective system for data management is envisioned which will include issues such as data security, confidentiality, data access and sharing, use of unique identifiers and Interoperability of

available system. Quality data are important for measuring progress on interventions and for evidence-based decision-making at the programme level. Data quality assurance identifies quality issues in the data, specifies ways to correct identified problems, and stipulates the plan for regular periodic assessments of data quality. Thus, this guideline stresses on the need for data quality assurance. The ultimate goal of strategic information is to provide information for decision-makers to use at all points of the HIV programme.

This guideline is intended for all stakeholders engaged in HIV and sexually transmitted infections (STIs) response. It will serve as guidance to fast-track the HIV response in the country, province, and at the local level.

ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
ANC	Antenatal Clinic
ART	Antiretroviral Therapy
BSS	Behavioural Surveillance Survey
CCC	Community Care Centers
CHBC	Community and Home-Based Care
DHO	District Health Office
DoHS	Department of Health Services
DPHO	District Public Health Office
EDP	External Development Partners
eVT	Elimination of Vertical Transmission
FSW	Female Sex Workers
GIS	Geographical Information System
HBV	Hepatitis B Virus
HCV	Hepatitis C Virus
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
HSCB	HIV and STI Control Board
HSS	HIV Sentinel Surveillance
HTC	HIV Testing and Counselling
HTS	HIV Testing and Counselling Service
IBBS	Integrated Biological and Behavioural Surveillance
MICS	Multiple Indicator Cluster Survey
MESS	Monitoring and Evaluation System Strengthening
MoH	Ministry of Health
MSM	Men who have Sex with Men
NAC	National AIDS Council
NCASC	National Center for AIDS and STD Control
NDHS	Nepal Demographic Health Survey

NGO	Nongovernmental Organization
NHRC	Nepal Health Research Council
NPHL	National Public Health Laboratory
NRCS	Nepal Red Cross Society
NHSP	National HIV Strategic Plan
OI	Opportunistic Infection
PMTCT	Prevention of Mother-to-Child Transmission of HIV
PWIDs	People Who Inject Drugs
RDS	Respondent-Driven Sampling
RHD	Regional Health Directorate
SI-TWG	Strategic Information Technical Working Group
STD	Sexually Transmitted Disease
STI	Sexually Transmitted Infection
TB	Tuberculosis
TG	Transgender
UIC	Unique Identifier Code
UNAIDS	Joint United Nations Programme on HIV/AIDS
USAID	United States Agency for International Development
WHO	World Health Organization

Contents

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1: INTRODUCTION

1.1 HIV Epidemic Situation in Nepal

Since the first case of HIV was detected in 1988, an epidemic of HIV rose sharply in the 1990s and was in peak during mid-2000s. Initially, during the early nineties, Nepal was classified as experiencing low-level HIV epidemics. However, Nepal has transitioned from 'low-level epidemics' to 'concentrated epidemic' with rapid spread among key population, i.e. Female Sex Workers (FSW), Men having sex with Men and Transgender (MSM/TG), People who Inject Drugs (PWID) (Male and Female), Male Labor Migrants (MLM) and their spouses, and Clients of Sex Workers (CSW). HIV in Nepal is extremely heterogeneous concerning key population, geographic distribution and risk factors. However, most of the infection occurs through sexual transmission (Fig 1).

As of December 2016, the total number of People living with HIV (PLHIV) enrolled in HIV care is 18,130 with more man (11,240 or 62%) infected than women (6,890 or 38%). Age distribution among HIV positive cases peaks in the age range 25 - 49 years for both males (74.8%) and females (69.6%). This is similar when compared to HIV estimation where productive age group (25 - 49 years) accounts for the majority of infection (70%).
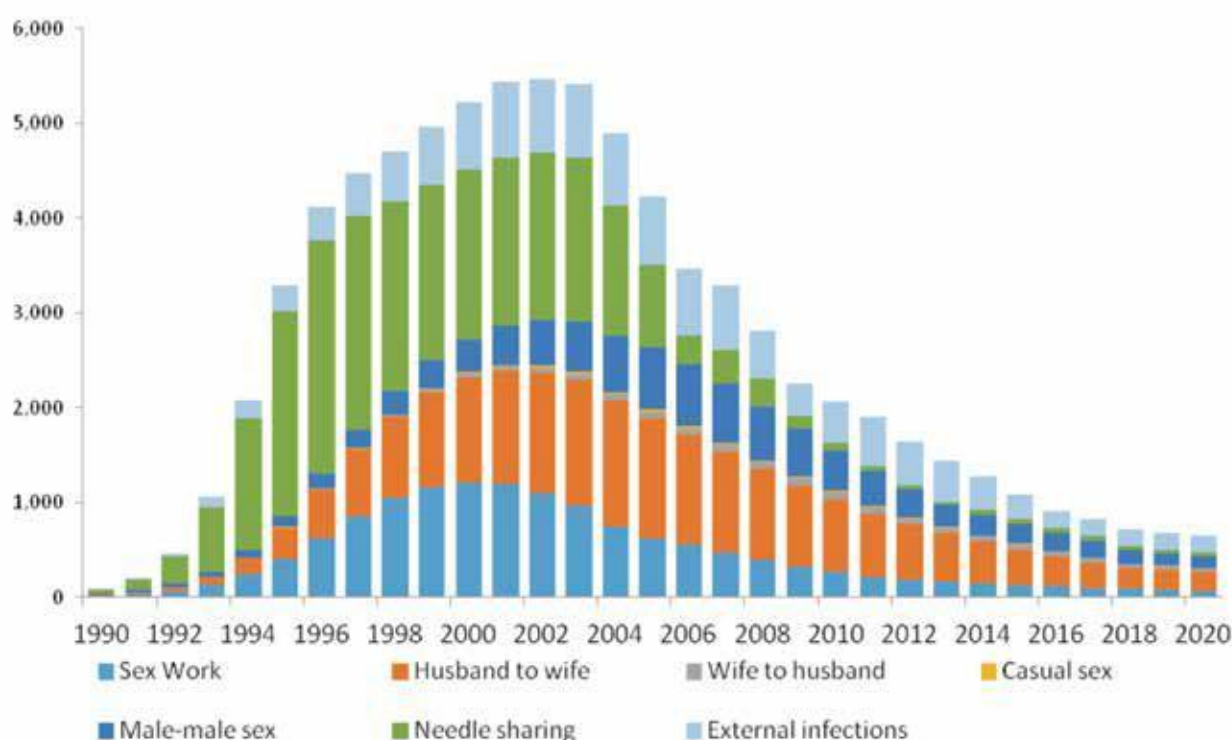
Figure 1: Route of transmission of HIV in Nepal, 2016

However, HIV prevalence in general population has been estimated to be (0.17%) in 2016 (Fig 2). As of 2016, there were approximately 32,735 adults and children living with HIV in Nepal. Over the years, there is a declining trend of new HIV infections. It was in peak during the early 2000s and is on declining trend (6000 new infections in early 2000s in compared to 942 new infections in 2016). Similar, trend was observed among HIV related deaths. These declining trends can be attributed to programme intervention and scale-up of ART services.

Nepal has been able to curve the epidemic among key populations due to its effective targeted interventions, particularly among key populations at risk. Recent integrated biological and behavioral surveillance (IBBS) surveys conducted in 2017 found HIV prevalence of 3.3% among PWID in Eastern Terai districts. Similarly, the IBBS surveys found that 8.8% of female injecting drug users in the Kathmandu Valley in 2016 and 8.5% among male PWID in the Kathmandu Valley in 2017 were HIV infected. Sex workers with low condom use, high STI prevalence, injecting drug use along with commercial sex, and high-risk behaviors were found to be common in Nepal. All these risk behaviors have been contributing to the continued HIV transmission among key population groups and their sexual partners.
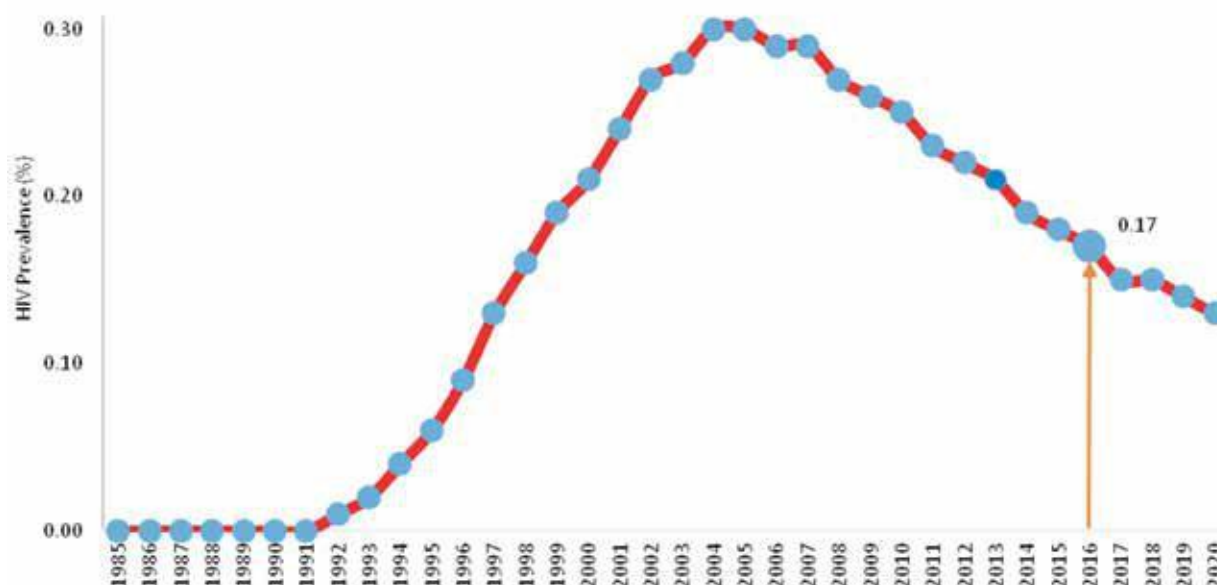
Figure 2: HIV Prevalence among adult population (15-49 years), 2016

1.2 Policy and Structural Response

Since the first case of HIV was identified in 1988, the government has come up with policy guidelines starting from the First National AIDS Prevention and Control programme in 1988. The principal policy guidance at present is to respond through an integrated approach by all relevant stakeholders including the government, non-governmental organisations, donors, and infected and affected communities with a common objective.

National response is led by the high-level National AIDS Council (NAC) which is chaired by the Honorable Prime Minister. In the district level, District Public/Health Office (DHO/DPHO) facilitates the implementation of the response. National Center for AIDS and STD Control (NCASC) plays the central role in the implementation of the HIV response in the country. NCASC leads the overall planning, providing implementation guidance, implementation (continuum of prevention to care) and monitoring of HIV response. HIV/AIDS and STI Control Board (HSCB) is envisioned to act as a secretariat of NAC, where the greater policy guidance to the various ministries for multi-sectoral response to the epidemic and monitoring of national response is designed. However, currently HSCB is not functional, and NCASC undertakes all its responsibilities. A summary of the structure of the national response to HIV in Nepal is depicted in figure 3.

Table 1: Chronology of national response to HIV epidemic in Nepal

Years	Response efforts
1988	First National AIDS Prevention and Control Programme
1990-1992	First Medium-Term Plan
1993	National Policy on Blood Safety
1993-1997	Second Medium-Term Plan
1995	National Policy on HIV and AIDS
1997-2001	Strategic Plan for HIV and AIDS Prevention
2002-2006	National HIV/AIDS Strategy
2006-2011	National HIV/AIDS Strategy
2011	National Policy on HIV And STI, 2011
2011-2016	National HIV/AIDS Strategy
2014-2016	Nepal HIV Investment Plan
2016-2021	National HIV Strategic Plan 2016-2021
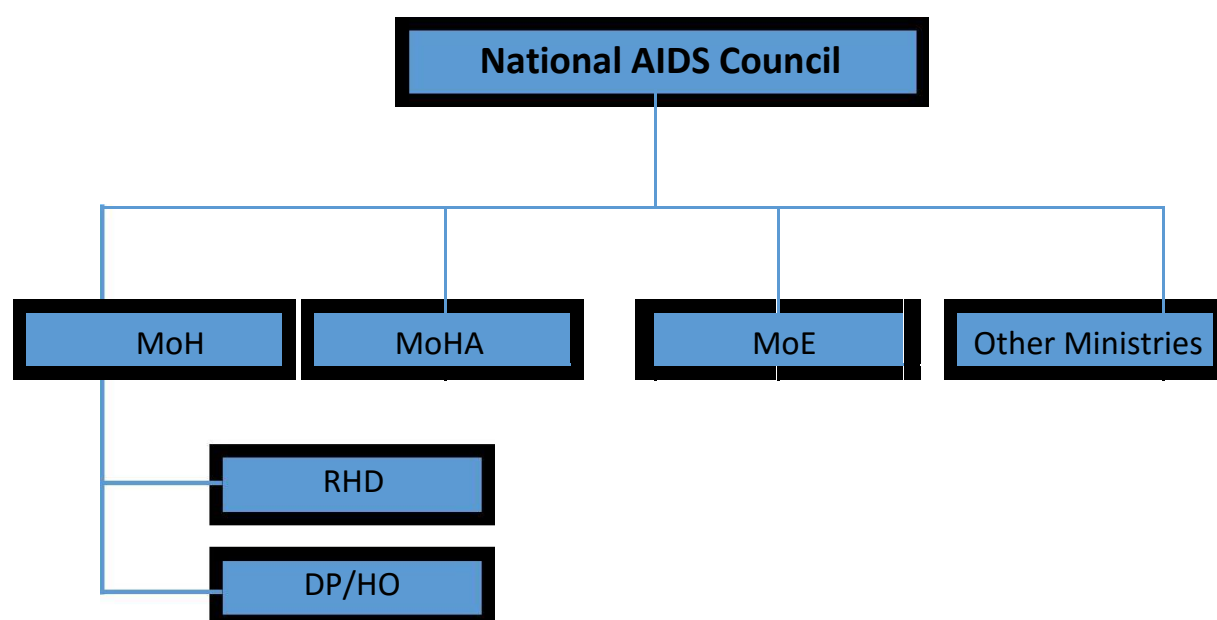
Figure 3: Structural response to HIV epidemic in Nepal

1.2.1 Health Care Reform in Federal Structure

The aftermath of people's movement II, monarchy system in Nepal was abolished, and it was officially declared as the Federal Democratic Republic of Nepal which envisioned federalism as a new system in Nepal. Currently, Nepal is in a transitional phase where its government structure in the federal context is being discussed and implemented. The new federal structure has seven provinces that include different rural municipalities, municipalities, sub-metropolitan cities and metropolitan cities that function as the local government bodies

The first task to be undertaken to move towards a federally-governed health system is to define all the functions of the Ministry of Health and the entities under it. In the current context, Government of Nepal has planned to provide services from its lower administrative units (local governments), i.e. rural municipalities, municipalities, sub-metropolitan cities and metropolitan cities.

Each local government will have a health office. Each health office will have health posts, primary hospitals, and urban health clinics. The numbers and type of health structure in a particular local government will depend on the population of the local government. The structure/organogram for rural municipality, municipality, metropolitan city are different.
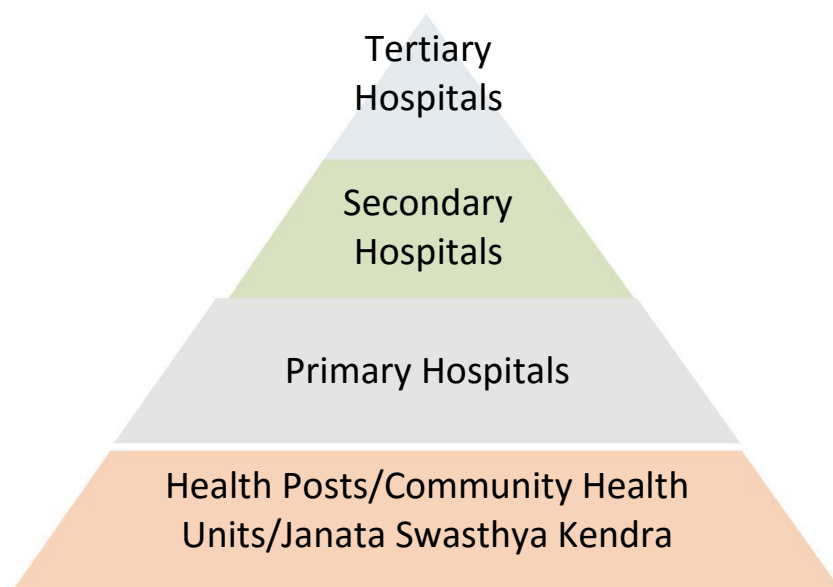
Figure 4: Proposed organogram under new federal structure

The rural municipality will have a health office with planning and monitoring unit, health service unit and public health promotion unit whereas a municipality and its higher level will have logistics unit, health service and disease control unit, planning and monitoring unit, and health promotion and environment unit. The proposed health service framework is shown in figure 4 in which each level has its own functions and type of services being provided. Each structure is classified into different types and categories of services to be provided depending on the catchment of functions.

However, there is still an unanswered question in current federal structure.

i)   Will there be a separate provincial Ministry of Health (MoH) or will it be merged with some other ministry?

ii)   What will happen to the status of district health offices existing in present structure?

iii)   How will the human resources be managed in local levels?

iv)   What will be the structure/organogram be at province level?

Thus, unless and until the organogram and structure in federal context is finalised, NCASC will follow existing structure for M & E response. However, when the structure/organogram is finalized by Ministry of Health (MOH), NCASC will revise its existing structural response and M & E plan in consultation with related stakeholders.

1.3 Nepal HIV Vision 2020

The national response to HIV is guided by "National Policy on HIV and STI, 2011" and "Nepal HIV Vision 2020" with a goal of ending the AIDS epidemic as a public health threat in Nepal by 2030. The National HIV Strategic Plan (NHSP) for the period 2016-2021 is a set of evidence-informed strategies focused on building a consolidated, unified, rights-based and decentralized HIV programme with services that are integrated into the general health services of the country. Thus, to achieve the vision of NHSP, there are sets of strategic direction, which will guide the national response towards the achievement of NHSP targets. Targets adopted by NHSP are as follows.

- Identify, recommend and test 90% of key populations.
- Treat 90% of people diagnosed with HIV.
- Retain 90% of people diagnosed with HIV on antiretroviral therapy.
- Eliminate vertical transmission of HIV and keep mothers alive and well.
- Eliminate congenital syphilis.
- Reduce 75% of new HIV infections.

To achieve these targets, the following strategic directions have been adopted:
- Identify and reach key populations with a combination of initiatives to prevent HIV;
- Focus on reaching key populations through outreach and, by communities of key populations, through in-reach;
- Recommend and offer "HIV test and treat " services, regardless of CD4 count;
- Retain people living with HIV in treatment, resulting in undetectable viral load;
- Fast-Track prioritized investments of a scope, scale, intensity, quality, innovation and speed to have the biggest impact;
- Enhance the critical programme and critical social enablers;
- Establish functional public, private partnerships to bridge the prevention - treatment continuum through task-sharing;
- Focus on innovative, well-coordinated and integrated services towards primary HIV prevention for and with key populations.

1.4 Why is Strategic Information Needed?

Strategic information is information and knowledge which guides health policy, planning, resource allocation, programme management, service delivery and accountability. It is essential to take action at all levels of the health system. As countries scale up their HIV responses towards universal access, there is an increasing recognition of the need to invest in strategic information to guide programme planning and sustain national and international commitment and accountability. The main activities related to strategic information are: a) Monitoring and Evaluation of HIV response; b) Surveillance of HIV and sexually transmitted infections; and c) Research.

The axiom "Know your epidemic, know your response" highlights the importance and necessity of strategic information for HIV response. It explains that the epidemics and their context differs from place to place. Therefore, knowing who is affected, how they were infected, where they are, and their risk behavior is critical in designing effective response to reach those in need. In turn, monitoring of those responses is vital in maximizing their effectiveness, responsiveness and cost-effectiveness.

For an effective response to HIV, strategic information systematically collects, collates, analyses, and

> **Three roles of HIV strategic information**
> 1. To understand the epidemic and the extent of change resulting from interventions;
> 2. To track and gauge the response of the health sector to HIV, particularly the health system inputs, intervention coverage, quality of services, and outcomes and impact;
> 3. To inform program improvement, assuring quality and maximal return on resources invested and helping to identify bottlenecks and opportunities.
>   Source: WHO consolidate SI guidelines for HIV in health sector.

applies the findings to address the issues like service access, coverage, quality and acceptability and leads to further understanding of HIV epidemic. SI provides the critical evidence that policymakers, programme managers and line managers need to make informed decisions for the improvement of the programmes. Strengthening HIV information systems is the first strategic direction of the World Health Organization (WHO) Global Health Sector Strategy for HIV for 2016-2021.

SI comprises of four components: Surveillance, Monitoring, Evaluation and Research

Monitoring	Evaluation	Surveillance
Monitoring is ongoing, routine reporting of priority information about a programme, its inputs and intended outputs, outcomes and impacts to observe and track progress	Evaluation is the periodic, rigorous review of information about programme activities, characteristics and context and their relationship to programme outcomes. The objective of evaluation from an objective viewpoint is to review, prove and improve a programme overall value.	Surveillance is the continuous, systematic collection, analysis and interpretation of health-related data needed for the planning, implementation, and evaluation of public health practice

Research:
- Research is a systematic process that involves designing, collecting ,analyzing and interpretation of data for increase understanding of a disease condition research question
- Research is either discovery of new facts, enunciation of new principles, or fresh interpretation of the known facts or principles
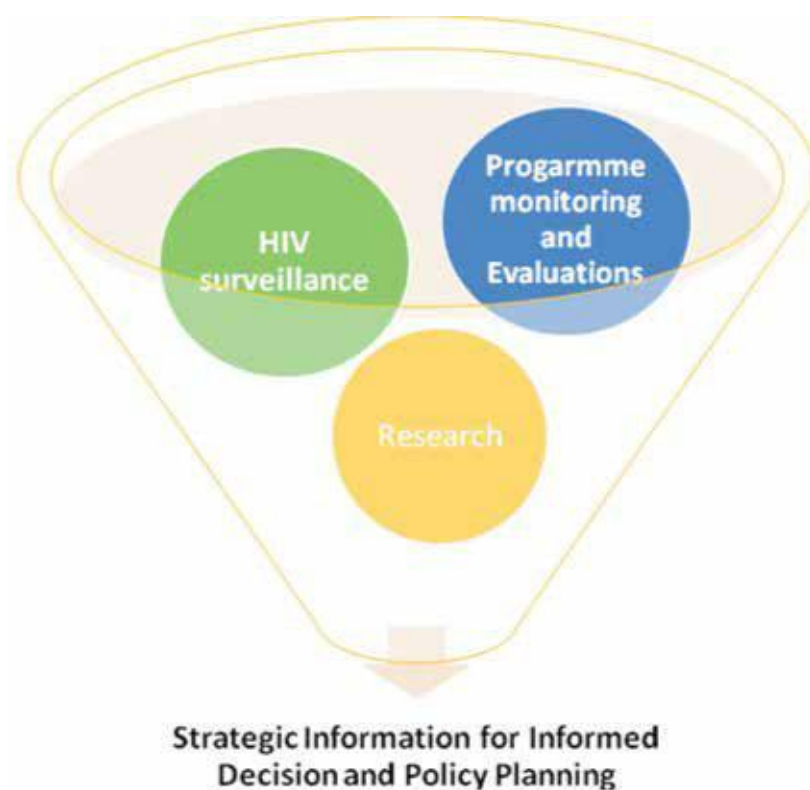
Figure 5: Strategic information components

1.5 Objective of Consolidated SI Guidelines

The national consolidate SI guidelines aim:

i)   to design an appropriate framework for measuring the progress of NHSP targets and indicators at different levels, i.e. impact, outcome and output level, including definitions of core indicators and specifications for data collection and institutional responsibilities;

ii)   to provide a roadmap for data sources, data collection, analysis and use of programme implementation, information flow, information products within the M & E system; and

iii)   guide all relevant stakeholders on M & E roles/ functions

1.6 Intended User of the Guidelines

This guideline is intended for all stakeholders engaged in HIV and sexually transmitted infections (STIs) interventions in the country, province, and at the local level.

- Programme managers and implementers from INGOs, NGOs
- Private sector care providers, members of civil society
- Academics involved in teaching, research, and evaluation
- External development partners

CHAPTER 2: DEVELOPING NATIONAL SI GUIDELINES

Following methods and approaches were used while developing the National Consolidated SI Guidelines:

Review of literature: The consultant reviewed available published and grey literature on HIV, STI and related issues for understanding needs and situation. Moreover, Nepal Health Sector Strategy (NHSS) 2016-2021, current National HIV Strategic Plan (NHSP) 2016-2021, and WHO consolidated guidelines were reviewed. WHO/UNAIDS publications on M & E and surveillance were further reviewed for understanding the global strategy and its possible use in national settings. Based on these, a draft table of contents was prepared which was used as a guide to develop the national guidelines.

Consultation with the technical working group: A technical working group was formed with the responsibility to oversee the overall process development of the guidelines. It consisted of 10 persons from different agencies (Annex I). The process of development of the National SI Consolidated Guidelines followed the comprehensive review of the National Strategic Plan 2016-2021, Nepal Health Sector Strategy Implementation Plan 2016-2021, and WHO consolidated SI guidelines 2015.

The process was highly participatory. A series of TWG meetings (3 meetings) were held to review the draft action plan, focused on the NHSP indicators, targets, data sources and responsibility for data collection.

The TWG, which had the overall responsibility for overseeing the development of the new SI guidelines, prioritized 10 global indicators, and 38 national and additional indicators. Priority was given to the indicator based on national relevance and global reporting requirements. The following criteria guided the selection of the indicators:
 • Relevance to the priority NHSP strategic interventions identified for the thematic areas
 • Indicators needed to satisfy reporting on national and international commitments
 • Existence of a reliable and regular data sources in the country
 • Indicators that were identified by TWGs and deemed as priority to provide information needed to guide decisions on the national HIV response

Based on national and global priorities, the consultant developed indicator reference sheet and M & E framework. These were shared to TWG in consultative meetings where TWG provided inputs to finalize the indicators. Similarly, a series of consultation meetings were conducted with officials of SI unit of NCASC during the process of development of the guidelines.

Consultative workshop: A consultative workshop was conducted by NCASC (17-18 August, 2017) with an aim to prioritize indicators for a national response to HIV in the health sector, share the progress on SI guidelines, and provide feedback on updates. NCASC with different stakeholders (Save the children, FHI360, UN agencies, community-based organizations (CBOs) participated in this workshop. The discussion was held on different themes and suggestion was provided by participants. It was agreed that a total of 48 indicators would be finalized to track the response to HIV.

CHAPTER 3: STRATEGIC FRAMEWORK AND RESULT CHAIN FOR SI

3.1 HIV Result Chain: From Input to Impacts

To assist measurement of linkage of service from prevention to care continuum, and outcomes of the health sector response to HIV, the selected SI indicator is organized in result chain framework – a logical framework built along a sequence of context analysis, inputs, outputs, outcomes and impact. These indicators allow review of the entire result chain to identify bottlenecks and, by addressing them, improve the overall quality of the programmatic response. The result chain provides a structure for analysis and facilitates alignment in support of country data systems.

The HIV result chain: from input to impacts (Fig 6) has following elements:
  i) **Know your epidemic:** It starts with an overall review of the epidemic of the country itself. This describes the key populations that are most affected, the size, and location of these populations. Disaggregation by age, sex, geographic location is essential at this stage. Key tasks also include data analysis and synthesis to better understand current and future directions of the epidemic and its consequences.
  ii) **Inputs:** Inputs are the resources invested in the health sector response to HIV. In addition to financial resources, they include human resources, health services infrastructure and governance (i.e., policy and management).
  iii) **Outputs:** The activity of programme consists of outputs (immediate results) for example the number of people on ART by the end of reporting period.
  iv) **Outcomes:** Different sets of programme outputs constitute together to form the outcome. For example, enrollment and continuation of ART are programme outputs, while resulting viral suppression is the outcome of these outputs. Outcomes can occur at any stage of the prevention and treatment response, including changes in behaviours (prevention outcomes), which need to be monitored carefully.
  v) **Impacts:** The ultimate target of any programme is to have an impact on epidemiologic measures such as HIV incidence, mortality and the rate of maternal-to-child transmission (MTCT) of HIV in the population. Other impact measures reflect progress toward goals such as equity and improved quality of life for people living with HIV.
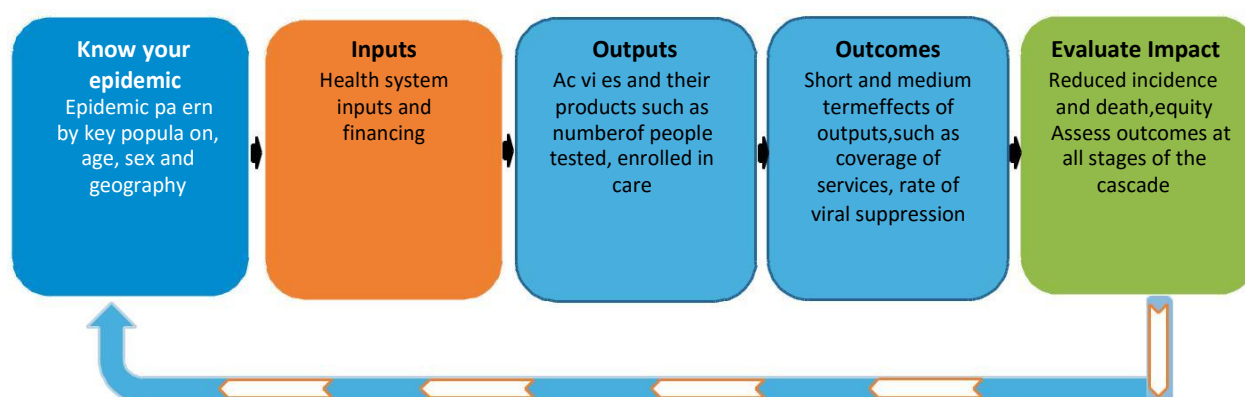
Figure 6: HIV result chain: from input to impacts *(Adapted from WHO Consolidated Strategic Information Guidelines for HIV 2015)*

The result chain framework should be used to assess and understand needs, track inputs, monitor services and other outputs, and measure outcomes and impacts. It should start with data analysis starting with a review of "know your epidemic" and ending with an evaluation of impact and determining components of the results chain that have made the greatest contribution to reducing mortality and incidence.

3.2 HIV Cascade of Services- Improving Linkages and Quality of Care

The term "cascade" highlights that a sequence of services is needed to achieve desired impacts. It encompasses prevention, treatment and care interventions. The concept of "cascade" also informs tracking of patients from prevention to treatment and care interventions and highlights the gradual attrition of coverage of the eligible population over the steps. Monitoring the cascade of services requires a set of consolidated indicators covering the entire sequence. Figure 7 presents a cascade of HIV prevention, care and treatment.
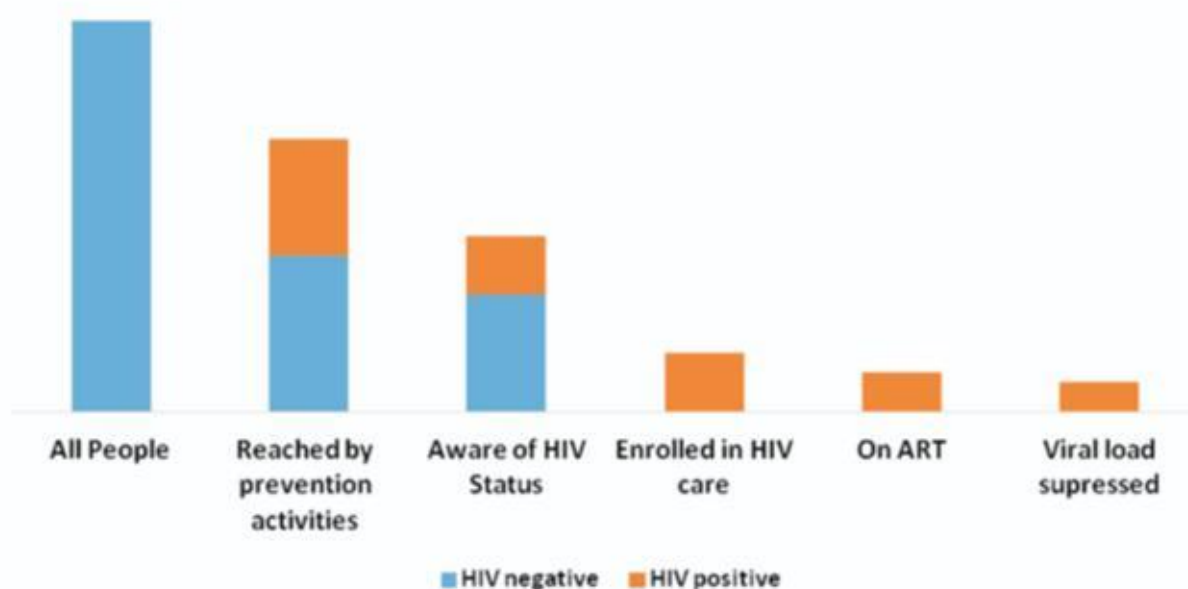
Figure 7: Cascade of HIV prevention, care and treatment *(Adapted from WHO consolidated strategic information guidelines for HIV, 2015)*

3.3 Selection & Prioritisation of Indicators

The key aim to prioritizing indicators is to have combined greater efforts so that focus could be on data quality, its analysis and use to improve the programmes. Prioritization is necessary to identify the most useful indicators along the result chain to support strategic direction and better services. WHO has prioritized 10 global indicators (Fig 8) based on HIV result framework, which provides an overview of the health sector response to the HIV result chain and cascade. These 10 indicators can be tracked to measure health sector response to HIV. The list of 10 global indicators recommended by WHO provides an overview of the performance of the health sector response while reducing the burden of global reporting requirements.

The national indicators describe the current situation of HIV epidemic and identify how the HIV response could be further improved. These indicators are included in national M & E framework to track the HIV response. The national programme indicators are based on following criteria:

- Inline with NHSP 2016-2021, NHSS 2016-2021 and relevance to key objectives and targets of NHSP
- Coverage of key programme areas across the result chain and health services cascade
- Experience of the use and usefulness of the indicators
- Ease of measurement, availability and quality of data

90-90-90 - AN AMBITIOUS TREATMENT TARGET TO HELP END THE AIDS EPIDEMIC

Nepal National Strategic Plan 2016-2021 has envisioned ending the AIDS epidemic as a public health threat by 2030. To accelerate the progress towards this goal, fast track targets have been established to ensure that:

i)   90% of all people living with HIV will know their HIV status
ii) 90% of all people with diagnosed HIV infection will receive antiretroviral therapy
iii) 90% of all people receiving antiretroviral therapy will have viral suppression
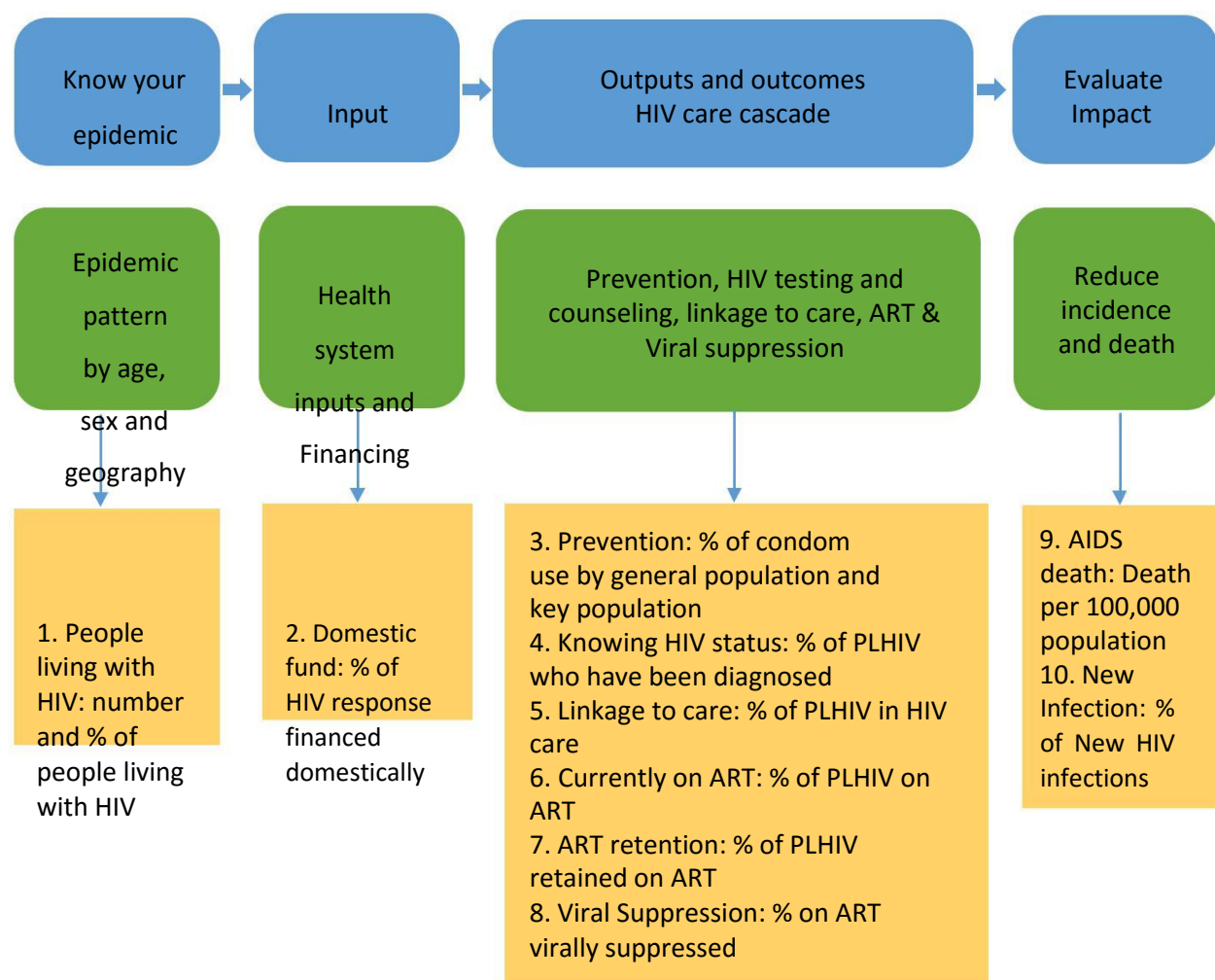
Figure 8: Global indicators for the monitoring and evaluation of the health sector response to HIV ((*Adapted from WHO consolidated strategic information guidelines for HIV, 2015)*

CHAPTER 4: STRATEGIC INFORMATION PRINCIPLES

4.1 Component of Functional M & E System

The M&E system comprises of 12 components as depicted in Figure 9 below. Each component will require functionality for the system to effectively produce timely results for utilization in programme improvement. The data/information use is the ultimate goal of the M&E system and hence forms the center of all components.
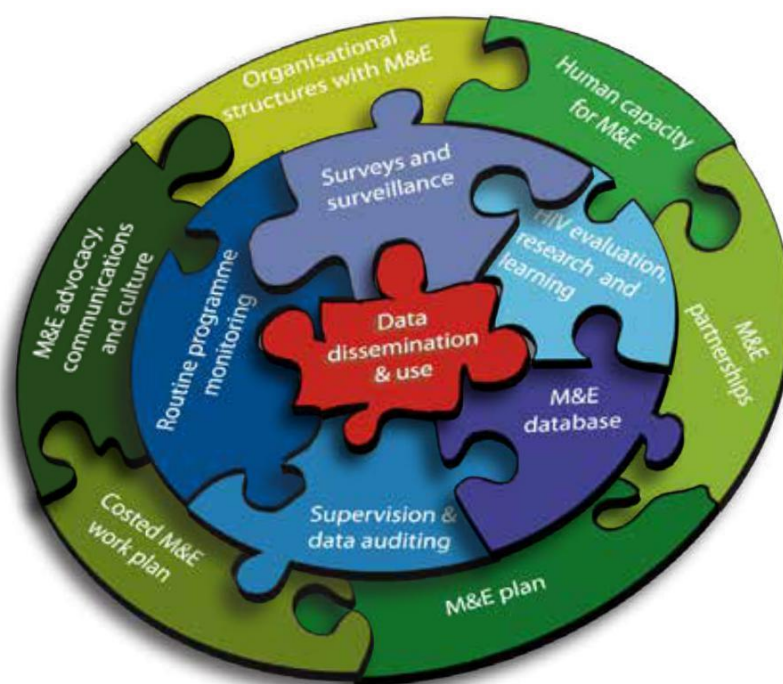
Figure 9: Principles of Functional M&E System (Adapted: The 12 components M & E system strengthening tool, UNAIDS)

UNAIDS suggests that a fully functional M&E system is an integration of 12 components with each other following the three tiers of "People, Partnership and Planning", "Collecting, Verifying and Analysing data", and "Using data for decision making".

The subsections below present a detailed discussion of the composition and functioning of the NHSP M&E System components, which reflects the multi-sectoral and broad nature of the national HIV and AIDS response.

4.1.1 Organizational Structure

The SI unit under the overall leadership of the NCASC will take the lead in executing the NHSP M&E Plan. The SI unit of NCASC has a dedicated staff team with the clear job description to execute the M & E framework with the support from all stakeholders. There are Regional Health Directorates (RHDs) and District Public/ Health Offices (DP/HOs) which are responsible for implementing M & E framework and Surveillance

plan at regional and district level. Furthermore, the dedicated Health Management Information System (HMIS) section at Management Division (MD) under the Department of Health Services (DoHS) which is responsible for collecting and aggregate data on all health indicators. The key role of HMIS is to manage health service information from the community to the DoHS through predefined process and procedure. NCASC also collects its relevant routine data from HMIS.

4.1.2 Human Capacity for HIV M&E

NCASC has dedicated and trained team of staff who are responsible for implementing M & E activities of HIV response at the national level, and assist regional and district level human resource for implementation of SI framework. The statistical officer at NCASC takes overall lead on SI activities in the country. The Global Fund programme supports other staff in the SI unit of NCASC. The dedicated M&E units in each implementing partners, which are responsible for assisting the execution of M & E framework will be convenient for data collection, cleaning, aggregation and reporting. The Statistical Officers at the district level manage District Health Information System (DHIS 2) data, and submit data to DoHS. The dedicated staff at health facility level manage data and submit monthly reports to the district/NCASC.

4.1.3 Partnerships to Plan, Coordinate and Manage the HIV M&E System

Successful implementation of the M&E Plan highly depends on partnerships among key stakeholders that entail structures such as the SI unit at NCASC, M & E unit at implementation partners, SI TWG, HMIS, CBOs, community people. External development partners and implementation partners actively take part in SI TWG meetings where discussions on national SI plan, strategy and its execution takes place. NCASC will continue to support the functioning of different TWG and will review terms of references (TORs) periodically to guide members on the purpose and scope of the TWG.

4.1.4 The National HIV Strategic M&E Plan

This plan will provide reference and operational guidance for M&E of the national HIV response. It is based on NHSP 2016-2021, NHSS 2016-2021 and global commitments. This M & E plan was developed in consultation with various stakeholders to select prioritized national indicators, and global reporting indicators. Each indicator is clearly defined in terms of its data sources, the frequency of data collection, and the entity responsible for the collection of data.

4.1.5 Annual, Costed, National HIV M & E Work Plan

The M & E plan will be broken down into annual costed M&E work plans by NCASC spelling out the activities that will be conducted every year. The M&E work-plan budget will be at least 5-10% of the total NHSP budget. The costed National M&E work plan will be jointly prepared and shall integrate activities of all relevant stakeholders. It is assumed that all stakeholders have the required budget for M & E activities.

4.1.6 Communication, Advocacy and Culture for HIV M&E

This refers to the presence of policies and strategies within the organization to promote M&E functions. Without continuous communication and advocacy initiatives, it is difficult to reinforce the M&E culture within the organization. People engaged in the programme and decision makers request for and use M&E data before and/or during HIV review, planning and costing. NCASC will routinely publish its data on the website and SI products (epi fact sheets, IBBS fact sheets, web updates, and annual reports). In addition to these, there will be sharing of information obtained from different national level surveys (IBBS, size estimation, etc.).

4.1.7 Routine HIV Programme Monitoring

M&E consists of two major aspects: monitoring and evaluation. This component emphasizes the importance of monitoring. Data needs to be collected and reported on a continuous basis to show whether the project activities are driving towards meeting the set objectives. The existing national recording and reporting tools (HMIS 7.1 to HMIS 7.6 and HMIS 9.3) collect programme data from service sites (ART, STI, HTS, PMTCT, OST). There is a national guideline for recording, collecting, collating and reporting programme monitoring data from health information system as well for instructions on how data should be maintained. National guidelines and a system for monitoring and managing the supply of drugs are also in existence. NCASC should carry out Routine Data Quality Audit (RDQA) and On-Site Data Verification (OSDV) at all sites annually and share a report to the stakeholders. It should also provide orientation to the partners (service providers) on the use of standard recording tools (including changes/updates/ modification) and regularly monitor recording and reporting as per standard tools. NCASC will plan to conduct a joint monitoring of HIV programme which will include all stakeholders. HIV monitoring checklist can be found in Annex VI.

4.1.8 Surveys and Surveillance

Periodic data collection for some indicators that cannot be tracked through routine data collection will be collected through surveys and surveillance. NCASC currently adopts second generation surveillance system to monitor the epidemic and generated evidence for planning. However, NCASC plans to adopt third-generation surveillance system in the future. The details will be finalized by NCASC and will be shared with all stakeholders.

NCASC conducts IBBS surveys in regular intervals among key populations in different clusters which also provides information for SI framework. However, now NCASC will conduct a national IBBS surveys among key populations. These surveys will be conducted as per SI plan developed by NCASC. Details of survey protocol are included in Annex IV. Similarly, NCASC will plan to collect data from STI sentinel surveillance depending on the need of data, its feasibility.

Second generation surveillance for HIV/AIDS is the regular, systematic collection, analysis and interpretation of information for use in tracking and describing changes in the HIV/AIDS epidemic over time. Second generation surveillance for HIV/AIDS also gathers information on risk behaviours, using them to warn of or explain changes in levels of infection. As such, in addition to HIV surveillance and AIDS case reporting, second generation surveillance also includes STI surveillance to monitor the spread of STI in populations at risk of HIV and behavioural surveillance to monitor trends in risk behaviours .over time.

STI Surveillance is a key component of second generation surveillance. Sexually transmitted infections (STIs) are a major global causes of acute illness, infertility, long-term disability and death, with severe medical and psychological consequences for millions of men, women and infants. The impact of these diseases is magnified by their potential to facilitate the spread of HIV infection. STI surveillance data should actively be used to improve the quality and effectiveness of STI and HIV prevention programmes and sexual and reproductive health.

WHO recommends to conduct STI surveillance in a concentrated epidemic settings using a) STI case reporting b) STI surveillance for key population and c) ANC sentinel surveillance. NCASC will plan to collect data from STI sentinel surveillance depending on the need of the data and its feasibility.
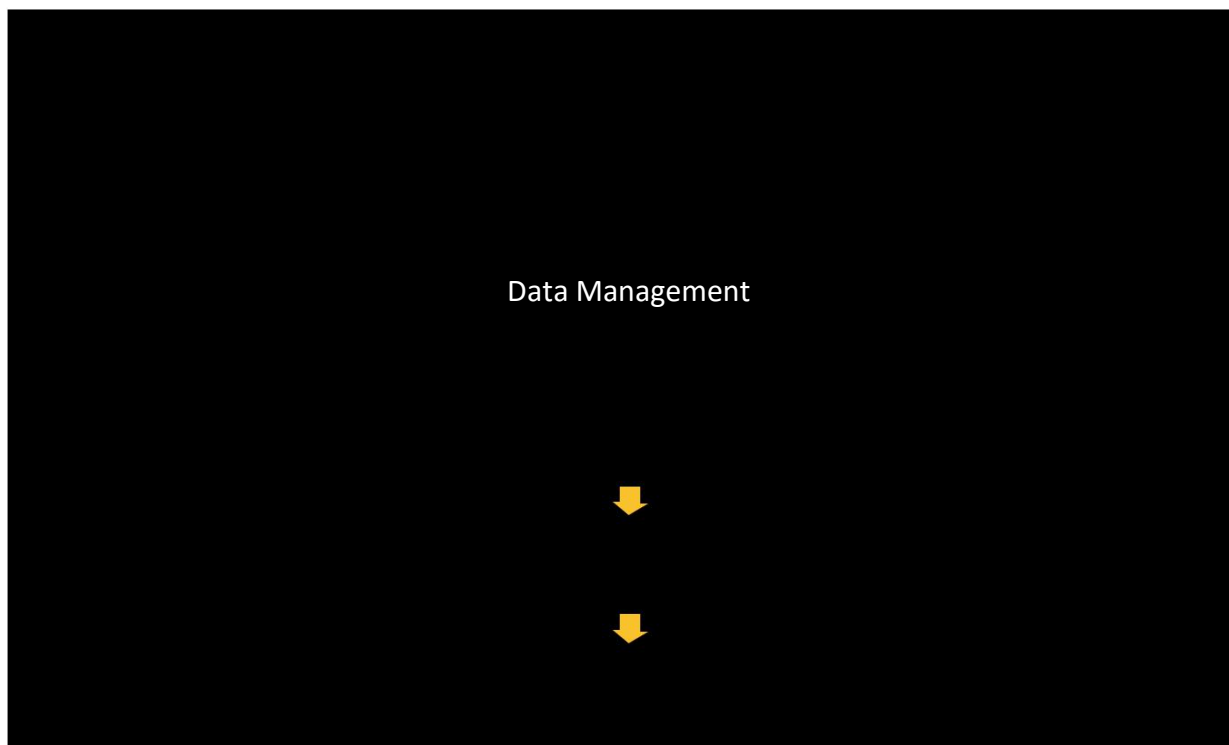
Figure 10: Second generation surveillance system (adapted from WHO guidelines for second-generation surveillance)

> **Size Estimation**
>
> Size estimation of key populations at risk of HIV is critical for understanding the trajectory of the HIV epidemic and planning and monitoring an effective response. Population size estimation is a tricky process. There are many approaches to size estimation. Among them, mapping or census is particularly useful when local estimates are needed for planning and monitoring of programmes. One of the limitations of mapping is that it only captures KPs who are present and identifiable at physical venues. However, it provides a credible lower limit on the subset of key populations that are reachable by programs in these locations, and with the addition of a few extra questions during the fieldwork, some adjustments can be made to account for the KPs who visit these venues infrequently or do not visit at all.
>
> It is recommended to conduct size estimation in every 3-4 years and Nepal conducted size estimation among KPs first in 2011 and in 2016. Thus, Nepal will plan to conduct size estimation in 2019/2020. Further Resource:
>
> WHO. Guidelines for Second Generation Surveillance 2000
> NCASC. National Guidelines for HIV and STI Surveillance in Nepal 2012

In addition to the IBBS surveys, other surveys/documents which includes HIV related information:
- Nepal Demographic Health Survey (NDHS)
- National AIDS Spending Assessment (NASA)
- National Commitment Policy Index (NCPI)
- National Health Facility Survey (NHFS)

4.1.9 National and Sub-national HIV and AIDS Databases

The data world is gradually becoming open source. More and more entities are seeking data that are relevant for their purposes. This implies that M&E system needs to develop strategies of submitting relevant, reliable and valid data to national and sub-national databases. In Nepal, a separate national database for HIV does not exist. HMIS is responsible for the collection of all health services related data in Nepal which uses DHIS 2 system for reporting aggregated data from health facilities and districts. Database of DoHS (DHIS 2) does not capture all relevant data needed for programme information (ART, HTS, OST, STI, PMTCT). Thus, it highlights the need for a separate database to capture individual-level data needed for strategic information. NCASC plans to develop a database which will collect individual-level data from service site. NCASC is in the process of developing DHIS 2 tracker which will track and analyse the individual level data reported from service sites at the national level. It provides an opportunity to know real-time treatment outcomes and helps to provide comment/feedback to maintain data quality.

Monitoring and evaluation system strengthening (MESST) tool assessment of 2014 recommended to:
i) Develop one national electronic database to capture all the routine information for robust M&E
ii) Implement "mHealth" to improve retention in HIV care among PLHIV or real-time reporting of M&E data
iii) Build the capacity of M&E/IT human resources at NCASC to utilize recent innovations and programme interventions in the field of M&E.

4.1.10 M&E Support Supervision and Data Quality Assessments

Every M&E system needs a plan for supervision and data auditing. Supportive supervision implies that an individual or organization can regularly supervise the M&E process in such a way that the supervisor offers suggestions on ways of improvement. Data auditing implies that the data is subjected to verification to ensure its reliability and validity.

National guidelines, as well as tools, exist for supportive supervision on M&E, and monitoring is conducted as per the national protocols. A protocol for auditing routine HIV service data from health service site exists, and data audits are regularly conducted and feedbacks provided to service sites. DQA tool is included in Annex V.

4.1.11 Evaluation and Research

Research is one of the aspects of M&E, the other being evaluation. Evaluation of projects is done at specific times most often mid-term and at the end of the project. Joint reviews of the HIV response will be conducted with the participation of international /national partners during annual reporting. The midterm review of NHSP will be conducted in 2018/19 to evaluate the targets of NHSP. The evaluation of 'test and treat' strategy in improving quality of life of PLHIV, including survival, will be assessed. In addition, the effectiveness of a mHealth intervention to improve retention in HIV care among PLHIV will be assessed by 2019.

An inventory of completed and on-going country-specific evaluation and research studies will be maintained and updated regularly. NCASC will conduct a national forum for validation, dissemination and discussion of the findings of HIV research and evaluation and these findings will be used and referenced in planning and other programming documents.

Similarly, NCASC, with support from implementing partners and stakeholders, will organize programme review at regional and national level.

4.1.12 Data Dissemination and Use

NCASC will promote the purposeful use of programme data for decision-making in policy and programming. Data use will be promoted through synthesizing, producing and disseminating several information products based on analysed data. These will be annual reports, newsletters, brochures, fact sheets, best practices and lessons learned through electronic and print media. Similarly, data will be used for global reporting.

Information products are regularly disseminated to a wide variety of stakeholders - other than the data providers - in the form of web updates, epi fact sheet. There are guidelines to support the analysis, presentation and use of data. Stakeholders will have access to the data/information products through official website of NCASC

4.2 Three One's Principles

The "Three Ones Principle" and its practicality in Nepal's response to HIV epidemic include:
> One national AIDS coordinating authority, with a broad-based multisectoral mandate – NCASC.
> One agreed on AIDS action framework that provides the basis for coordinating the work of all partners – National HIV Vision 2020.
> One agreed country-level monitoring and evaluation system – National Consolidated Guidelines on Strategic Information for HIV in Nepal, 2017.

The SI guideline 2017 defines M&E systems and tools that guide data flow of HIV response. It is important to use one M&E framework to collect, analyze and apply the M&E data, rather than using multiple parallel systems so that the reporting burden can be reduced. Therefore, M & E of HIV interventions has adopted one national M&E Framework in Nepal.

In line with NHSP midterm review, NCASC will conduct a review of National Consolidated SI Guidelines. NCASC will finalize the aims/objectives of the review in consultation with all the stakeholders. NCASC will also consult all the stakeholders to revise the guidelines if needed. This can be done if there are changes in global strategy or findings from a midterm review of National HIV Strategic Plan.

CHAPTER 5: National M&E Framework, Core Indicators and Targets

In this chapter, the framework for the National consolidated SI guidelines is presented along with the core indicators that will measure the progress of national strategic plan in the next five years according to national targets. The M&E framework is designed based on NHSP vision and its strategic directions to achieve the NHSP targets. The core indicators measure the specific progress of the national goals and strategic objectives. Within this framework, there are programme intervention frameworks of the national response to HIV, including prevention for key affected populations, prevention of mother-to-child transmission; and care and treatment for PLHIV, support for children affected by AIDS. The M & E framework can be found in table 5 and details of indicator reference sheet in annexe III.

5.1 National M & E framework

National M & E framework is primarily based on the National HIV Strategic Plan (NHSP) 2016-2021 along with global indicators and other reporting requirements. National M & E framework is divided into four broad areas; each of these has a set of core indicators to measure the progress.

The underlying logic of the National M&E framework is results based: programme outputs should lead to desired outcomes, which in turn will lead long-term impact. The strategic objectives are designed to achieve the national goals, which contribute to the vision of ending HIV by 2030. The core indicators were designed to measure the desired impact and outcomes of the programmes.

5.2 Core Goal and Outcome Indicators

Table 5 presents the 48 core indicators that measure country's progress on the NHSP. Many of them are standard international indicators adopted from Global AIDS Monitoring (GAM), WHO consolidated guidelines whereas other indicators were developed as per country's need and relevancy. The indicator tables (Table 5 and annex III) show indicator name, the source of the data; frequency of data collection, and the agency responsible for measuring and reporting the indicator. The indicator reference sheet provides an overview of why the indicator is appropriate for measuring the progress of the strategy. Detailed definitions of the core indicators are included in Annex III.

5.3 Indicators for Province level

Nepal is experiencing a concentrated HIV epidemic with the key population at risk for HIV. NCASC has divided Nepal into four epidemic zones based on different epidemic characteristics such as the distribution of key population, migration of people to high-risk areas and exposure to risk behavior for HIV in these areas (Fig 12 and Table 2). In highway districts, the epidemic is driven by sex workers and their clients whereas, in the Kathmandu and Pokhara Valley, the epidemic is driven by all key populations (people who inject drugs, men who have sex with men and transgender and female sex workers). In Far-western districts, migrants in hilly areas and sex worker and their clients in Terai highway areas are key populations at higher risk of HIV. This shows that different areas of Nepal have different key population at risk which drives HIV epidemic. Thus, it is important that federal-state identifies key population in the state, the population that is driving the epidemic, and related indicators to track the HIV response in a different states (Fig 12).

NCASC has developed 48 indicators to fast-track HIV response in Nepal. As key population drives HIV epidemic in different provinces, it is of utmost importance that the provinces select indicators to fast-track HIV response in their areas.

Table 2: HIV Epidemic Zones, District Names and Key Populations

Epidemic Region	Number, location and Name of districts	Key populations
1. Kathmandu Valley	3 districts in the Kathmandu valley (Kathmandu, Lalitpur, Bhaktapur)	PWIDs (Male and females), FSWs, Client of sex workers and MSM/TG
2. Highway districts	26 districts along Mahendra, Prithvi and Pokhara-Butwal highways (Jhapa, Morang, Sunsari, Saptari, Siraha, Dhanusha, Mahottari,Sarlahi, Rautahat, Bara, Parsa, Chitwan, Dhading, Makawanpur,Syanja, Kaski, Palpa, Rupendehi, Kapilbastu, Dang, Banke, Bardiya,Kailali, Kanchanpur, Tanahu, Nawalparasi)	FSWs, clients of sex workers, PWIDs and MSM/TG
3. Far-Western Hill Districts	7 hill districts of the Far-western development region (Bajura, Bajhang, Accham, Doti, Dadeldhura, Baitadi, Darchula)	Male labor migrants and their spouses
4. Remaining Hills	39 districts (Taplejung, Panchthar, Ilam, Dhankuta, Tehrathum, Sankhuwasabha, Bhojpur, Solukhumbu, Okhaldunga, Khotang, Udayapur, Sindhuli, Ramechhap, Dolkha, Sindhupalchowk, Kavrepalanchok, Nuwakot, Rasuwa, Gorkha, Lamjung, Manang, Mustang, Myagdi, Parbat, Baglung, Gulmi, Arghakhanchi, Puthan, Rolpa, Rukum, Salyan, Surkhet, Dailekh, Jajarkot, Dolpa, Jumla, Kalikot, Mugu, Humla)	This epidemic zone is also classified as a low HIV prevalence zone.

Table 3: IBBS Surveys Conducted in Nepal

Key populations at higher risk	Survey areas	Rounds	Survey years
Female Sex Workers (FSW)	Kathmandu Valley	6	2004, 2006, 2008, 2011, 2015, 2017
	Pokhara Valley	5	2004, 2006, 2008, 2011, 2015
	16 Terai Highway Districts	6	1999, 2003, 2006, 2009, 2012, 2015
	6 Terai Highway Districts	5	2004, 2006, 2009, 2012, 2015
Male People who Inject Drugs (PWID)	Kathmandu Valley	7	2002, 2005, 2007, 2009, 2011, 2015, 2017
	Pokhara Valley	7	2003, 2005, 2007, 2009, 2011, 2015, 2017
	Eastern Terai Districts	7	2003, 2005, 2007, 2009, 2012, 2015, 2017
	West to Far West Terai Districts	6	2005, 2007, 2009, 2012, 2015, 2017
Female Injecting Drug Users (FIDUs)	Kathmandu Valley	1	2016
	Pokhara Valley	1	2017
Men who have Sex with Men (MSM) and Transgender (TG)	Kathmandu Valley	5	2004, 2007, 2009, 2012, 2015
	Terai Highway Districts	1	2016
	Pokhara Valley	1	2017
Male labor migrants	Western to Mid & Far Western Districts	6	2006, 2008, 2010ₐ, 2012, 2015, 2017
Wives of labor migrants	Farwestern region	2	2001ᵦ, 2008

ₐBanke, Surkhet, Achham, Doti, Kailali, and Kanchanpur; b Kailali only

5.3.1 Province Number One

Province number one lies in the eastern part of Nepal and stretches from the Terai in the south to the Himalayas in the north. It constitutes of one metropolitan, 46 municipalities and 90 rural municipalities in new federal context. Fourteen districts from previous administrative division (Eastern Development region) constitute of Province one. These districts are as follows:

i. Bhojpur	ii. Dhankuta
iii. Ilam	iv. Jhapa
v. Khotang	vi. Morang
vii. Okhaldhunga	viii. Panchthar
ix. Sankhuwasabha	x. Solukhumbu
xi. Sunsari	xii. Taplejung
xiii. Terhathum	xiv. Udaypur

Female sex workers and their clients, and MSM & TG, male labour migrants are a major key population at risk for HIV in this province. These key populations mainly reside in highway districts (Sunsari, Morang and Jhapa) (Table 2). NCASC, as per its national surveillance plan has been conducting IBBS surveys among key populations such as FSW, MSM & TG, and PWIDs in a different cluster (Table 3). HIV prevalence among PWID in eastern Terai is 8.3% (IBBS, 2015) and 6.3% among MSM & TG in Eastern Terai region (IBBS, 2015). Currently, 24 HTS sites are providing HIV testing and counselling services in Province one whereas 9 ART sites are providing treatment and care support to PLHIV. Similarly, 2 OST sites are providing OST service to PWID.

OST sites in Province one
i) Koshi Zonal Hospital, Morang
ii) Mechi Zonal Hospital, Jhapa

ART Sites in Province One

i) District Hospital, Dhankuta	ii) District Hospital, Ilam
iii) Mechi Zonal Hospital, Jhapa	iv) Koshi Zonal Hospital, Morang
v) District Hospital, Udaypur	vi) Inaruwa Hospital, Sunsari
vii) BP Koirala Institute of Health Sciences (BPKIHS), Sunsari	viii) District Hospital, Okhaldhunga
ix) District Hospital, Sankhuwasabha	

5.3.2 Province Number Two

Province number two lies in the southeastern planes of Nepal. It consists of 8 districts from Saptrai in the east to Parsa in the west. The province compromises of following districts:

i) Bara	ii) Dhanusha
iii) Mahottari	iv) Parsa
v) Rautahat	vi) Saptari
vii) Sarlahi	viii) Siraha

There are one Metropolitan city, three sub-metropolitan cities, 43 Municipalities and 80 rural municipalities in province two.

Female sex workers and their clients, PWIDs, and MSM & TG are main epidemic drivers for HIV in these districts (Table 2). IBBS surveys are regularly conducted among the key population (FSW, PWIDs, and MSM/TG) (Table 3). In this province, HIV responses are targeted to these groups. Currently, 15 HTS sites are providing HIV testing and counseling services in Province two whereas 8 ART sites are providing treatment and care support to PLHIV. Narayani Sub-regional Hospital is the only site providing OST service to PWIDs in this province.

ART Sites in Province Two

i)   District Hospital, Bara

ii) District Hospital, Rautahat

iii) District Hospital, Sarlahi

iv) District Hospital Jaleshwor, Mahottari

v)   Janakpur Zonal Hospital, Dhanusa

vi) Narayani Sub regional Hospital, Parsa

vii) Sagarmatha Zonal Hospital, Saptari

viii) Ram Kumar Uma Shankar Charity Hospital, Siraha

Figure 11: HIV epidemic zones in Nepal
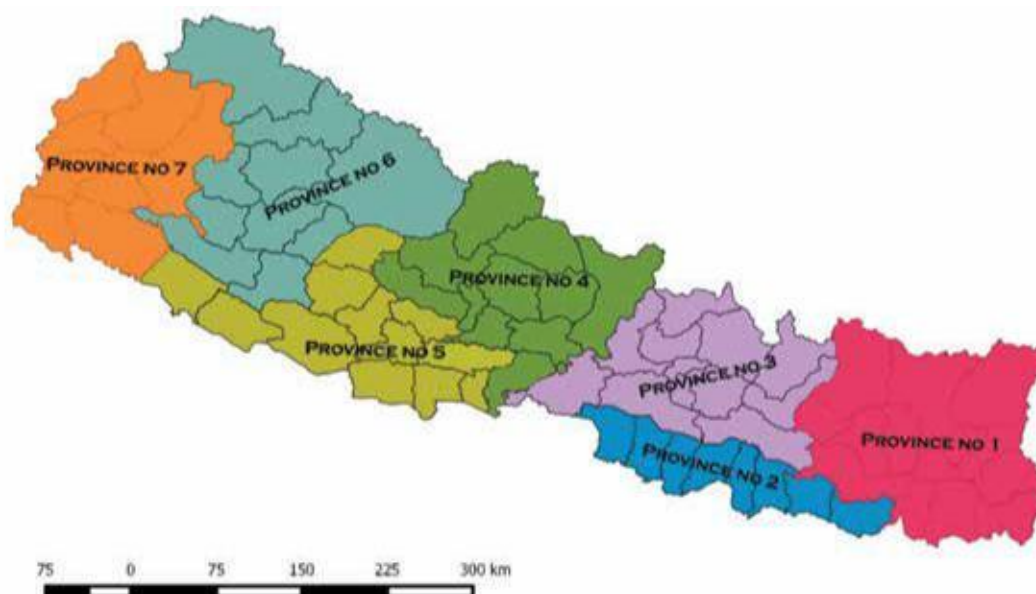
Figure 12: Provinces of Nepal

5.3.3 Province Number Three

Province number three lies in the central part of Nepal. Most of the area of this province is hilly and mountainous. The national capital (Kathmandu) also lies in this province. It consists of 3 metropolitans, 1 sub-metropolitan city,44 Municipalities and 74 rural municipalities as per the new federal structure. Province number 3 consist of 13 districts as per old structure namely:

i. Bhaktapur	ii. Chitwan
iii. Dhading	iv. Dolakha
v. Kathmandu	vi. Kavrepalanchok
vii. Lalitpur	viii. Makwanpur
ix. Nuwakot	x. Ramechhap
xi. Rasuwa	xii. Sindhuli
xiii. Sindhupalchok	

As per epidemic zones, this province consists of highway districts and the Kathmandu Valley, and its epidemic is mainly driven by PWIDs (Male and females), FSWs, clients of sex workers and MSM/TG. Some districts in this province are categorized as low HIV prevalence zone where no such risk groups are drivers of HIV epidemic (Table 2).

Table 3 shows that IBBS surveys are conducted among FSW, PWIDs and MSM/TG in the Kathmandu Valley. HIV prevalence among FSW in the Kathmandu Valley is 2% (IBBS, 2015) whereas HIV prevalence among PWIDs and MSM/TG is 6.4% and 2.4% respectively. HIV prevention services are being targeted to these groups, and are being provided by the implementation partners whereas treatment, care and support services are provided through government and community organizations. There are 36 HTS sites, 14 ART sites and 6 OST sites providing HIV prevention, treatment and care services in this province.

List of ART sites in Province three

i. Bhaktapur Hospital, Bhaktapur	ii. Bharatpur Hospital, Chitwan
iii. District Hospital, Dhading	iv. Sukraraj Tropical & Infectious Disease Control Hospital, Kathmandu
v. Kanti Children's Hospital, Kathmandu	vi. Maiti Nepal, Kathmandu
vii. Bir Hospital, Kathmandu	viii. Tribhuvan University Teaching Hospital (TUTH), Kathmandu
ix. Dhulikhel Hospital, Kavre	x. Sparsha Nepal, Lalitpur
xi. District Hospital, Makwanpur	xii. Trishuli Hospital, Nuwakot
xiii. District Hospital, Sindhuli	xiv. District Hospital, Sindhupalchowk

List of OST sites in Province three

i. Tribhuvan University Teaching Hospital (TUTH), Kathmandu	ii. Patan Hospital, Lalitpur
iii. Richmond Fellowship Nepal (RFN), Kathmandu	iv. Aavash Samuha, Bhaktapur
v. SPARSHA, Lalitpur	vi. Saarathi Nepal, Kathmandu
vii. Youth Vision, Kathmandu	viii. Youth Vision, Lalitpur

5.3.4 Province Number Four

Province number four lies in the western part of Nepal and mostly consists of hills and mountain region. It constitutes of 1 metropolitan, 29 municipalities and 55 rural municipalities (85 local bodies in total). It consists of 11 districts from the previous administrative unit.

i. Baglung (Eastern Part)

ii. Gorkha

iii. Kaski

iv. Lamjung

v. Manang

vi. Mustang

vii. Myagdi

viii. Nawalparasi (east of Bardaghat Susta)

ix. Parbat

x. Syangja

xi. Tanahun

This province consists of highway districts and the Pokhara Valley. FSW and their clients, MSM/TG, PWIDs and migrant workers are key populations in the Pokhara Valley whereas rest of the districts are considered as low HIV prevalence zones (Table 2). Table 3 shows that IBBS surveys are conducted in the Pokhara valley in regular intervals among key populations. HIV prevalence among FSW, PWIDs is 0.3%, 2.8%.respectively. There are 24 HTS sites, 1 OST site (Western Regional Hospital) and 9 ART centres in this province which are providing HIV prevention, treatment and care services.

List of ART sites in Province four

i. Dhaulagiri Zonal Hospital, Baglung

ii. District Hospital, Gorkha

iii. Western Regional Hospital, Kaski

iv. Lamjung Community Hospital, Lamjung

v. District Hospital, Myagdi

vi. District Hospital, Syangja

vii. District Hospital, Tanahun

viii. District Hospital, Parbat

ix. Walling PHC, Syangja

5.3.5 Province Number Five

Province number five lies in the mid-western Terai and hilly region of Nepal. It consists of 13 districts namely:

i. Arghakhanchi

ii. Baglung (western part)

iii. Banke

iv. Bardiya

v. Dang

vi. Gulmi

vii. Kapilvastu

viii. Nawalparasi (west of Bardaghat Susta)

ix. Palpa

x. Pyuthan

xi. Rolpa

xii. Rukum (eastern part)

xiii. Rupandehi

This province consists of Terai highway districts and Hilly regions from where people migrate to India and other countries. Female sex workers and their clients, PWIDs MSM/TG, are key risk populations in Terai districts whereas migrants are the key risk populations in the hilly districts. NCASC conducts IBBS surveys among key population (PWIDs in Western to Far-western Terai highway districts, MSM/TG in Terai districts, and migrants in western hilly regions) (Table 3). There are 26 HTS sites, 3 OST sites, and 12 ART sites in this province which are providing HIV prevention, treatment and care services.

List of ART sites in province five

i. Bheri Zonal Hospital, Banke

ii. Rapti Sub Regional Hospital, Dang

iii. District Hospital, Bardiya

iv. District Hospital, Rolpa

v. District Hospital, Pyuthan

vi. District Hospital, Gulmi

vii. District Hospital, Kapilvastu

viii. Prithivi Chandra Hospital, Nawalparasi

ix. United Mission Hospital, Palpa

x. Lumbini Zonal hospital, Rupandehi

xi. District Hospital, Rukum

xii. Bhim Hospital, Rupandeh

xiii. District Hospital, Argakhachi

List of OST sites in province five
I. Bheri Zonal Hospital, Banke
II. Lumbini Zonal hospital, Rupandehi
III. Youth Vision, Rupandehi

5.3.6 Province Number Six

Province number six lies in Midwestern hills and Mountain region of Nepal. It consists of 10 districts which are categorized as low HIV prevalence zones in Nepal (Table 2).

i. Dailekh

ii. Dolpa

iii. Humla

iv. Jajarkot

v. Jumla

vi. Kalikot

vii. Mugu

viii. Rukum (western part)

ix. Salyan

x. Surkhet

There are only 14 HTS sites and 2 ART sites in this province. Only migrants who migrate to high-risk areas can be key population in this province.

List of ART sites in province six
I. District Hospital, Dailekh
II. Mid-Western Regional Hospital,
Surkhet III. Distict Hospital Salyan
IV. District Hospital Kalikot

5.3.7 Province Number Seven

Province number seven lies in the far-western region of Nepal and consists of 9 districts. It is similar to previous Far-Western Development Region which consisted of 9 far-western districts as mentioned below.

i. Achham

ii. Baitadi

iii. Bajhang

iv. Bajura

v. Dadeldhura

vi. Darchula

vii. Doti

viii. Kailali

ix. Kanchanpur

This province comprises of 2 Terai highway districts and 7 districts in hilly and mountains regions. FSW, PWIDs and MSM/TG are key drivers of HIV in Terai region whereas male labor migrants are key populations

in the 7 hilly districts (table epi zones). IBBS surveys are regularly conducted among these groups in this province (Table IBBS surveys). There are 21 HTS and 11 ART sites in this province that provide HIV prevention and treatment and care services to key population.

List of ART sites in Province seven

i. District Hospital, Achham

ii. Bayalpata Hospital, Achham

iii. District Hospital, Bajhang

iv. District Hospital, Bajura

v. District Hospital, Baitadi

vi. Dadeldhura Sub-regional Hospital, Dadeldhura

vii. District Hospital, Darchula

viii. District Hospital, Doti

ix. Seti Zonal Hospital, Kailali

x. Tikapur Hospital, Kailali

xi. Mahakali Zonal Hospital, Kanchanpur

5.3.8 List of Possible Indicators for Province One, Two, Three, Four, Five and Seven

The following indicators might be useful to track HIV response in a particular province considering the drivers of HIV epidemic in that province and HIV services being provided. However, the province can select indicators that are deemed necessary to track HIV response (Annex III). NCASC will provide any required support to the provinces as and when needed.

Impact level Indicators
   a) HIV prevalence among key population

   b) HCV and HBV prevalence among people who inject drugs

Outcome level indicators
   c) Percentage of sex workers reporting condom use with most recent client
   d) Percentage of people who inject drugs reporting having used a condom the last time they had a sexual intercourse
   e) Percentage of men reporting the use of condom the last time they had anal sex with a male partner
   f) Percentage of migrants aged 15-49 reporting the use of condom the last time they had sex with non-regular sexual partner

Output level indicators
   g) Needle and syringe distributed per person who inject drugs
   h) Percentage of individuals receiving Opioid Substitution Therapy who received treatment for at least six months
   i) Number and percentage of key population who had an HIV test in the past 12 months and know their results
   j) Percentage of key population reached by HIV prevention programmes - (BCC intervention, condom and lube distribution)
   k) Number of key population screened for HIV by trained layperson
   l) Percentage of pregnant women with known HIV status
   m) Percentage of pregnant women living with HIV who received antiretroviral therapy to eliminate vertical HIV transmission
   n) Percentage of reported congenital syphilis cases (live births and stillbirths)
   o) Number and percentage of people living with HIV who are receiving HIV care (Including ART)
   p) Percentage and number of adults and children on antiretroviral therapy among all adults and children living with HIV at the end of the reporting period

q) Percentage of people living with HIV who are on retained on ART after 12, 24 and 36 months after initiation of antiretroviral therapy

r) Percentage of health facilities dispensing antiretroviral therapy that experienced a stock-out of at least one required antiretroviral drug in the last 12 months

s) Number (and percentage) of adults and children living with HIV currently receiving care and support services from outside facilities

t) Percentage of HIV-positive patients who were screened for TB in HIV care or treatment settings

u) Percentage of TB patients who had an HIV test result recorded in the TB register

Table 4: Indicators of programme strategies, health system components and level of results

Indicators by level of results	Indicators by HIV result chain framework	Indicators by programme strategies
Impact level: 6 Outcome level: 8 Output level: 33 Input: 1	Know your epidemic: 5 Input: 1 Output and outcome: 38 Impact:2 Additional indicators: 2	Reduction of HIV through sexual and injecting behavior: 27 Elimination of vertical transmission: 6 Treatment care and support: 11 Bloodborne prevention: 1 Health System Strengthening: 1 Additional indicators:2

Table 5: National Strategic plan indicator matrix

Results chain	Indicator no	Indicator type	Indicators	Data Source	Responsible for collecting data	Frequency of collecting data
	1	Impact	HIV incidence	AEM/Spectrum	NCASC	Annually
	2	Impact	HIV prevalence in young (15-24 years) people	AEM/Spectrum	NCASC	Annually
	3	Impact	HIV prevalence among key population	IBBS Surveys	NCASC	Every 2-3 years
	4	Impact	HCV and HBV prevalence among people who inject drugs	IBBS Surveys	NCASC	Every 2-3 years
	5	Impact	Estimated percentage of children newly infected with HIV from mother-to-child transmission among women living with HIV delivering in the past 12 months	AEM/Spectrum	NCASC	Annually
	6	Impact	AIDS-related deaths	AEM/Spectrum	NCASC	Annually
Reduction of HIV through sexual and injecting behavior						
	7	Outcome	Percentage of sex worker reporting condom use with most recent client	IBBS Surveys	NCASC	Every 2-3 years
	8	outcome	Percentage of people who inject drugs reporting using a condom the last time they had sexual intercourse	IBBS Surveys	NCASC	Every 2-3 years
	9	Outcome	Percentage of men reporting the use of condom the last time they had anal sex with a male partner	IBBS Surveys	NCASC	Every 2-3 years
	10	outcome	Percentage of migrants aged 15-49 reporting the use of condom the last time they had sex with non-regular sexual partner	IBBS Surveys	NCASC	Every 2-3 years
	11	Outcome	Percentage of women and men aged 15-49 who had more than one partner in the past 12 months who used a condom during their last sexual intercourse	NDHS and MICS	NCASC in coordination with MoH	Every 5 years
	12	outcome	Percentage of people who inject drugs reporting using sterile injecting equipment the last time they injected	IBBS Surveys	NCASC	Every 2-3 years
	13	Output	Needle and syringe distributed per person who inject drugs	Inreach worker diary/ Log sheet and Mapping and Size Estimation of FSW, MSM, MSW, TG & PWID in Nepal 2016	Implementing partner/NCASC	Monthly

Results chain	Indicator no	Indicator type	Indicators	Data Source	Responsible for collecting data	Frequency of collecting data
	14	Output	Percentage of individuals receiving Opioid Substitution Therapy who received treatment for at least six months	OST register (HMIS 7.6)	NCASC	Quarterly
	15	Output	Percentage of key population who received an HIV test in the past 12 months and know their results	IBBS Surveys	NCASC	Every 2-3 years
	16	Output	Number and Percentage of key population who received an HIV test in the past 12 months and know their results	T&C Register (HMIS 7.1)	NCASC	Monthly
	17	Output	Number of people who have been retested for HIV	HIV testing and counseling register (HMIS 7.1)	NCASC	Monthly
	18	Output	Knowledge of HIV status among key populations	IBBS Surveys	NCASC	Every 2-3 years
	19	Output	Comprehensive Knowledge of HIV among key population	IBBS Surveys	NCASC	Every 2-3 years
	20	Output	Percentage of key population who have been reached with HIV prevention programme	IBBS Surveys	NCASC	Every 2-3 years
	21	Output	Percentage of key population reached with HIV prevention programmes - (BCC intervention, condom and lube distribution)	Outreach daily log sheet, Drop in center (DIC) daily register, monthly compiled sheet	NCASC	Monthly
	22	Output	Number and (percentage) of sexually transmitted infections diagnosed and treated	STI treatment register (HMIS 7.2)	NCASC	Monthly
	23	Output	Number of people receiving oral PrEP for the first time during the reporting period	Will be developed in future	NCASC	Monthly
	24	Output	Percentage of health facilities with HTS services that experienced a stock-out of HIV diagnostic tests or reagents	Daily Test kits consumption Register/ Bi-monthly test kit consumption and requisition report	NCASC	Bi-Monthly

Results chain	Indicator no	Indicator type	Indicators	Data Source	Responsible for collecting data	Frequency of collecting data
	25	Output	Percentage of HIV-positive adults diagnosed with HIV whose partner's status is known	Will be developed in future	NCASC	Annually
	26	Output	People living with HIV diagnosed	HIV Treatment and care resiter HMIS 7.4	NCASC	Annually
	27	Output	Number of key population screened for HIV by trained lay person	Community-led testing reporting form (will be developed)	NCASC	Annually
	28	Output	Number of key population who was screened for HIV positive had accompanied referral to HTS sites	Community led testing reporting form	NCASC	Annually
Elimination of Vertical transmission						
	29	Output	Percentage of pregnant women with known HIV status	Maternal and Child Health Register HMIS-3.6	NCASC	Monthly
	30	Output	Percentage of pregnant women living with HIV who received antiretroviral therapy to eliminate vertical HIV transmission	PMTCT Register (7.3)	NCASC	Monthly
	31	Output	Percentage of infants born to HIV-positive women receiving a virological test for HIV within 2 months of birth	Databases held at EID testing laboratories/ HMIS 7.4 and spectrum estimate	NCASC	Monthly
	32	Output	Percentage of antenatal care attendees who were positive for syphilis	Maternal and Newborn Health Service Register (HMIS 3.6)	NCASC	Monthly

Results chain	Indicator no	Indicator type	Indicators	Data Source	Responsible for collecting data	Frequency of collecting data
	33	Output	Percentage of reported congenital syphilis cases (live births and stillbirths)	Maternal and Newborn Health Service Register (HMIS 3.6)	NCASC	Annually
Treatment care and Support						
	34	Output	Number and percentage of people living with HIV who are receiving HIV care (Including ART)	HMIS 7.4 (HIV Treatment and Care Register and AEM/Spectrum	NCASC	Monthly
	35	Output	Percentage and number of adults and children on antiretroviral therapy among all adults and children living with HIV at the end of the reporting period	HMIS 7.4 (HIV Treatment and Care Register and AEM/Spectrum	NCASC	Monthly
	36	Outcome	Percentage of people living with HIV who are on retained on ART after 12, 24 and 36 months after initiation of antiretroviral therapy	ART Cohort Analysis Report	NCASC	Annually
	37	Outcome	Percentage of people living with HIV and on ART who have viral load suppressed	HMIS 7.4 (HIV Treatment and Care Register and Patient card (HMIS 7.5)	NCASC	Annually
	38	Output	Percentage of health facilities dispensing antiretroviral therapy that experienced a stock-out of at least one required antiretroviral drug in the last 12 months	Daily consumption register/ HMIS 9.3/9.4/9.5	NCASC	Bi monthly
	39	Output	Number (and Percentage) of adults and children living with HIV currently receiving cotrimoxazole prophylaxis	HIV treatment and care register (HMIS 7.4)	NCASC	Monthly
	40	Output	Number (and Percentage) of adults and children living with HIV currently receiving care and support services from outside facilities	Routine programme data	NCASC	Monthly
TB/HIV coinfection						

Results chain	Indicator no	Indicator type	Indicators	Data Source	Responsible for collecting data	Frequency of collecting data
	41	Output	Percentage of HIV-positive patients who were screened for TB in HIV care or treatment settings	HIV treatment and care register (HMIS 7.4)/ HMIS 9.3	NCASC	Monthly
	42	Output	Percentage of TB patients who had an HIV test result recorded in the TB register	Routine programme data	NTC	Monthly
	43	Output	Percentage of HIV-positive registered TB patients given antiretroviral therapy during TB treatment	TB Treatment Register HMIS 6.5	NTC and NCASC	Monthly
	44	Output	Percentage of new HIV-positive patients starting IPT during the reporting period	HIV treatment and care register (HMIS 7.4)/ HMIS 9.4	NCASC	Monthly
Reduction of HIV through blood borne transmission						
	45	Output	Percentage of donated blood units screened for HIV in a quality assured manner	Database system used in Blood Bank	NRCS	Annually
Funding for HIV						
	46	Input	Domestic funding for HIV	NASA NCASC red book	NCASC	Bi-Annually
Additional indicator						
	47	Output	Percentage of women and men aged 15-49 who report discriminatory attitude towards PLHIV	NDHS	MOH	Every 5 years
	48	Output	Discriminatory attitude faced by key population	IBBS Surveys	NCASC	Every 2-3 years

5.4 Roles and Responsibilities of Different Stakeholders

The national response to HIV in Nepal is a multi-sectoral programme and is comprised of various players or stakeholders with different roles and responsibilities but governed by a common goal and framework. The roles for key stakeholders in the implementation of the M&E plan are outlined as follows:

Table 6: Roles and responsibilities of different stakeholders

SN	Stakeholder	Roles and responsibility
1	NCASC	✔ Provide overall leadership in execution of the M&E Plan ✔ Coordinate all NHSP M&E activities ✔ Promote all national HIV M&E system ✔ Ensure wider dissemination of the NHSP, and M&E Plan ✔ Conduct data aggregation and management from sectors ✔ Ensure that standardized tools are developed and used by implementing partners ✔ Perform regular data analysis and produce periodic report and other information products ✔ Ensure proper functioning of the Nation HIV Database ✔ Develop guidelines and tools for assurance of the quality of data ✔ Conduct data quality assessments ✔ Perform field monitoring of interventions and provide M&E technical support as per the need ✔ Strengthen M&E Capacity for the HIV response ✔ Produce and disseminate various information products ✔ Conduct national surveys within their scope and produce timely reports on national surveys ✔ Ensure all the global reporting requirements
2	Regional Health Directorate	✔ Assist in the execution of M & E plan ✔ Oversee all M & E activities at region ✔ Ensure that standardized tools are used by implementing partners ✔ Ensure proper functioning of the Nation HIV Database at regional level ✔ Conduct data quality assessments ✔ Perform field monitoring of interventions and provide M&E technical support as per the need
3	Implementing Partners	✔ Assist in execution of M & E plan ✔ Perform routine data collection ✔ Aggregate, clean and report to the data in a timely manner through the district focal person ✔ Maintain primary data collection records with maximum confidentiality ✔ Perform data quality assurance at their level ✔ Perform field monitoring of activities ✔ Ensure adequate in-house capacities for M&E ✔ Utilize data regularly for programme improvement

SN	Stakeholder	Roles and responsibility
4	Beneficiaries	✓ Provide authentic data to service providers on request ✓ Participate in monitoring and evaluating services through providing feedback to service providers, responding to survey questionnaires and participating in review meetings.
5	Service sites	✓ Collect and record data ✓ Regular reporting ✓ Maintain update and completeness of data ✓ Quality assurance of data

Currently, Nepal is in a transitional phase where its government structure in federal context is being discussed and implemented. The new federal structure has 7 provinces of which there are a rural municipalities, municipalities, sub-metropolitan cities and metropolitan cities. It is important to define all the functions of the Ministry of Health and the entities under it to move towards a federally governed health system. In the current context, Government of Nepal has planned to provide services from its lower administrative units (local governments), i.e. rural municipality, municipality, sub-metropolitan and metropolitan city.

Upon finalization of the federal structure with clearly defined roles and responsibilities, NCASC will take the lead to redefine M & E roles and responsibility of different stakeholders in the federal structure.

CHAPTER 6: MANAGEMENT OF STRATEGIC INFORMATION

Data collection and analysis have critical roles in shaping programmes, tracking progress, evaluating results, demonstrating accountability, and informing policies that will improve plans for future events. A collection of appropriate data is essential for various result areas to monitor the national response. A functional and effective M&E system generates, analyses, and uses strategic information. The M&E system for response to HIV should ensure that relevant and quality information is accessible (to all stakeholders) along the cascade at the right time, in the right place and in the right format for use. This section describes the management of strategic information.

6.1 Data Sources

Data generated from service delivery points (SDPs) form the backbone of data collection to measure the indicators of the health cascade, whereas additional information is collected from surveillance surveys, health facility surveys, demographic health surveys and vital registration. These data sources can provide a wealth of data to monitor the HIV epidemic and response. These five data sources provide the data for the 10 indicators highlighted for global monitoring.

Nepal has adopted multiple approaches for collecting the data needed for the monitoring and evaluation of the HIV programmes in the country. The data are mainly collected from routine programmes (HTS, ART, PMTCT, OST and targeted intervention programme), IBBS surveys, and size estimation of the key population. The list of data sources are as follows.

Table 7: Data source for each service components

Service components	Data source	Reporting frequency	Reporting deadline	Reporting responsibility
Routine programme data				
HTC	HMIS 7.1 (HIV Testing and Counselling Register)	Monthly	Within the 7th day of successive month	HTS sites
STI	HMIS 7.2 (STI Treatment Register)	Monthly		STI sites
OST	HMIS 7.6 (OST register)	Monthly		OST Sites
TI – BCC	TI-BCC register	Monthly		TI-BCC IPs
PMTCT	HMIS 7.3 (Prevention of Mother To Child Transmission Register) HMIS 3.6 (Maternity and Child Care Register)	Monthly		PMTCT sites
ART/OI	HMIS 7.4 (HIV Treatment and Care Register) and HMIS 7.5 (Patient HIV Care and ART Card)	Monthly		ART sites
CHBC	CHBC register	Monthly		CHBC sites
Population-based surveys				
Data from general population	Demographic and Health Survey (DHS), Multiple Indicator Cluster Survey (MICS)	Every five years	NA	MOH/NCASC
Key population	Integrated Bio- and Behavioural Surveys*	Every 2-3 years	NA	NCASC
Financial and health systems data:	National AIDS Spending Assessment (NASA)	Every 2 years	NA	NCASC

*Details of protocol is defined in Annex IV

NCASC makes use of data for HIV, ART estimation, resource allocation, reports, and use of data for improving programme implementation, strategic policy planning, and review national response.

HIV testing services

The goal of HIV Testing Services (HTS) is 'to identify people living with HIV as early as possible and to link them appropriately, in a timely manner, to treatment and care services.' Diverse models of HTS are available in Nepal to increase access to HIV diagnosis, including testing services in healthcare facilities and at stand-alone sites, as well as through a range of community-based approaches. The NHSP 2016–2021 has endorsed, community-led HIV testing (CL-HTS) as part of the CBT following the 'test for triage' strategy for screening and referral approach. Nepal has already developed guidelines for community-led testing and is planning to implement community-led testing in coming days. (For further information, please refer to *National HIV Testing and Treatment Guidelines, 2017*)

It is very crucial to capture information like socio-demographic characteristics, risk group, previously tested for HIV, counseling (pre-testing, the test result of the followed algorithm, posttest and received results) during HIV testing and counselings. Knowing the status of testing is very important to link them to treatment and care services. Similarly, HIV positive forms the basis for HIV case reporting, which is a form of passive surveillance based on identified new cases reported to NCASC. As Nepal has implemented (February 2017) 'test and treats' strategy to reach the global target (90-90-90), HIV case reporting is becoming more extensive and more relevant.

A national protocol for HIV case reporting is in place based on standard definitions of adult and paediatric cases. (See Box 1 and 2).

Outreach data

NGO outreach registers may include data on key populations, including the reach of HIV prevention services and referrals for HIV testing and treatment follow-up. NGO records also may provide the basis for estimating the size of key population groups and contribute to the sampling frame for surveys to assess treatment coverage and treatment outcomes among key populations or other populations. Outreach registry includes data on peer education and support provided by peer educators, the key population reached through BCC, reached through prevention intervention (condom programming and needle syringe exchange).

Box 1: WHO case definition for HIV infection*

Adults and children 18 months or older
HIV infection is diagnosed based on:
   − Positive HIV antibody testing (rapid or laboratory-based enzyme immunoassay). This is confirmed by 3 tier HIV antibody test (rapid or laboratory-based enzyme immunoassay) relying on different antigens or of different operating characteristics;
and/or;
   − Positive virological test for HIV or its components (HIV-RNA or HIV-DNA or ultrasensitive HIV p24 antigen) confirmed by a second virological test obtained from a separate determination.

Children younger than 18 months:
   − HIV infection diagnosis is based on: positive biological test for HIV or its components (HIV-RNA or HIV-DNA or ultrasensitive HIV p24 antigen) confirmed by a second biological test obtained from a separate determination taken more than four weeks after birth. Positive HIV antibody testing is not recommended for definitive or confirmatory diagnosis of HIV infection in children until 18 months of age.

* Details are in National Consolidated Testing and Treatment Guidelines, 2017

Box 2: Criteria for diagnosis of advanced HIV (including AIDS) for reporting*

<div style="background:#d6e4f0;">

Clinical criteria for the diagnosis of advanced HIV in adults and children with confirmed HIV infection:
- Presumptive or definitive diagnosis of any stage 3 or stage 4 condition.

and/or;

Immunological criteria for diagnosing advanced HIV in adults and children five years or older with confirmed HIV infection:
- CD4 count less than 350 per mm3 of blood in an HIV-infected adult or child.

and/or;

Immunological criteria for diagnosing advanced HIV in a child younger than five years of age with confirmed HIV infection:
- %CD4+ <30 among those younger than 12 months;
- %CD4+ <25 among those aged 12–35 months;
- %CD4+ <20 among those aged 36–59 months.

</div>

* Details are in National Consolidated Testing and Treatment Guidelines, 2017

The time lag of almost a decade between infection and development of AIDS, AIDS case reporting does not reflect the recent dynamics of the HIV epidemic. As the number of people receiving antiretroviral therapy increases, the number of new AIDS cases will decline*. In this context AIDS case, reporting is not recommended for the surveillance system of Nepal. AIDS case reporting is recommended to replace by advanced HIV case reporting.

* **Source:** WHO and UNAIDS, 2011. Guidelines on surveillance among populations most at risk for HIV. ISBN 978 92 4 150166 8 (NLM classification: WC 503.41). World Health Organization

National AIDS Spending Assessments (NASA)

NASA provides indicators of the financial country response to AIDS and supports the monitoring of resource mobilization. Thus, NASA is a tool to install a continuous financial information system within the national monitoring and evaluation framework.

NASA serves several purposes within different time-frames. In the short-term, NASA might be useful to provide information on the UNGASS indicator for public expenditure.In the longer-term, the full information provided by NASA may be used to:
- monitor implementation of the national strategic plan;
- monitor advances towards completion of internationally or nationally adopted goals such as universal access to treatment or care;
- provide evidence of compliance with the principle additionally required by some international donors or agencies; and
- fulfil other information needs.

Donor and government spending is divided in NASA into eight spending classes or chapters of AIDS Spending Categories: prevention, care and treatment, orphans and vulnerable children, strengthening programme management and administration, incentives for human resources, social protection and social services, enablement of the environment and community programmes and research.

Surveys in the general population

Household surveys are not recommended to obtain HIV-related indicators in countries with concentrated or low-level epidemics, for several reasons such as: (a) limited ability to reach key populations, and (b) the sample size would have to be very large to achieve representative samples for different subpopulations which would add complexity and cost. Nepal demographic health survey and multiple indicator cluster surveys (only in females) are two surveys conducted among the general population in Nepal. Information is collected on self-reported risk behaviours, HIV service uptake, and knowledge and/or attitudes about HIV related stigma and discrimination, availability of services.

Integrated biological and behavioural surveillance (IBBS) surveys - one of the key components of second-generation HIV surveillance systems - has been ongoing in many concentrated epidemic countries. IBBS survey is the major source of HIV prevalence and risk behaviours data in Nepal for an understanding of dynamics of HIV epidemic, monitoring the response and to design evidence-based action to curb HIV infections among people who inject drugs (PWIDs), female sex workers (FSWs), men who have sex with men (MSM) and transgender people and seasonal male labour migrants (MLM) particularly those migrating to high HIV prevalence areas in India are key subpopulations at higher risk of HIV in Nepal. Details about protocol and sample size are available in annexe IV.

6.2 Data Collection

Nepal currently adopts paper registers and reporting forms. Patient-level data are recorded at the paper-based register at service sites. Health workers enter records in the registers which act as a source of data for all routine data. These registries are used as a source while reporting to the district office. After reporting to the district, these data are entered into the electronic database system of HMIS known as DHIS 2 which is an online database system. Till date, only aggregated data can be entered in the DHIS-2 system.

Routine programme data at service sites such as ANC clinics, STI clinics, ART sites, HTS, OST, TB clinics, Hospitals, Health Centers, Health Posts, Sub-Health Posts, Private Hospitals will be reported to District Health Office using HMIS form (Table 7) on a monthly basis. Similarly, all multi-sectoral HIV programme response data generated by different government line agencies, NGOs, CBOs and private sector, programmes shall report to the NCASC as prescribed by NCASC on a monthly/quarterly basis.

It is crucial that individual-level data be collected to track the achievement of 90-90-90 target. Current HMIS system does not provide individual-level data which are informative to evaluate programme performance. However, aggregated data does not serve the purpose when it comes to longitudinal follow-up of these patients for analyzing individual-level data and further exploring the outcomes of HIV response. Standardized individual patient records serve several functions that support quality services at individual, health facility, district and national levels. Thus, this guideline emphasizes on transitioning from HMIS (DHIS 2) aggregate data to individual level electronic data (DHIS 2 tracker) to fulfill the strategic information needed for programme improvement.

Electronic data systems are an important tool to improve patient follow-up and for storage and retrieval of data. They have numerous advantages over paper-based systems.
- Patient-level data can be tracked over time and linked to other data sources.
- Electronic systems make disaggregation of data by important variables easy, thus making it possible to have possible richer, more detailed analysis of needs of the clients and the reach of services.
- Using unique patient identifiers, online software can track patients' movement across multiple facilities, giving all clinicians the full history of the patient.
- Individual-level data can be aggregated at successively higher levels of the reporting system, up to the national level more easily and more quickly.

6.3 Data Management

Good data management includes developing effective processes not only for consistently collecting and recording data but also for storing data securely, cleaning data, backing up data and modifying data so that they can be transferred between different types of software for analysis. Even if the data has been collected

with well-defined procedures, standard recording tools, they need to be checked for any inaccurate or missing data. Data cleaning involves finding and dealing with any error that might have occurred during data recording through data entry. The data management system shall assure accessibility, reliability and timeliness of data to satisfy the needs of the data users. For this, an effective system for data management is envisioned which will include:

- Data security
- Confidentiality
- Data access and sharing
- Use of unique identifiers
- Interoperability of available system.

Unique Identifier

A unique identifier (UI) is a numeric or alphanumeric string associated with a single individual within a data management system. Using UIs helps to track individuals and provides stronger linkage across the cascade of services and, as a result, more efficient and effective care.

During HIV response, an individual may receive multiple health services in different service sites and in different location. The use of UIs gives the capacity to link all health data pertaining to a particular individual with the aim to (i) provide standardized unique registration number (data number) to all service sites and clients served, (ii) assess the extent of repetition to services by the clients, (ii) ensure linkage to various services through unique coding, and (iv) support further analysis of HIV data (data with uniformity) at all levels and programme components.

The UI can be a national ID number, a national health number, a programme-specific identifier or a biometric identifier. Each of these has its own challenges, such as patient confidentiality when utilizing a national identifier or resources if implementing a biometric identifier.

For the management of programme monitoring data of all components, NCASC has developed standard recording and reporting tools with job aids. Data are recorded in the component register by service site. Though, the names of patients are collected at the registry level; it is only available to a health worker at service site to maintain the confidentiality of data. The reported data does not contain any personal identification. The same process will be followed to maintain the confidentiality of data in the electronic system (DHIS2 tracker). NCASC will be responsible for verifying the data security and confidentiality before implementing electronic database. All the received individual-level information at the center from DHIS 2 tracker will be recorded on the central server of National Information Technology Center (Ministry of Science and Technology). The individual-level information like mobile number, last name of the client, etc. will be encrypted using DHIS 2 encryption technology.

Unique Identifier Code (UIC) in Nepal

NCASC also uses a UIC system developed by MoH. This UIC is used in HTS and HIV treatment care services. However, UIC is not linked from prevention to care services. It is very critical to have a UIC which links an individual from prevention to care continuum for better treatment outcomes thus effective HIV response. This highlights the need of UIC in Nepal. Similarly, targeted intervention programme is not reported through HMIS and has a separated UIC varied by implementing partners. This code differs from NCASC UIC code. Thus, it is necessary to have one national UIC for effective tracking and better use of resources.

Nepal will move towards UIC and NCASC, with the support from stakeholders will take lead to develop UI to track the individuals from prevention to treatment and care continuum.

6.4 Data Quality Assurance

Data quality assurance refers to the procedures for ensuring that monitoring and evaluation (M&E) data are accurate, complete, consistent and reliable. Quality data are very important for measuring progress on interventions and for evidence-based decision-making at the programme level. Data quality assurance identifies quality issues in the data, specifies ways to correct identified problems, and stipulates the plan for regular periodic assessments of data quality.

NCASC is collecting programme and process data using a standard reporting system and tools. Such data, compiled at the national level, are used for Monitoring and Evaluation (M&E) of the national HIV response and to inform the process of development of national plans and policies.

Recording and reporting of routine data on HIV testing and counseling (HTS), Anti-retroviral Therapy (ART)/Opportunistic Infection (OI), Opioid substitution therapy (OST), and Prevention of Mother to Child Transmission (PMTCT) are ongoing with NCASC as the focal point for collecting and analyzing such data. The Strategic Information Unit at NCASC has given high priority to ensure data quality because of several reasons. Firstly, the rapid expansion of service sites has challenged the timely set-up of M&E system, training of human resources, continuous mentoring and follow-up. Secondly, due to the increasing national and international reporting requirements, NCASC would like to ensure standard data quality checks/audits before final reporting so that high-quality information can be produced.

Each set of data is considered good quality data if they pass successfully when screened through the data quality gauze as shown in figure 13.
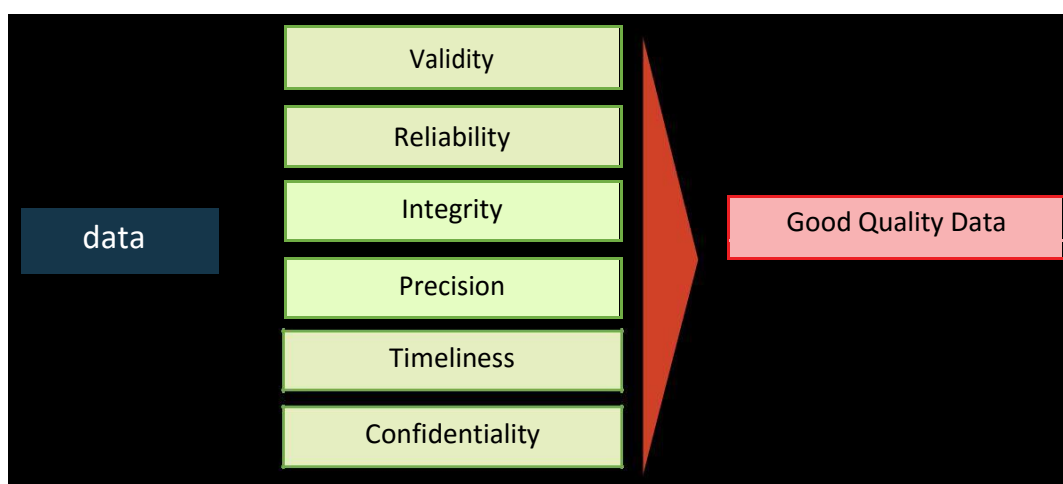
Figure 13: Six criteria for measuring data quality

Key methods and approaches for data quality assurance in M&E of HIV response
Data verification: NCASC has developed the data verification protocol in 2010 (Data quality assessment 2010). According to the protocol, data verification should be done at three levels: (1) service sites, (2) district level, and (3) national level

Data verification at service sites: Before sending the report to the higher levels, all the reports should be verified to check if any error or inconsistency has occurred and then approved by the in-charge of the office after verifying the reports at SDP level.

Data verification at district level: At the district level, DPHO/DHO is responsible for managing HIV response statistics collected from different service sites.

Data verification at RHD and national level: *At the RHD and national level data* inconsistency should be checked and, if any fault noticed, should be asked to DPHO/DHO and be clarified. It is the responsibility of M & E unit of NCASC at the national level and focal point at the regional level.

> **Dimensions of data quality**
> - **Validity:** the degree to which the data measure what they are intended to measure
> - **Accuracy:** the percentage of data fields containing correct data
> - **Availability:** ability of the system to report the data, including availability of registers to validate reported data and percentage of facilities submitting monitoring reports
> - **Completeness:** The proportions of data fields that are complete (no missing data)
> - **Timeliness:** the proportion of reports submitted on time

Data Quality Assessment (DQA)

Data Quality Assessment (DQA) is a participatory exercise that verifies the output level indicators with the evidence and also looks into strengthening M&E systems at service site with technical support from NCASC. Based on the national DQA protocol (Annex V), service sites will be audited for data quality.

6.5 Data Analysis and Use

The ultimate goal of M&E is to provide data to the decision-makers to use at all points of the HIV programme cycle through routine indicator reporting, programme reviews, evaluations, operational/implementation research and modelling, strategic information forms the evidence base for programming the response to HIV.

Data analysis is the process of synthesizing data and summarizing the health situation and trends to be used by decision-makers. Analysis turns raw data into information that is critical for decision-making. It looks closely at the linkages between different aspects of the epidemic and response, such as policy, programme implementation, behaviour change and HIV prevalence. Usually, the analysis is carried out to track the epidemic trends, comparison of results of by indicators for performance measurement (targets vs achievements) and to guide for programme improvement.

Various factors need to be taken into account during data analysis as this could affect the interpretation of findings. These factors include data collection methodologies, data sources, comparison across different sources and/ or data sets and variation or inconsistencies between different datasets. For an accurate analysis, it is critical to understand the context in which the data were collected, and identify an account for biases.

While analysing the data, various disaggregations will be done as mentioned in indicator reference sheet so that disaggregated information as mentioned below is available.
- Is it progressing as planned?
- Does it reach those it was intended to reach?
- Is there any change over time?
- Do those reached by the programme differ from those not reached (e.g. in behaviour)?
- Changing dynamics of HIV epidemic by geographic location
- Is there any evidence of impact?

6.5.1 Data Use at National, Subnational and Service Delivery Levels

Strategic information data is very critical and can be used for the purpose of different policy and programme. Below is the list of data uses at all levels.
- Results (outcome and impact) assessment

- Prepare reports and meet reporting requirements
- Improve programme implementation
- HIV infections estimations and projections
- Needs calculation, target setting, and quantifications of HIV related commodities and supplies
- Review of national response by component, strategic planning, and allocate resources
- Information generation for programme improvement, and public message
- Assess whether programmes are on track regarding access, coverage and quality, and to guide corrective action where needed
- Justify value of money (tracking the return on investments made)
- Express accountability – donors, government and people

Box 3: Strategic information needs at different levels of the health system

Service level
- Monitoring loss to follow-up
- Monitoring early warning indicators
- Monitoring access to and coverage of services
- Improving facility management
- Establishing accountability for work

National and subnational levels:
- Developing programme targets and linkages between HIV testing and ART services
- Adjusting the focus of outreach interventions and programming for key populations
- Estimating the number of HIV-positive pregnant women for targeting the ART/PMTCT programme
- Informing policy
- Informing resource allocation
- Evaluating interventions/innovations/pilot tests.

Global and national levels
- monitoring impact: national or subnational incidence, prevalence, mortality trends
- measuring outcomes: coverage and access
- costing calculations
- lives-saved calculations
- triangulating data to project unmet needs
- Modelling for infection estimates

6.5.2 Mechanism of HIV Data Dissemination

Dissemination of HIV data is critical to gain commitments for improved response to HIV epidemic and as well to express the accountability for the commitments made. Following are the key strategies recommended as a mechanism for HIV data dissemination:

i)   Data sharing/dissemination meetings
ii)   Presentation at the national and international conferences and seminars
iii)   Contribute to global, regional and national HIV database
iv)   Web updates
v)   Data use advocacy sessions
vi)   National and regional review
vii)   Joint annual review
viii)   Publication of key findings in national and international peer review journals.

BIBLIOGRAPHY

Deuba K, Ojha B, Shrestha R, Ekström AM, Marrone G, KC, NP, et al. Optimizing the implementation of integrated biological and behavioural surveillance surveys of HIV in resource-limited settings-lessons from Nepal. Asian Pac J Trop Dis. 2014 Sep 1;4: S605–15

Events I of M (US) F on M and PHP for C. Data Collection, Monitoring, Evaluation, and Use [Internet]. National Academies Press (US); 2010 [cited 2017 Aug 13]. Available from: https://www.ncbi.nlm.nih.gov/books/NBK54191/

Information NC for B, Pike USNL of M 8600 R, MD B, USA 20894. Strategic information: a consolidated framework [Internet]. World Health Organization; 2015 [cited 2017 Aug 13]. Available from: https://www.ncbi.nlm.nih.gov/books/NBK299489/

WHOHUB. M29: HIV case-based surveillance and patient monitoring - [Internet]. [cited 2017 Aug 13]. Available from: http://www.whohub-zagreb.org/906

National AIDS Spending Assessment (NASA): classification and definitions. Geneva: UNAIDS; 2009.

National AIDS Committee. National Strategic Information and Monitoring and Evaluation Plan for HIV/AIDS. Thailand; 2012.

National Center for AIDS and STD Control. IBBS survey among men who have sex with men in the Kathmandu Valley 2009. Kathmandu: NCASC; 2015.

National Center for AIDS and STD Control. IBBS survey among female sex worker in the Kathmandu Valley 2009. Kathmandu: NCASC; 2015.

National Center for AIDS and STD Control. Routine M&E QA/QI Checklist 2010. Kathmandu: NCASC; 2010.

National Center for AIDS and STD Control. National HIVision 2016-2020. Kathmandu: NCASC; 2016.

National Center for AIDS and STD Control. National guidelines for HIV and STI surveillance in Nepal 2012. Kathmandu: NCASC; 2012.

National Center for AIDS and STD Control. National guidelines for monitoring HIV response in Nepal 2013. Kathmandu: NCASC; 2013.

National Center for AIDS and STD Control. National HIV research agenda 2013. Kathmandu: NCASC; 2013.

FHI/Impact. Behavioural surveillance surveys: guidelines for repeated behavioral surveys in the population at risk of HIV. Arlington: Family Health International; 2000. [Online] Available from: http://www. who.int/hiv/strategic/en/bss_fhi2000.pdf. [Accessed on 20th July, 2017].

Rjepaj K, Bani R. HIV/AIDS Monitoring and Evaluation Systems Strengthening for the National AIDS Programme in Albania. Mater Socio-Medica. 2013 Dec; 25(4):273–6.

Uganda AIDS Commission. The national monitoring & evaluation framework, for HIV / AIDS activities in Uganda. Kampala: Uganda AIDS Commission; 2015.

WHO | Consolidated strategic information guidelines for HIV in the health sector [Internet]. WHO. [cited 2017 Aug 1]. Available from: http://www.who.int/hiv/pub/guidelines/strategic-information-guidelines/en/

WHO | Second Generation Surveillance for HIV/AIDS [Internet]. WHO. [cited 2017 Aug 13]. Available from: http://www.who.int/hiv/topics/surveillance/2ndgen/en/

World Bank. HIV/AIDS in Nepal [Internet]. [cited 2017 Aug 6]. Available from: http://www.worldbank.org/ en/news/feature/2012/07/10/hiv-aids-nepal

ANNEX I: Technical Working Group

NCASC
1. Overall lead- Dr Tarun Paudel, Director and Bir Rawal, Statistical Officer, National Center for AIDS and STD Control (NCASC)
2. Task Coordinator- Dr Keshab Deuba, Strategic Information Specialist, NCASC/Global Fund Programs
3. Upendra Shrestha, M and E Coordinator, NCASC/Global Fund Programs
4. Sagun Pant, M and E Officer, NCASC/Global Fund Programs

Save the Children
5. Rajan Shrestha, Senior M & E Manager, Save the Children
6. Bishnu Shrestha, M & E Manager, Save the Children
7. Nilarambha Adhikari, M & E Coordinator, Save the Children

UN Organizations
8. Birendra Pradhan, HIV Specialist, UNICEF Nepal
9. Komal Badal, Strategic Information Associate, UNAIDS
10. Dr Subash Lakhe, National Professional Officer, Communicable Disease Control, WHO Country Office, Nepal

INGO's
11. Pradeep Kumar Thakur, Team leader- M & E, LINKAGES Nepal, FHI 360
12. Divya Raj Joshi, Operations Manager, AIDS Health Care Foundation

Consultant
13. Biwesh Ojha, Consultant, National Consolidate SI Guideline on HIV Response

ANNEX II: SI TERMINOLOGIES

Behavioural Surveillance Survey (BSS): BSS is usually conducted on time intervals and finds out the underlying psycho-social and socio-economic factors of HIV and AIDS and suggests appropriate measures to respond.

Client of FSW: A client is defined as a male who has bought sex from FSW for which he has paid in money or kind.

Concentrated Epidemic: This is termed as a concentrated epidemic where HIV infection is over five percent in any subpopulation at higher risk of infection (such as people who inject drugs, sex workers, men who have sex with men) but below 1% of the general population.

Disease surveillance: The ongoing systematic collection, analysis, and interpretation of data to describe diseases and their transmission in populations. These data can help predict future trends, and target needed prevention and treatment programmes. The data are collected from certain sites—hospitals, antenatal clinics—that are believed to be representative of the population and have the potential to serve as early warning signs (sentinels), the process is called sentinel surveillance

Evaluation: The systematic and objective assessment of an on-going or completed project, programme or policy, its design, implementation and results. The aim is to determine the relevance and fulfilment of objectives, development efficiency, effectiveness, impact and sustainability.

External Evaluation: An evaluation conducted by the persons from outside of your organization who might be a national or an international consultant (s). Such an evaluation is also called an "Independent Evaluation". Moreover, the consultants conducting such an independent evaluation are called "Independent Evaluators".

Final Evaluation: Final evaluation is done towards the end of the programme cycle. This is always done by the independent external evaluators just before the programme period completes

Female Sex worker: A girl or a woman who is engaging in a consensual sex. Sexual act include - peno-vaginal, anal or oral sex Involving transaction of commercial value, either money or anything in kind

Health Facility Survey: A survey targeting health facilities to gather information on the availability of human resources, equipment, commodities and drugs, and type of services delivered. Examples include site-based facility surveys (e.g. HIV and AIDS Service Provision Assessment) and SAMs (Service Availability Mapping Surveys)

Impact evaluation: Impact evaluation is the systematic identification of the long-term effects (positive or negative, intended or not) on individual households, institutions and the environment, caused by a given development activity such as a programme or project. Impact evaluation looks beyond the immediate results of policies, instruction, or services to identify longer-term as well as unintended programme effects.

Impact monitoring: In the field of public health, is usually referred to as disease surveillance (see above) and is concerned with the monitoring of disease prevalence or incidence; with this type of monitoring, data are collected at the jurisdictional, regional, and national levels.

Indicator: a Quantitative or qualitative factor or variable that provides a simple and reliable means to measure achievement, to reflect the changes connected to an intervention, or to help assess the performance of a development actor. In order for indicators to be useful for monitoring and evaluating

programme results, it is important to identify indicators that are direct, objective, practical and adequate and to regularly update them.

Internal Evaluation: An evaluation done by the staff from within the organization is called internal evaluation. Such an evaluation is done by the management or the project staff themselves to assess the performance.

Input and output monitoring: Involves the basic tracking of information about programme inputs, or resources that go into a programme, and about outputs of the programme activities; data sources for monitoring inputs and outputs usually exist naturally in programme documentation, such as activity reports and logs, and client records, which offer details about the time, place, and amount of services delivered, as well as the types of clients receiving services.

Logical framework (Logframe): Management tool used to improve the design of interventions, most often at the project level. It involves identifying strategic elements (inputs, outputs, outcomes, impact) and their causal relationships, indicators, and the assumptions or risks that may influence success and failure. It thus facilitates planning, execution and evaluation of a development intervention. Related term: results-based management.

Male having sex with a male: In Nepal, effeminate men are referred to as metis, singarus, fullumullu, maugiya or kothis with terminologies varying according to different geographical locations. Gay men who are not necessarily feminine are known as male homosexuals or dohoris. Those who are attracted to physically and emotionally to both men and women are known as Bisexual- man. Those who are engaged in both receptive and penetrative anal and oral sexual behaviour are called 'dohoris'. Both Bi-sexual men and homosexuals/dohoris are hard to reach and are hidden. They do not self-identify themselves either as homosexual or Bi-sexuals. In Nepal, the sexual partners of metis are known as tas. They see themselves as masculine and mostly act like heterosexual males. In fact, they often consider themselves as heterosexuals. Hijara is a culture which the TG community join and follow rituals and obligations. This is commonly practiced in Terai and border areas of Nepal.

M&E plan: Monitoring and evaluation plan. A comprehensive planning document for all M&E activities, it documents the key M&E questions to be addressed, what indicators are collected, how, how often, from where and why they will be collected; baselines, targets and assumptions; how they are going to be analysed or interpreted, and how or how often reports will be developed and distributed on these indicators.

M&E system: The set of planning, information gathering and synthesis, and reflection and reporting processes, along with the necessary supporting conditions and capacities required for the M&E outputs to make a valuable contribution to project decision making and learning.

M&E Framework: A table describing the performance questions, information gathering requirements (including indicators), reflection and review events with stakeholders, and resources and activities required to implement a functional M&E system. This matrix lists how data will be collected, when, by whom and where.

Mid-Term Evaluation: An evaluation conducted by the independent external evaluators during the mid-period of the programme/project is called a mid-term evaluation

Migrant: For the purposes of HIV and Migration programming, a migrant is i) Any person who the household considers to be a household member but who is absent for more than 6 months and is expected to return to the same household; or ii) Any person who the household considers to be a household member and is just become absent at the time of the interview and will not be returning for more than 6 months but is expected to return to the same household.

Operations research: Applies systematic research techniques to improve service delivery; this type of research and evaluation analyses only factors that are under the control of programme managers, such as improving the quality of services, increasing training and supervision of staff, and adding new service components; it is designed to assess the accessibility, availability, quality, and sustainability of programmes.

Outcome evaluation: A type of evaluation that is concerned with determining if, and by how much, programme activities or services achieved their intended outcomes; whereas outcome monitoring is helpful and necessary in knowing whether outcomes were attained, outcome evaluation attempts to attribute observed change to the intervention tested, describe the extent or scope of programme outcomes, and indicate what might happen in the absence of the programme; it is methodologically rigorous and requires a comparative element in design, such as a control or comparison group.

Outcome monitoring: The basic tracking of variables that have been adopted as measures or "indicators" of the desired programme outcomes; with national AIDS programmes, it is typically conducted through population-based surveys to track whether desired outcomes have been reached; it may also track information directly related to programme clients, such as change in knowledge, attitudes, beliefs, skills, behaviours, access to services, policies, and environmental conditions.

Process evaluation: Type of evaluation that focuses on programme implementation, adding a dimension to the information that was tracked in input and output monitoring; usually focuses on a single programme and uses largely qualitative methods to describe programme activities and perceptions, especially during the developmental stages and early implementation of a programme; may also include some quantitative approaches, such as surveys about client satisfaction and perceptions about needs and services; in addition, might provide understanding about a programme's cultural, socio-political, legal, and economic contexts that affect programmes.

Process monitoring: Routine gathering of information on all aspects of a project or programme to check on how project activities are progressing. It provides information for planning and feedback on the progress of the project to the development partners, implementers, and beneficiaries of the project.

Programme evaluation: Evaluation of a set of interventions, marshalled to attain specific global, regional, country, or sector development objectives. Note: a development programme is a time bound intervention involving multiple activities that may cut across sectors, themes and/or geographic areas. Related term: Country programme/strategy evaluation.

Programme monitoring: This implies tracking HIV-related activities and services through a monitoring system that ensures that all partners submit regular, structured programme reports that are externally verified.

Routine data: Routine data are those generated as part of the implementation of a programme, activity or service. For example, every time a patient visits a hospital, the patient's name is recorded in the hospital register. Such a register therefore contains routine data.

Second-generation surveillance: HIV surveillance that is tailored to meet the specific pattern of the epidemic in a country. It not only tracks HIV prevalence but also uses additional sources of data to increase understanding of trends of the epidemic over time. It includes biological surveillance of HIV and other sexually transmitted infections as well as systematic surveillance of the behaviours that spread them.

Surveillance: It is defined as an "ongoing and systematic collection, analysis and interpretation of outcome-specific health data for use in the planning, implementation and evaluation of public health practices".

Surveillance (First Generation): First generation surveillance is just an epidemiological surveillance. The epidemiological surveillance is the monitoring of the occurrence of disease in the population. In particular, this should show how this varies with time, by place and among different groups in the population.

ANNEX III: INDICATOR REFERENCE SHEET

Impact Level Indicator

HIV incidence	
Indicator definition	**Number and percentage of new HIV infections**
Rationale/Purpose	The goal of the global AIDS response is to reduce the number of people newly infected to less than 200 000 in 2030. Thus, monitoring this indicator measures the progress towards achieving this goal.
Numerator	Estimated number of people newly infected with HIV during the reporting period
Denominator	Total number of population at risk
Data collection frequency	Annually
Data source/ Measurement Tool	Indirect method: Numerator: AEM/Spectrum Denominator: UN population projection
Disaggregation:	Age (0-14, 15-24, 25+ years) Sex (Male, Female, TG)

HIV prevalence in young people	
Indicator definition	**Percentage of young people aged 15-24 who are living with HIV**
Rationale/Purpose	Young people of age 15-24 years from the key population are at increased risk for HIV due to multiple biological and physical transitions and developmental stages.
Numerator	Estimated number of PLHIV aged 15-24 years
Denominator	Total population of youths aged 15–24 years
Data collection frequency	Annual
Data source/ Measurement Tool	Numerator: AEM/Spectrum Denominator: UN population projection
Method of measurement	Numerator divided by the denominator. It is calculated in per 1000. Value for this indicator can be directly calculated from AEM/Spectrum.
Disaggregation:	Sex (Male, Female, TG)

HIV prevalence among key population	
Indicator definition	Percentage of people who inject drugs who are HIV-infected Percentage of sex workers who are HIV-infected Percentage of men who have sex with men who are HIV-infected Percentage of transgender who are HIV-infected Percentage of male labor migrants who are HIV-infected Percentage of prison inmates who are HIV-infected
Rationale/Purpose	It measures progress in reducing HIV prevalence among the key population. Key population have higher HIV prevalence than the general population due to their high-risk behavior. Reducing prevalence among the key population is a critical measure of a national-level response to HIV.
Numerator	Number of people in a specific key population who tested positive for HIV
Denominator	Total Number of people in a specific key population tested for HIV.
Data collection frequency	Every 2-3 years
Data source/ Measurement Tool	Integrated biological and behavioral surveillance(IBBS) surveys
Method of measurement	Numerator: HIV tests are conducted in IBBS surveys. Those who are diagnosed with HIV positive serves as numerator Denominator: Total number of specific key population surveyed in IBBS surveys
Disaggregation:	Age (15-24, 25+ years) Sex (Male, Female, TG)

HCV/ HBV prevalence among people who inject drugs	
Indicator definition	Percentage of people who inject drugs living with Hepatitis C (HCV) Percentage of people who inject drugs living with Hepatitis B (HBV)
Rationale/Purpose	It measures progress in reducing HCV and HBV prevalence among key people who inject drugs. PWIDs have higher HCV prevalence than the general population through the sharing of needles and drug-preparation equipment.
Numerator	Number of people who inject drugs tested positive for HCV Number of people who inject drugs tested positive for HBV.
Denominator	Total Number of people in a specific key population tested for HCV Total Number of people in a specific key population tested for HBV.
Data collection frequency	Every 2-3 years
Data source/ Measurement Tool	Integrated biological and behavioral surveillance(IBBS) surveys
Method of measurement	Numerator: HCV and HBV antibody tests are conducted in IBBS surveys. Those who test positive serves as numerator Denominator: Total number of specific key population surveyed in IBBS surveys
Disaggregation:	Age (15-24, 25+ years) Sex (Male, Female, TG), HCV and HBV co infection
Additional information	While calculating prevalence, separate prevalence for HCV and HBV will be calculated.

Mother-to-child transmission of HIV	
Indicator definition	Estimated percentage of children newly infected with HIV from mother-to-child transmission among women living with HIV delivering in the past 12 months
Rationale/Purpose	It measures progress in providing women with antiretroviral medicines for reducing mother-to-child transmission of HIV. Efforts have been made to increase access to interventions that can significantly reduce mother-to-child transmission of HIV, including combining antiretroviral medicine prophylactic and treatment regimens and strengthening counselling on infant feeding. The impact of interventions for preventing mother-to-child transmission in reducing the number of children newly infected with HIV through mother-to-child transmission needs to be assessed.
Numerator	Estimated number of children newly infected with HIV from mother-to-child transmission among children born in the previous 12 months to women living with HIV
Denominator	Estimated number of children delivered by women living with HIV who delivered in the previous 12 months
Data collection frequency	Annually
Data source/ Measurement Tool	AEM/Spectrum
Method of measurement	The mother-to-child transmission probability differs with the antiretroviral drug regimen received and infant-feeding practices. The transmission can be calculated by using the Spectrum model. The Spectrum computer programme uses the information on: a. the distribution of HIV-positive pregnant women receiving different antiretroviral regimens prior to and during delivery (peripartum) by CD4 category of the mother. b. the distribution of women and children receiving antiretroviral after delivery (postpartum) by CD4 category of the mother. c. the percent of infants who are not breastfeeding in PMTCT programmes by the age of the child. d. Mother-To-Child transmission of HIV probabilities based on various categories of antiretroviral drug regimen and infant feeding practices. The estimated national transmission rate is reported in the Children 0-14 summary display in Spectrum. This variable can also be calculated using the variables in Spectrum on "New HIV infections" for children 0-14 years15 and dividing this by the variable "Women in need of PMTCT".

GI9: AIDS related deaths	
Indicator definition	Number of AIDS related deaths per 100,000 population
Rationale/Purpose	It measures the impact of HIV response. With country guiding strategy of Identify, reach, recommend, test treat and retain (IRRTTR) and recent efforts being made to scale up access to life-saving antiretroviral therapy which could significantly reduce the number of people dying from AIDS-related causes if these services are accessible and delivered effectively. The impact of the HIV response should be assessed by monitoring changes in AIDS-related mortality over time.
Numerator	Estimated total number who have died of AIDS related illness in a 12 month period
Denominator	Total population regardless of HIV status.
Data collection frequency	Annually
Data source/ Measurement Tool	Numerator: AEM/Spectrum Denominator: UN population projection for Nepal
Method of measurement	Numerator: AEM/Spectrum Denominator: UN population projection for Nepal
Disaggregation:	Age (0-14, 15-24, 25+ years) Sex (Male, Female, TG)

Outcome 1: Reduction of HIV Transmission through Sexual and Injecting Behavior

Percentage of sex workers reporting condom use with most recent client	
Indicator definition	Percentage of sex workers reporting the use of a condom with their most recent client
Rationale/Purpose	It measures progress in preventing exposure to HIV among sex workers through unprotected sex with clients. Various factors increase the risk of exposure to HIV among sex workers, including multiple, non-regular partners and more frequent sexual intercourse. However, sex workers can substantially reduce the risk of HIV transmission, both from clients and to clients, through consistent and correct condom use.
Numerator	Number of sex workers who report using a condom with their last client
Denominator	Number of sex workers who report having commercial sex in the last 6 months
Data collection frequency	Every 2-3 years
Data source/ Measurement Tool	Integrated biological and behavioral surveillance (IBBS) survey
Method of measurement	Respondents are asked the following question: 1) Did you use a condom with your most recent client?
Disaggregation:	Age (15-24, 25+ years) Sex (Male, Female, TG)

People who inject drugs: condom use	
Indicator definition	Percentage of people who inject drugs reporting using a condom the last time they had sexual intercourse
Rationale/Purpose	Safer injecting and sexual practices among people who inject drugs are essential, because the risk of HIV transmission from contaminated injecting equipment is extremely high, and people who inject drugs can spread HIV (such as through sexual transmission) to the wider population.
Numerator	Number of people who inject drugs reported using a condom the last time they had sex
Denominator	Number of people who inject drugs who report having injected drugs and had sexual intercourse in the past month
Data collection frequency	Every 2-3 years
Data source/ Measurement Tool	Integrated biological and behavioral surveillance (IBBS) survey
Method of measurement	People who inject drugs are asked the following sequence of questions: 1. Have you had sexual intercourse in the past month? If they answer yes, 2. Did you use a condom during your last sexual intercourse?
Disaggregation:	Age (15-24, 25+ years) Sex (Male, Female, TG)

Men who have sex with men: condom use	
Indicator definition	Percentage of men reporting use of condom last time they had anal sex with a male partner
Rationale/ Purpose	It measures progress in preventing exposure to HIV among men who have unprotected anal sex with a male partner. Condoms can substantially reduce the risk of the sexual transmission of HIV. Consequently, consistent and correct condom use is important for men who have sex with men because of the high risk of HIV transmission during unprotected anal sex. In addition, men who have anal sex with other men may also have female partners, who could become infected as well. Condom use with their most recent male partner is considered a reliable indicator of longer-term behavior.
Numerator	Number of MSM who report that a condom was used the last time they had anal sex
Denominator	Number of MSM who report having anal sex with a male partner in the last 6 months
Data collection frequency	Every 2-3 years
Data source/ Measurement Tool	Integrated biological and behavioral surveillance (IBBS) survey
Method of measurement	In IBBS surveys among men who have sex with men, i) respondents are asked about sexual partnerships in the past six months about anal sex ii) Those who say 'Yes' are asked about condom use when they last had anal sex.
Disaggregation:	Age (15-24, 25+ years) Sex (Male, Female, TG)

Male labor migrants: condom use	
Indicator definition	Percentage of migrants aged 15-49 reporting the use of condom the last time they had sex with non-regular sexual partner
Rationale/Purpose	It measures progress in preventing exposure to HIV among male migrants through unprotected sex with sexual partners. Various factors increase the risk of exposure to HIV among male migrants, including multiple, non-regular partners and more frequent sexual intercourse. However, male migrants can substantially reduce the risk of HIV transmission, both from non-regular sexual partners through consistent and correct condom use.
Numerator	Number of male migrants who reported that a condom was used with their last non-regular sexual partners
Denominator	Number of male migrants who reported having sex with nonregular sexual partners in the last 12 months
Data collection frequency	Every 2-3 years
Data source/ Measurement Tool	Integrated biological and behavioral surveillance (IBBS) survey
Method of measurement	Respondents are asked the following question: Did you use a condom with your most recent non-regular sexual partners?
Disaggregation:	Age (15-24/25+ years)

General population: condom use	
Indicator definition	Percentage of women and men aged 15-49 who had more than one partner in the past 12 months who used a condom during their last sexual intercourse
Rationale/Purpose	It measures progress in preventing exposure to HIV, especially among people with multiple sexual partners. Condoms can substantially reduce the risk of the sexual transmission of HIV. Individuals who have multiple partners have a higher risk of HIV transmission than individuals that do not link into a wider sexual network.
Numerator	Number of respondents (aged 15–49) who reported having more than one sexual partner in the last 12 months who also reported that a condom was used the last time they had sex
Denominator	Number of respondents (15–49) who reported having had more than one sexual partner in the last 12 months.
Data collection frequency	Every 5 years
Data source/ Measurement Tool	Population-based survey (Nepal Demographic Health Survey or Multiple Indicator Cluster Survey)
Method of measurement	Respondents' sexual histories are obtained. Analysis of sexual history is used to determine whether the respondent has had more than one partner in the preceding 12 month period, and if so whether a condom was used the last time the respondent had sexual intercourse
Disaggregation:	Age (15-19, 20-24 and 25+ years) Sex (Male, Female, TG)

Safe injecting practices among people who inject drugs	
Indicator definition	Percentage of people who inject drugs reporting using sterile injecting equipment the last time they injected
Rationale/Purpose	It measures progress in preventing HIV transmission associated with injecting drug use. Safer injecting and sexual practices among people who inject drugs are essential because: (i) the risk of HIV transmission from contaminated injecting equipment is extremely high; and (ii) people who inject drugs can spread HIV (e.g., through sexual transmission) to the wider population.
Numerator	Number of people who inject drugs who report using sterile injecting equipment the last time they injected drugs
Denominator	Number of people who inject drugs who report injecting drugs in the past month
Data collection frequency	Every 2-3 years
Data source/ Measurement Tool	Integrated biological and behavioural survey (IBBS) Survey
Method of measurement	Respondents are asked the following questions: 1. The last time you injected drugs, did you use a sterile needle and syringe?
Disaggregation:	Age (15-24, 25+ years) Sex (Male, Female, TG)

Outcome 2: Treatment Care and Support

GI7: ART retention	
Indicator definition	Percentage of people living with HIV who are retained on ART after 12, 24 and 36 months after initiation of antiretroviral therapy
Rationale/Purpose	To view survival over longer durations of treatment provides a better picture of the long-term effectiveness of ART.
Numerator	Number of adults and children who are still alive and receiving antiretroviral therapy 12 months after initiating treatment
Denominator	Total number of adults and children initiating antiretroviral therapy within last 12 months, including those who have died since starting antiretroviral therapy, those who have stopped treatment and those recorded as lost to follow-up as of month 12, 24 and 36
Data collection frequency	Annually
Data source/ Measurement Tool	Annual ART Cohort
Method of measurement	A 12-month outcome is defined as the outcome (i.e., whether the patient is still alive and on antiretroviral therapy, dead or lost to follow-up) at 12 months after starting antiretroviral therapy. The cohort report will be prepared according to the treatment status recorded in ART register in monthly basis. Data for cohorts that have completed at least 12 months of treatment should then be aggregated. At the facility level, patients who have transferred out will not be counted either in the numerator or denominator. Patients who have transferred in will be counted in both numerator and denominator.
Disaggregation:	Age (0-14, 15-24, 25+ years) Sex (Male, Female, TG)

GI8: Viral suppression	
Indicator definition	Percentage of people living with HIV and on ART who have viral load suppressed
Rationale/Purpose	The individual-level viral load is the recommended measure of antiretroviral therapy efficacy and indicates treatment adherence and the risk of transmitting HIV. A viral load threshold of <1000 copies/mL defines treatment success according to 2017 National testing and treatment guidelines for treating and preventing HIV infection. People with viral load test results below the threshold should be considered as having suppressed viral loads.
Numerator	Number of people living with HIV in the reporting period with suppressed viral loads (≤1000 copies/mL) Number of people living with HIV in the reporting period with undetectable viral loads (≤50 copies/mL)*
Denominator	Estimated number of people living with HIV
Data collection frequency	Annually
Data source/ Measurement Tool	Numerator: HIV treatment and care register (HMIS 7.4) and laboratory database from each service site where lab service is being provided Denominator: AEM/Spectrum
Method of measurement	The number will be counted from the report received from NPHL.
Disaggregation:	Sex (Male, Female, TG)

Output 1: Reduction of HIV Transmission through Sexual and Injecting Use

HIV testing coverage of key population	
Indicator definition	Percentage of sex workers who received an HIV test in the past 12 months and know their results Percentage of men who have sex with men who received an HIV test in the past 12 months and know their results Percentage of TG who received an HIV test in the past 12 months and know their results Percentage of Male Labor Migrants that have received an HIV test in the past 12 months and know their results Percentage of people who inject drugs that have received an HIV test in the past 12 months and know their results
Rationale/Purpose	It measures progress in implementing HIV testing and counseling service among the key population. HIV testing and counseling is critical for Nepal current 'test and treat' strategy to achieve 90-90-90 targets of national HIV strategic plan
Numerator	Number of key populations who were tested for HIV and received their results within past 12 months
Denominator	A number of the key population enrolled in the survey.
Data collection frequency	Every 2-3 years
Data source/ Measurement Tool	Integrated biological and behavioural surveillance (IBBS) Survey
Method of measurement	The key population are asked the following questions: 1. Have you been tested for HIV in the last 12 months? If yes: 2. I do not want to know the results, but did you receive the results of that test?
Disaggregation:	Age (15-24, 25+ years) Sex (Male, Female, TG)

HIV testing and counselling among key population	
Indicator definition	Number and Percentage of sex workers who received an HIV test in the past 12 months and received test result Number and Percentage of men who have sex with men who received an HIV test in the past 12 months and received test result Number and Percentage of TG who received an HIV test in the past 12 months and received test result Number and Percentage of Male Labor Migrants that have received an HIV test in the past 12 months and received test result Number and Percentage of people who inject drugs that have received an HIV test in the past 12 months and received test result
Rationale/Purpose	It measures progress in implementing HIV testing and counseling service among the key population. HIV testing and counseling is critical for Nepal current 'test and treat' strategy to achieve 90-90-90 targets of national HIV strategic plan
Numerator	Number of key populations who were tested for HIV and received their results within past 12 months
Denominator	Denominator 1: Estimated number of Key population in the country Denominator 2: Number of key population reached through BCC interventions
Data collection frequency	Reports of HIV testing and counseling will be reported monthly by service delivery sites, i.e. numerator will be reported monthly. However, percentage will be calculated for reporting period (12 months)
Data source/ Measurement Tool	Numerator: HMIS 7.1 and HMIS 3.6 Denominator 1: Mapping and size estimation of KP Denominator 2: In reach register/log sheet
Method of measurement	The number will be counted through the testing and counselling reports submitted by the service delivery points including community-based testing. Only those people completing the testing and received test result will be counted under this indicator.
Disaggregation:	Age (<25/25+ years) Sex (Male, Female, TG)

HIV retest	
Indicator definition	Number of people who have been retested for HIV
Rationale/Purpose	It provides the information on a number of people who have been retested. As per national guidelines, key population need to be tested every 6-12 months whereas others are tested as per their risk behavior.
Numerator	Number of people who have been retested for HIV in last 12 months
Denominator	NA
Data collection frequency	Monthly
Data source/ Measurement Tool	HIV testing and counselling register (HMIS 7.1)
Disaggregation:	Age (0-14, 15-24, 25+ years) Sex (Male, Female, TG)
Note	NCASC will develop a template which will track the people who have been retested. However, this cannot be fully implemented until there is a unique identifier (UI) system in Nepal. Thus, this indicator will be captured after the implementation of UI.

Knowledge of HIV status among key populations	
Indicator definition	Percentage of sex workers who know their status Percentage of men who have sex with men who know their status Percentage of people who inject drugs who know their status Percentage of Male Labor Migrants who know their status
Rationale/Purpose	It measures progress providing HIV testing services to members of key populations who are living with HIV and measuring against the first 90 of the 90–90–90 target: the percentage of people living with HIV who know their HIV status. Ensuring that people living with HIV receive the care and treatment required to live healthy, productive lives and reducing the chance of transmitting HIV requires that they know their HIV status. This indicator captures the effectiveness of HIV testing interventions targeting populations at higher risk of HIV infection.
Numerator	Number of people in key populations who answered question A with "yes."
Denominator	Number of people in key populations who answered question A
Data collection frequency	Every 2-3 years
Data source/ Measurement Tool	Integrated biological and behavioral survey (IBBS) Survey

Method of measurement	A. Do you know your HIV status from an HIV test?
	    1. No, I have never been tested
	    2. Yes, I have been tested
	B. If yes, when were you last tested?
	    1. 6 months
	    2. 6–12 months
	    3. More than 12 months
	C. Was the result of your last test:
	    1. Positive
	    2. Negative
	    3. Indeterminate
	Knowing their HIV status means answering yes to A and positive to C if Positive, or Yes to A, 1 or 2 to B and Negative to C.

Disaggregation:	Age (<25/25+ years) Sex (Male, Female, TG)

Comprehensive Knowledge among key population	
Indicator definition	Percentage of sex workers who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission Percentage of men who have sex with men who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission Percentage of people who inject drugs who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission Percentage of male labor migrants who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission
Rationale/Purpose	It measures progress towards universal knowledge of the essential facts about HIV transmission. HIV epidemics are perpetuated through primarily sexual transmission of infection to successive generations of young people. Sound knowledge about HIV is an essential pre-requisite—though, often an insufficient condition—for the adoption of behaviors that reduce the risk of HIV transmission.
Numerator	Number of respondents who gave the correct answer to all five questions.
Denominator	Number of all respondents
Data collection frequency	2-3 years
Data source/ Measurement Tool	Integrated biological and behavioral surveillance (IBBS) survey
Method of measurement	This indicator is constructed from responses to the following set of prompted questions. 1. Can the risk of HIV transmission be reduced by having sex with only one uninfected partner who has no other partners? 2. Can a person reduce the risk of getting HIV by using a condom every time they have sex? 3. Can a healthy-looking person have HIV? 4. Can a person get HIV from mosquito bites? 5. Can a person get HIV by sharing food with someone who is infected? The first three questions should not be altered. Questions 4 and 5 ask about local misconceptions and may be replaced by the most common misconceptions in the country. Examples include: "Can a person get HIV by hugging or shaking hands with a person who is infected?" and "Can a person get HIV by supernatural means?" Those who have never heard of HIV and AIDS should be excluded from the numerator but included in the denominator. An answer of "don't know" should be recorded as an incorrect answer. Scores for each of the individual questions (based on the same denominator) are required as well as the score for the composite indicator. For further information on DHS/AIS methodology and survey instruments, visit www.measuredhs.com.
Disaggregation:	Age (15-24, 25+ years) Sex (Male, Female, TG)

Coverage of HIV prevention programme among key populations	
Indicator definition	Percentage of sex workers who have been reached with HIV prevention programme Percentage of men who have sex with men who have been reached with HIV prevention programme Percentage of TG who have been reached with HIV prevention programme Percentage of Male Labor Migrants who have been reached with HIV prevention programme Percentage of people who inject drugs who have been reached with HIV prevention programme
Rationale/Purpose	It measures progress in coverage of HIV intervention among the key population.
Numerator	Number of key populations who have been reached through HIV intervention
Denominator	A total number of the key population enrolled in the survey.
Data collection frequency	Every 2-3 years
Data source/ Measurement Tool	Integrated biological and behavioral survey (IBBS) Survey
Method of measurement	In IBBS Surveys, following questions are asked to respondents 1. Have you met PE/ORW in last 12 months? 2. Have you been to DIC in last 12 months? 3. Have you visited HTS in last 12 months? 4. Have you given needle syringe in last month?* Numerator: Those respondents who will respond Yes to either of three questions will be included in the numerator. Those who respond do not know will be categorized as NO in the analysis. *only applicable for people who inject drugs.
Disaggregation:	Age (<25/25+ years) Sex (Male, Female, TG)

HIV prevention programme among key populations	
Indicator definition	Percentage of sex workers reached with HIV prevention programmes - (BCC intervention, condom and lube distribution) Percentage of men who have sex with men reached with HIV prevention programmes - (BCC intervention, condom and lube distribution) Percentage of TG reached with HIV prevention programmes - (BCC intervention, condom and lube distribution) Percentage of Male Labor Migrants reached with HIV prevention programmes - (BCC intervention, condom and lube distribution) Percentage of people who inject drugs reached with HIV prevention programmes - BCC intervention
Rationale/Purpose	It measures progress in coverage of HIV intervention among the key population. The key population are at risk of HIV due to their risk behavior. Thus, it is of high importance to provide defined services to the key population as per their risk behavior.

Numerator	Number of key populations who have been reached through HIV prevention services
	    i) BCC interventions
	    ii) Condom distribution
	    iii) Lube distribution

Denominator	Estimated number of key population in targeted area
Data collection frequency	Monthly
Data source/ Measurement Tool	Outreach daily log sheet, DIC daily register, monthly compiled sheet,
Method of measurement	The number of the key population receiving prevention programmes will be counted using the data collected by the outreach workers and drop-in-centers in the districts.
Disaggregation:	Age (15-24, 25-49, 50+ years) Sex (Male, Female, TG)

Additional information	Defined services to key population refers to interventions i) Behavior change communication ii) Condom distribution iii) Lube distribution
	Thus, there will be a separate indicator for each service. For example:
	    a) Percentage of sex workers reached with HIV prevention programmes - BCC intervention
	    b) Percentage of sex workers reached with HIV prevention programmes – condom distribution
	    c) Percentage of sex workers reached with HIV prevention programmes – lube distribution

Sexually transmitted infections diagnosed and treated	
Indicator definition	Number and (percentage) of sexually transmitted infections diagnosed and treated
Rationale/Purpose	The purpose of this indicator is to measure the number of people diagnosed with STI and being treated.
Numerator	Number of people who have been STI diagnosed and treated.
Denominator	Total number of people who have STI diagnosis
Data collection frequency	Monthly
Data source/ Measurement Tool	Numerator: STI treatment register (HMIS 7.2) Denominator: STI treatment register (HMIS 7.2)
Method of measurement	The number of people receiving STI diagnosis and treated will be counted from HMIS report.
Disaggregation:	Age (15-24, 25-49, 50+ years) Sex (Male, Female, TG) and key population (Sex worker, MSM/TG, Male labor migrants, PWID)

Opioid Substitution therapy	
Indicator definition	Percentage of individuals receiving Opioid Substitution Therapy who received treatment for at least 6 months
Rationale/Purpose	To track the progress towards Opioid substitution therapy (OST) as an effective approach for harm reduction package among those who inject drugs. This will monitor the retention of a percentage of people who inject drugs in OST service.
Numerator	Number of people who enrolled in the OST service in the defined cohort period and continued the service for at least 6 months
Denominator	Number of people enrolled in OST service during the time period defined as the cohort recruitment period
Data collection frequency	Annually
Data source/ Measurement Tool	OST register (HMIS 7.6)
Method of measurement	The numerator will be generated by counting the total numbers of individuals in specific cohort period who have been on treatment for at least 6 months since initiation of OST or medication-assisted treatment.
Disaggregation:	Age (15-24, 25-49, 50+ years) Sex (Male, Female, TG)

Needle and syringe distributed per person who injects drugs	
Indicator definition	A number of needles and syringes distributed per person who injects drugs per year by needle and syringe programmes.
Rationale/Purpose	It measures progress in improving coverage of an essential HIV prevention service for people who inject drugs. Injecting drug use is the main route of transmission. Preventing HIV transmission through injecting drug use is one of the key challenges in reducing the burden of HIV. Needle and syringe programmes (NHSPs) are one of nine interventions in the WHO, UNODC and UNAIDS comprehensive package for the prevention, treatment and care of HIV among people who inject drugs.
Numerator	Number of needles and syringes distributed in the past 12 months by needle and syringe programmes
Denominator	Number of people who inject drugs in country
Data collection frequency	Monthly/trimester
Data source/ Measurement Tool	Numerator: In reach report/log sheet and The number reported in HMIS 9.5 register Denominator: Size estimation among people who inject drugs in Nepal 2016
Disaggregation:	Age (>15, 15-24, 25+ years) Sex (Male, Female, TG)

People receiving pre-exposure prophylaxis (PrEP)	
Indicator definition	Number of people receiving oral PrEP for the first time during the reporting period
Rationale/Purpose	It measures progress towards assessing availability and uptake of PrEP especially among people at risk of HIV infection. Clinical trials data have shown that oral PrEP can reduce transmission of HIV.
Numerator	Number of people who received oral antiretroviral PrEP to prevent HIV infection for the first time in last 12 months
Denominator	NA
Data collection frequency	Monthly
Data source/ Measurement Tool	NCASC has recently adopted pre exposure prophylaxis programme in Nepal. Thus, there are no recording and reporting tools to capture PrEP. NCASC will revise its recording and reporting tool to capture this data and will start collecting once tools are revised.
Method of measurement	The numerator will be generated by counting the number of people who received PrEP for the first time during last 12 months.
Disaggregation:	Age (15-24, 25+ years) Sex (Male, Female, TG)

Community led screening	
Indicator definition	Number of key population screened for HIV by trained lay person
Rationale/Purpose	National testing and treatment guidelines 2017 has adopted community led testing for screening and referral of HIV among key population.
Numerator	Number of key population screened for HIV by trained lay person using rapid HIV diagnostic test
Denominator	
Data collection frequency	Monthly
Data source/ Measurement Tool	Numerator: Community-led testing reporting form (will be developed)
Disaggregation:	Age (15-24, 25-49, 50+ years) Sex (Male, Female, TG) and key population

Accompanied referral for Community led screening	
Indicator definition	Number of key population who are screened HIV positive had accompanied referral to HTS
Rationale/Purpose	National testing and treatment guidelines 2017 has adopted community led testing for screening and referral of HIV among key population.
Numerator	Number of key population who are screened HIV positive had accompanied referral to HTS
Denominator	Total number of key population who has reactive test result when screened by lay person
Data collection frequency	Monthly
Data source/ Measurement Tool	Numerator: Community-led testing reporting form (will be developed) Denominator: Community-led testing reporting form (will be developed)
Disaggregation:	Age (15-24, 25-49, 50+ years) Sex (Male, Female, TG) and key population

GI1: People living with HIV	
Indicator definition	Estimated Number and Percentage of people living with HIV
Rationale/Purpose	This indicator refers to understanding of national HIV epidemic which is fundamental for planning HIV response and monitoring impact.
Numerator	Number of people living with HIV
Denominator	Total population
Data collection frequency	Annually
Data source/ Measurement Tool	Numerator: AEM/Spectrum Denominator: UN Population division
Disaggregation:	Age (0-14, 15-24, 25-49, 50+ years), Sex (Male, Female, TG)

HIV testing and counselling test kit stock out	
Indicator definition	Percentage of health facilities with HTS services that experienced a stock-out of HIV diagnostic tests or reagents
Rationale/Purpose	It measures the effectiveness of logistics management of HIV test kit.
Numerator	Number of HTS sites that had a stock-out of HIV diagnostic tests or reagents during a reporting period.
Denominator	Total number of HIV testing and counseling center
Data collection frequency	Bi-Monthly
Data source/ Measurement Tool	HIV test kits consumption and requisition reports
Method of measurement	There is national logistics management information system that provide HIV test kit supply and consumption for HIV patients from all HTS. We receive these details of the logistic report from HTS in every two months at NCASC.

Partner Testing	
Indicator definition	Percentage of HIV-positive adults diagnosed with HIV whose partner's status is known.
Rationale/Purpose	It measures the programme's ability to identify and test the sexual partners of people receiving HIV care, who are at high risk for HIV infection, to i) prevent ongoing transmission in sero-discordant couples and ii) identify HIV-positive partners with the aim of enrolling them in HIV care services.
Numerator	Number of HIV-positive adults diagnosed with HIV within the past 12 months whose sexual partner's HIV status is documented.
Denominator	Number of HIV-positive adults diagnosed within the past 12 months and who have a sexual partner.
Data collection frequency	Annually
Data source/ Measurement Tool	Numerator: HMIS 7.1 HIV testing and counseling register Denominator: HMIS 7.1 HIV testing and counseling register
Note	NCASC to revise recording tools to document the results

Output 2: Elimination of Vertical Transmission

PMTCT testing coverage	
Indicator definition	Percentage of pregnant women with known HIV status
Rationale/Purpose	To identify HIV positive pregnant women and enroll them in ART treatment
Numerator	Number of pregnant women with known HIV status
Denominator	Estimated number of pregnant women in the past 12 months
Data collection frequency	Monthly
Data source/ Measurement Tool	Numerator: Maternal and Child Health Register HMIS-3.6 Denominator: Expected pregnancies in a year from Department of Health Services (DoHS)
Method of measurement	The number will be counted from the reports received from all PMTCT sites.
Disaggregation:	Age (15-24, 25+ years), by HIV status

Preventing the mother-to-child transmission of HIV	
Indicator definition	Percentage of pregnant women living with HIV who received antiretroviral therapy to eliminate vertical HIV transmission
Rationale/Purpose	It measures progress in preventing mother-to-child transmission of HIV during pregnancy and delivery by providing antiretroviral medicine. Providing antiretroviral medicines (as lifelong therapy or as prophylaxis) for the mother during pregnancy and delivery can significantly reduce the risk of mother-to-child transmission. This entails antiretroviral medicine prophylaxis for the infant and antiretroviral medicines for the mother or child if breastfeeding and using safe delivery practices and safer infant feeding.
Numerator	Number of HIV-positive pregnant women who received ARV drugs during the past 12 months to reduce the risk of mother-to-child transmission during pregnancy and delivery
Denominator	Estimated number of pregnant HIV positive women in reporting period
Data collection frequency	Monthly
Data source/ Measurement Tool	Numerator: PMTCT Register (7.3) Denominator: AEM/Spectrum
Method of measurement	The number will be counted from the reports received from all PMTCT sites.

Early infant diagnosis	
Indicator definition	Percentage of infants born to HIV-positive women receiving a virological test for HIV within two months of birth
Rationale/Purpose	To monitor the progress towards early infant diagnosis, effective treatment and access to services
Numerator	Number of infants who received an HIV test within two months of birth, during the reporting period.
Denominator	Number of HIV-positive pregnant women giving live birth in the last 12 months.
Data collection frequency	Monthly
Data source/ Measurement Tool	Numerator: Databases held at EID testing laboratories/ HMIS 7.4 Denominator: AEM/Spectrum
Method of measurement	The number will be counted from the reports received from all PMTCT sites.

Syphilis diagnosed and treated among pregnant women	
Indicator definition	Percentage of antenatal care attendees who were positive for syphilis
Rationale/Purpose	The purpose of this indicator is to measure the percentage of pregnant women attending antenatal clinics with a positive (reactive) syphilis serology. Syphilis infection in ANC attendees can be used as a guide to provide early warning of HIV transmission to the general population.
Numerator	Number of antenatal care attendees who tested positive for syphilis
Denominator	Number of antenatal care attendees who were tested for syphilis
Data collection frequency	Monthly
Data source/ Measurement Tool	Numerator: Maternal and Newborn Health Service Register (HMIS 3.6) Denominator: Maternal and Newborn Health Service Register (HMIS 3.6)
Method of measurement	The people who were tested for syphilis and got treated will be counted from each report received in HMIS.
Disaggregation:	Age (15-24, 25-49, 50+ years) and key population (Sex worker, spouse of migrants, PWID)

Output 3: Treatment Care and Support

GI5: HIV care coverage	
Indicator definition	Percentage of people living with HIV who are receiving HIV care (Including ART)
Rationale/Purpose	It measures the PLHIV who are receiving HIV care and links to care by measuring HIV care coverage and progress towards universal access to care.
Numerator	Number of people living with HIV who received HIV care in last 12 months (HIV care includes receipt of at least one of the following service during the reporting period: clinical assessment (WHO staging) Or CD4 count Or viral load count or currently receiving ART.)
Denominator	Estimated number of people living with HIV
Data collection frequency	Annually
Data source/ Measurement Tool	Numerator: HMIS 7.4 (HIV Treatment and Care Register) Denominator: AEM/Spectrum
Method of measurement	Numerator: HMIS 7.4 Denominator: Estimated number of people living with HIV from infection estimate/spectrum
Disaggregation:	Age (0-14, 15-24, 25+ years) Sex (Male, Female, TG), Key population (Sex worker, MSM/TG, PWID, Migrants, others) and geographic location (province)

GI6: ART coverage	
Indicator definition	Percentage and number of adults and children on antiretroviral therapy among all adults and children living with HIV at the end of the reporting period
Rationale/Purpose	Antiretroviral therapy has been shown to reduce HIV-related morbidity and mortality among people living with HIV and to halt onward transmission of HIV. Studies also show that early initiation, regardless of a person's CD4 cell count, can enhance treatment benefits and save lives.
Numerator	Number of adults and children currently receiving antiretroviral therapy in accordance with the nationally approved treatment protocol at the end of the reporting period
Denominator	Estimated number of all adults and children living with HIV
Data collection frequency	Monthly
Data source/ Measurement Tool	Numerator: HIV Treatment and Care Register (HMIS 7.4) Denominator: AEM/Spectrum
Method of measurement	Numerator: The numerator needs to be generated by counting the number of adults and children who are on antiretroviral therapy at the end of the each month. The count should not include people who have stopped treatment, died or emigrated to another country or who are otherwise lost to follow-up at the facility during this period. Protocols should be in place to avoid duplicate counting of individuals across facilities or over time, and to ensure that all facility-level data are reported in a timely manner. Denominator: Estimated number of people living with HIV from infection estimate/spectrum
Disaggregation:	Age (0-14, 15-24, 25+ years) Sex (Male, Female, TG), Key population (Sex worker, MSM/TG, PWID, Migrants, others) and geographic location (province)

ARV stock out

Indicator definition	Percentage of health facilities dispensing antiretroviral therapy that experienced a stock-out of at least one required antiretroviral drug in the last 12 month
Rationale/Purpose	It measures the effectiveness of logistics management of ARV drugs. It assesses the progress of health facilities dispensing ARV drugs have run out of stock of at least one required ART drug in the last 12 months.
Numerator	Number of ART center (health facilities) dispensing ARVs that experienced a stock-out of one or more required ARV drug in the last 12 months
Denominator	Total number of ART center (health facility) dispensing ARV drugs
Data collection frequency	Bi-Monthly
Data source/ Measurement Tool	ART Stock Book / HMIS 9.4
Method of measurement	There is national ART logistics management information system currently under NCASC that provide ARVs supply and consumption for HIV patients from all ART sites. We receive these details of the logistic report from ART sites in every two months at NCASC.

Cotrim prophylaxis (CTX)

Indicator definition	Number (and Percentage) of adults and children living with HIV currently receiving cotrimoxazole prophylaxis
Rationale/Purpose	It measures the uptake of CTX prophylaxis, an essential component of quality care, among eligible individuals in HIV care.
Numerator	Number of eligible HIV positive individuals who received CTX
Denominator	Number of HIV positive individuals enrolled in HIV care who are eligible for CTX.
Data collection frequency	Monthly
Data source/ Measurement Tool	Numerator: HIV treatment and care register HMIS 7.4 Denominator: HIV treatment and care register HMIS 7.4
Method of measurement	For both numerator and denominator, the number will be counted from the ART records/report.
Disaggregation:	Age (0-14, 15-24, 25+ years)

CHBC services

Indicator definition	Number (and Percentage) of adults and children living with HIV currently receiving care and support services from outside facilities
Rationale/Purpose	The purpose of this indicator is to measure the improvement in quality of life among people living with HIV
Numerator	Number of PLHIVs receiving CHBC services in the reporting period
Denominator	Number of reported cumulative HIV cases
Data collection frequency	Monthly
Data source/ Measurement Tool	Numerator: CHBC register Denominator: HIV testing and counseling (HMIS 7.1) and cumulative report of NCASC
Method of measurement	Number will be counted from the CHBC service records.
Disaggregation:	Age (15-24, 25-49, 50+ years) and key population (Sex worker, MSM/TG, Male labor migrants, PWID, clients of sex worker, spouse of migrants)

Output 4: TB/HIV Co-Infection

TB screening among PLHIV in HIV care	
Indicator definition	Percentage of HIV-positive patients who were screened for TB in HIV care or treatment settings
Rationale/Purpose	It monitors the TB infection among PLHIV who are enrolled in HIV care. The purpose of this indicator is early identification and treatment of TB among PLHIV in HIV care.
Numerator	Number of adults and children in HIV care, who had their TB status assessed and recorded during their last visit
Denominator	Total number of adults and children in HIV care in the reporting period.
Data collection frequency	Monthly
Data source/ Measurement Tool	Numerator: HIV Treatment and Care Register (HMIS 7.4) Denominator: HIV Treatment and Care Register (HMIS 7.4)
Method of measurement	The number will be counted from the HIV Treatment and Care Register.
Disaggregation:	Age (0-14, 15-24, 25+ years) Sex (Male, Female, TG)

TB patients who had an HIV test result recorded in the TB register	
Indicator definition	Percentage of TB patients who had an HIV test result recorded in the TB register
Rationale/Purpose	To monitor the progress towards TB patients getting tested for HIV to provide necessary HIV prevention, treatment and care for co-infected patients.
Numerator	Number of TB patients registered during the reporting period who had an HIV test result recorded in the TB register at the time of TB diagnosis
Denominator	Total Number of TB patients registered during the same period
Data collection frequency	Monthly
Data source/ Measurement Tool	Numerator: TB Treatment Register (HMIS 6.5) and cross-sectional quarterly reports Denominator: TB Treatment Register (HMIS 6.5) and cross-sectional quarterly reports
Method of measurement	The number will be counted from the TB Treatment centers.
Disaggregation:	Age (0-14, 15-24, 25+ years) Sex (Male, Female, TG)

HIV-positive registered TB patients given antiretroviral therapy during TB treatment	
Indicator definition	Percentage of HIV-positive registered TB patients given antiretroviral therapy during TB treatment.
Rationale/Purpose	To monitor the progress in detecting and treating TB among people living with HIV. TB is one of the leading cause of death among people living with HIV. Early identification and access to quality drugs for TB treatment are essential to improve quality of life and survival of PLHIV.
Numerator	Number of registered TB cases with documented HIV-positive status who are on ART
Denominator	Number of registered TB cases with documented HIV-positive status
Data collection frequency	Monthly
Data source/ Measurement Tool	Numerator: TB Treatment Register (HMIS 6.5) and cross-sectional quarterly reports Denominator: TB Treatment Register (HMIS 6.5) and cross-sectional quarterly reports
Method of measurement	The number will be counted from the TB Treatment centers.
Disaggregation:	Age (0-14, 15-24, 25+ years) Sex (Male, Female, TG)

Isoniazid preventive therapy prophylaxis	
Indicator definition	Percentage of new HIV-positive patients starting IPT during the reporting period
Rationale/Purpose	To monitor the progress towards HIV positive person without active TB started IPT.
Numerator	Number of adults and children enrolled (i.e. started) in HIV care who also start (i.e. given at least one dose) isoniazid prevention therapy treatment during the reporting period
Denominator	Total number of adults and children newly enrolled in HIV care in the reporting period.
Data collection frequency	Monthly
Data source/ Measurement Tool	Numerator: HIV Treatment and Care Register (HMIS 7.4) Denominator: HIV Treatment and Care Register (HMIS 7.4)
Method of measurement	The number will be counted from the ART records/ centers.
Disaggregation:	Age (0-14, 15-24, 25+ years) Sex (Male, Female, TG)

Output 5: Reduction of HIV through Blood-Borne Transmission

Blood safety	
Indicator definition	Percentage of donated blood units screened for HIV in a quality assured manner.
Rationale/Purpose	Blood safety programmes aim to ensure that all blood units are screened for transfusion-transmissible infections, including HIV, and that only the units that do not react on screening tests are released for clinical use. Blood safety programmes aim to ensure that all blood units are screened for transfusion-transmissible infections, including HIV, and that only the units that do not react on screening tests are released for clinical use. Different errors (poor quality or storage of test kit, inadequate staff training) may be seen while screening. Universal (100 percent) screening of donated blood for HIV and other transfusion-transmissible infections cannot be achieved without mechanisms to ensure quality and continuity in screening.
Numerator	Number of donated blood units screened for HIV in blood banks or blood banks screening laboratories that have both: (1) followed documented standard operating procedures and (2) participated in an external quality assurance scheme. (Doesn't specify window period.)
Denominator	Total number of blood units donated In this context, donation refers to any blood collected for medical use. This includes all possible types of providers of blood.
Data collection frequency	Monthly
Data source/ Measurement Tool	Blood banks database
Method of measurement	The following information is required to measure this indicator. 1. The total number of blood units that were donated in the country 2. For each blood center and blood screening laboratory that screens donated blood for HIV: i. The number of units of blood donated in each blood center/blood screening laboratory; ii. The number of donated units screened in the blood center/blood screening laboratory; iii. If the blood center/blood screening laboratory followed documented standard operating procedures for HIV screening; iv. If the blood center/blood screening laboratory participated in an External Quality Assessment Scheme for HIV screening. Numerator: Those blood banks/blood transfusion center who have followed both a) national standard operating procedure for HIV screening and b) has participated in an External Quality Assessment Scheme for HIV screening will be counted as numerator Denominator: Total number of blood units donated
Disaggregation:	Geographic location (by province)

Input: Domestic Funding for HIV

GI2: Domestic funding for HIV	
Indicator definition	Percentage contribution of domestic funding to total funding for HIV
Rationale/Purpose	To track and evaluate the flow of funds for HIV response, allocation of funds, and the impact of financing on sustainability, efficiency and equity.
Numerator	Total budget spent (Expenditure)
Denominator	Total budget planned (Planned budget)
Data collection frequency	Every two years
Data source/ Measurement Tool	National AIDS Spending Assessment Tools/Template
Method of measurement	National AIDS Spending Assessment
Additional information:	This is one of the 10 global indicators recommended by WHO which will be measured by using NASA tools. However, another indicator will be created which will be measured annually and reported till next NASA assessment is done i.e Percentage of government fund allocation to national response to HIV Numerator: Total budget allocated by NCASC for HIV and STI response Denominator: Total budget allocated by country for HIV and STI response Source of data: NCASC red book for numerator and funds from all stakeholders working for HIV response as denominator

Additional Indicators

Discriminatory attitude towards people living with HIV	
Indicator definition	Percentage of women and men aged 15-49 who report discriminatory attitude towards PLHIV
Rationale/Purpose	It measures progress towards reducing discriminatory attitudes. Discrimination in context to HIV means unfair treatment of an individual based on their perceptions. HIV stigma and discrimination (S & D) has been acting as an obstacle to HIV treatment, care and support thus fueling the epidemic.
Numerator	Number of respondents (15–49 years old) who respond no to either of the two questions
Denominator	Total number of respondents (15-49) who have heard of HIV
Data collection frequency	Every 5 years
Data source/ Measurement Tool	Population-based surveys (Nepal Demographic Health Survey or Multiple Indicator Cluster Survey)

Method of measurement	In population-based surveys, following questions are asked to respondents who have heard of HIV.
	  i) Would you buy fresh vegetables from a shopkeeper or vendor if you knew that this person had HIV?
	  ii) Do you think that children living with HIV should be able to attend school with children who are HIV negative?
	Numerator: Those respondents who will respond no to either of two question will be included in the numerator. Those who respond don't know/not sure/it depends and those who refuse to answer will be excluded from analysis.
	Denominator: Total number of respondents (15-49) who have heard of HIV

Disaggregation:	Age (15-19, 20-24 25-49 years) Sex (Male, Female, TG)

Discriminatory attitude faced by key population	
Indicator definition	Percentage of key population who report discriminatory attitude towards them
Rationale/Purpose	It measures discriminatory attitude faced by key population. HIV stigma and discrimination (S & D) has been acting as an obstacle to HIV treatment, care and support thus fueling the epidemic. Evidence has suggested that in an open and stigma and discrimination-free settings (healthcare and others) utilization of services has improved substantially.
Numerator	Number of key population who have faced discrimination by health workers
Denominator	Total number of key population who sought clinical service in last 12 months
Data collection frequency	Every 2-3 years
Data source/ Measurement Tool	Integrated biological and behavioral surveillance (IBBS) surveys

Method of measurement	In IBBS surveys, following questions are asked to respondents
	  i) Have you sought any clinical services (HTS, STI, ART, OI) in last 12 months?
	  ii) Those, who say yes, will be asked if they have faced any discriminatory attitude by health workers in last 12 months.
	Numerator: Those respondents who will respond Yes to both will be included in the numerator. Those who respond don't know/not sure/it depends and those who refuse to answer will be excluded from analysis.

Disaggregation:	Age (15-24, 25+ years) Sex (Male, Female, TG)

ANNEX IV: INTEGRATED BIOLOGICAL AND BEHAVIOURAL SURVEILLANCE (IBBS) SURVEYS AMONG KEY POPULATIONS AT HIGHER RISK IN NEPAL

Background

In Nepal, the first-ever HIV case was reported in 1988. Since then, the nature of the HIV epidemic in the country has gradually evolved from being a "low-prevalence" to "concentrated" epidemic. Over 80 per cent of the HIV infections are transmitted through heterosexual transmission. People who inject drugs (PWIDs), men who have sex with men (MSM) and female sex workers (FSWs) are the key populations at higher risk spreading this epidemic. Male labour migrants (who particularly migrate to high HIV prevalence areas in India, where they often visit FSWs) and clients of FSWs in Nepal are playing the role of bridging population groups that transmit infections from the key populations at higher risk to the low-risk general population. As the epidemic is maturing—approximately 24 years have elapsed since the first HIV case was reported in 1988 – an increasing number of infections are being recorded among the low-risk general population. However, the spread of the epidemic is primarily driven by the infections among key populations at higher risk and their sexual partners, rather than by heterosexual transmission among the general population in Nepal.

National AIDS Policies/Strategies guide's Nepal response to HIV, latest being National HIV strategic plan for 2016-2021, which is a set of evidence-informed strategies focusing on building decentralized HIV programme with integrated services. Since Nepal is concentrated epidemic zone; key population remains the main focus of the national strategy. Nepal has adopted strengthening of the Second Generation Surveillance (SGS) system as one of the key principles of strengthening surveillance of HIV and STI in Nepal. One of the major components of SGS, and also the strategic direction of the national strategy, is to conduct Integrated Biological and Behavioural Surveillance (IBBS) among key populations at higher risk of HIV in selected high-risk areas in the regular interval based on the national plan on HIV and STI surveillance. IBBS surveys have been successfully conducted in various rounds in Nepal for a decade among key populations at higher risk for HIV.

Objectives

Primary Objectives

1. To track the trend in the prevalence of STI (syphilis & other selected STIs) and HIV infection among selected survey population in Nepal.

NCASC, in consultation with Strategic Information Technical Working Group (SI-TWG), may revise the objectives of the BSS and IBBS surveys. However, to generate the data for trend analysis previous objectives are maintained.

Methodology

Survey design: Serial Cross-sectional Study Design
Survey populations:

Survey populations	Definitions of the survey populations
People who inject drugs (PWID)	The people who inject drugs are defined as: *"Those current male and female injectors aged 15 years or above who have been injecting drugs for at least three months prior to the date of survey"*.
Men who have sex with men (MSM) and transgender (TG) people	For the purposes of this survey, MSM and TG are divided into two sub-groups: (a) MSW and TG SW and (b) non-MSW and Non-SW TG. MSW are defined as: *"Those males aged 15 years or above who have had sexual relations, (either oral or anal) with another male in the 12 months preceding the survey in exchange for money or other commodities"*. Non-MSW are defined as: *"Those males aged 15 years or above who have had sexual relations (either oral or anal) with another male in the 12 months preceding the survey without receiving a cash payment or other commodities"*. TG are defined as: *"those aged 15 years or above whose gender identity (self-identification as woman, man, neither or both) not matching one's assigned sex (identification by others as male, female or intersex based on physical/genetic sex)"*. *More specifically, "they are effeminate men attracted to same-sex, who sometimes cross-dress and have a receptive role during anal sex"*. TG SW are defined as: *"Those TG aged 15 years or above who have had sexual relations, (either oral or anal) with another male in the 12 months preceding the survey in exchange for money or other commodities"*. Non-SW TG are defined as: *"Those TG aged 15 years or above who have had sexual relations (either oral or anal) with another male in the 12 months preceding the survey without receiving a cash payment or other commodities"*.
Female sex workers	The FSWs are defined as: *"Women aged 15 years and above reporting having been paid in cash or kind for sex with a male within the last 6 months"*.
Truckers (proxy of clients of FSW)	The truckers (proxy clients of FSW) are defined as: *"male truck drivers aged 18 years or above or their helpers aged 15 years and above intercepted at the Pathlaiya truck stop along the Mahendra Highway"*.
Male Labour Migrants (MLM)	Male Labour Migrants are defined as: "All the male returnee migrant aged 15–49 years, having stayed continuously or with an interruption for at least 3 months in India as a migrant worker and having returned to Nepal within three years prior to the date of the survey".

Formative assessment

Before the data collection process, formative assessment needs to be conducted to obtain the baseline information regarding the target population. This needs to be done in close collaboration and consultation with CBOs. Depending upon the feasibility, need, and as recommended by the CBOs, formative assessment will be conducted using various methodologies such as focus group discussions, in-depth interviews, mapping, observations, etc. (For more details, please see UNAIDS pre-surveillance assessment) The duration of formative assessment will be about five days.

Formative assessment will be conducted to obtain information on following topics:
- Identifying hotspots and subpopulations at risk-taking into account what is currently known
- determining the feasibility of conducting surveillance in selected subpopulations, including accessibility, willingness to participate, potential harm to the subpopulation and possible sampling approaches;
- Confirming types of risk behavior practised by key population
- Gathering information so as that it helps in field works
- Questions regarding social network
    - How many key populations are above 15 years of age?
    - Can you please tell me how you and your friends interact with each other or what activities you do together and where?
    - Would you mind telling me how many gather at the particular locations and what is the peak time?
- Questions regarding survey acceptability, seeds and survey procedures
    - Are you willing to participate in the survey? Why? Why not?
    - Do you know different types of population members (who are diverse in age, income, risk, etc.)
    - Can you help us to contact members of the target population or do you have any outreach programmes to reach them?
    - What type of survey technique would be more comfortable and effective for reaching the target population?

The findings of formative assessment will be discussed in SI TWG group meeting in order to finalize the methodology of the national survey. Based on the findings, the study area and methodology will be finalized. Thus, it is to be noted that the proposed methodology might change after the findings from formative assessment.

Table 8: Proposed Sampling Technique and Sample Size

Key populations at higher risk of HIV	Survey Sites	Sampling Technique	Sample Size
Female Sex Workers (FSWs)	Nepal (all epidemic zones)	Two-Stage Cluster sampling	3476
People who Inject Drugs (PWID)	Nepal (all epidemic zones)	Respondent driven sampling & Two-stage cluster sampling	1512
MSM/TG People	Nepal (all epidemic zones)	Respondent driven sampling	1564
Male Labour Migrants	Nepal (all epidemic zones)	Two-stage cluster sampling	2760

Two-stage Cluster Sampling[1]

A cluster is a naturally occurring unit or grouping within a population. Clusters can be of different types. For example, FSWs can be accessed at places such as lodges, hotels, dance restaurants, massage parlours, homes, street corners, bus stops, parks, tea shops along the roadsides (Bhatti pasals), and outside cinema halls.

Injecting drug users can be accessed at places where they use or buy drugs: for example, their homes and friend's homes, dealers' homes, parks, and empty lands, bushes, or abandoned or empty buildings.

Clustering allows sampling of hard-to-reach populations, for whom a complete list of all individuals is not available but for whom it is possible to list the venues where they tend to gather. Cluster sampling captures more visible and accessible portions of the population (those who gather at venues) in the survey. The total survey area is first divided into clusters of minimum population size.

First Stage: Clusters will be selected using probability proportionate to size (PPS) method. The size of the cluster comes from the mapping exercise conducted prior to the survey.

Second Stage: Selected clusters in the first stage are visited, and a complete list of eligible survey participants by locations is developed. From each cluster selected in the first stage, equal numbers of participants are selected randomly, using systematic sampling procedure.

Respondent Driven Sampling (RDS)

RDS is a form of chain referral sampling which is similar to snowball sampling. This is based on social or peer networks of the survey population. In RDS, recruitment of the survey participants starts from the seeds that are the initial contacts. Seeds are selected purposively considering their network size, age, and other characteristics so that initial contacts selected are diverse in nature.

In RDS method, sampling frame is not required. However, study team need to do the mapping of the survey area, list out the locations with estimated size of eligible survey population.

Moreover, specific time period by locations where survey population can be approached by the study team should also be explored. The estimated population size of survey population is an important tool for monitoring the recruitment coupons floating in the field.

Each seed is provided three coupons to recruit their peers. One seed can recruit up to three eligible respondents from his or her network. Each successfully interviewed respondent is provided three coupons to recruit up to three peers from their network. RDS is a dual incentive system. First or primary incentive is for self-participation, and the secondary incentive is for recruiting subsequent eligible participants from their networks. The double incentive is implemented to encourage participation of larger number of population.

Resource: World Health Organization. Introduction to HIV/AIDS and sexually transmitted infection surveillance: Module 4: Introduction to respondent-driven sampling.

_____

[1] Robert Magnani, Keith Sabin, Tobi Saidel and Douglas Heckathorn, 2005. Review of sampling hard-to-reach and hidden populations for HIV surveillance. AIDS 2005, Vol 19 (suppl 2).

Sample Size

There are different ways of calculating the sample size for surveys. IBBS surveys have major objective to monitor the trend in the selected indicators. The most suitable formula for calculating sample size for such surveys is explained in the box below. Sample size may vary in each round of BSS and IBBS surveys depending on the basic data used for the sample size calculation as described below. **To calculate the sample size** following steps should be followed:

1. List out at least 5 - 10 key indicators which will be estimated from the survey.
2. Compile the P1 values for each indicator. This can be done from the previous round of IBBS.
3. Decide what percentage change on this indicator need to be detected from the survey. Then add that percentage in the P1 and get the value of P2. Usually, 10 -15% is taken, but NCASC will now take 10% change as a reference for behavioural surveys.
4. Choose the value of D (design effect). It is normally 2 for cluster sampling but can be changed by the user as per need.
5. Choose the power of the test. Normally it is 80%.

The following formula is considered best fit and has been used in Nepal also.

$$n = D\frac{\left[\sqrt{2P(1-P)}Z_{1-\alpha} + \sqrt{P_1(1-P_1) + P_2(1-P_2)}Z_{1-\beta}\right]^2}{\Delta^2}$$

Where,

D = Design effect

P_1 = the known/assumed value of the indicator of interest or the estimated proportion of the target population that has the characteristic of interest at the time of the survey (control group)

P_2 = the value of the indicator of interest in the treatment group such that the quantity (P_2 - P_1) is the magnitude of change one desires to be able to detect

P = (P_1 + P_2)/2

$Z_{1-\alpha}$ = the z-score corresponding to the probability with which one desires to be able to conclude that an observed change of size (P2 - P1) would not have occurred by chance. Use α/2 if a two-sided test is planned

$Z_{1-\beta}$ = the z-score corresponding to the degree of confidence with which one desires to be certain of detecting a change of size (P2 - P1) if one actually occurred

= (P_2-P_1), the minimum difference between groups worth detecting

Source: Family Health International (2000) Behavioural surveillance surveys: guidelines for repeat behavioural surveys in populations at risk of HIV. FHI, Arlington, VA.

The sample size for RDS sampling method is not calculated in advance. The RDS method suggests stopping recruiting respondents in the survey once the state of equilibrium is reached in the selected indicators. So the sample size is known towards the end of the recruitment only.

However, in IBBS surveys where survey population within a specified geographical area is to be captured, and the survey is to be completed in a specific time period, practice is to calculate a sample size in advance which will be large enough to ensure that equilibrium is reached[2]. In general, RDS attain equilibrium when at least six waves of recruitments are generated by most of the seeds. Recruitment should start with a relatively small number of seeds and let the recruitment waves to grow.

---

[2] Integrated Behavioral and Biological Assessment (IBBA): Guidelines for surveys of populations at risk of HIV infection. New Delhi: Indian Council of Medical Research and FHI. 2011.

Table 9: Proposed Sample Size for Key Population

PWID		Female sex worker	
Variable	**Sample size**	**Variable**	**Sample size**
Knowledge- ABC	1336	Knowledge- ABC	1326
Visited VCT in last 12 months	1073	Visited VCT in last 12 months	1194
Needle Syringe sharing behavior in past week	652	Use of Condom with most recent client	604
Met with OE/PE in last 12 months	1438	Met with OE/PE in last 12 months	1048
Consistent condom use among Female partner	915	Prevalence of HIV	3476
Prevalence of HIV	1512	Visited DIC in last 12 months	1386
Consistent condom use among Female sex worker	1418		
MSM and TG		**Male labor migrants**	
Variable	**Sample size**	Variable	**Sample size**
Prevalence of HIV	1564	Knowledge- ABC	1439
knowledge of all three indicators- ABC	1419	Visited VCT in last 12 months	400
condom use by total MSM at last anal sex	732	Visited DIC in last 12 months	320
Condom use at last sex	828	Met with OE/PE in last 12 months	528
Met with OE/PE in last 12 months	1264	Condom use at last sex	1357
Visited DIC in last 12 months	1438	Consistent condom use	1194
Visited VCT in last 12 months	979	Prevalence of HIV	2760

Training to field staff

The research organization will recruit field survey team. Researchers having similar experience and related academic degree will be recruited for the field team. Similarly, experienced lab personnel and clinicians will be hired to test blood samples (HIV test, gonorrhoea, and chlamydia) and identification of STIs and their syndrome management.

Intensive training will be conducted by field researchers. The training will be entirely based on IBBS training curriculum (8) prepared by NCASC. The content of the training will be based on IBBS training curriculum. All the contents and modules will be based on IBBS training curriculum.

Data collection technique

Survey site will be set up in consultation with the community network and its network partners. An area that is centrally located and easily accessible by most of the participants will be selected. The field office will have separate rooms for each activity, such as administration of the questionnaire, general physical and STI examinations, blood drawing and laboratory testing of blood, and post-test counseling with fulfilling minimum requirements like separate interior waiting room with reception away from biological testing sites, private space for interview and HTS separately and a bathroom.

Survey Process

i) Screening and taking consent

Before initiating the actual interview, participants will be asked certain questions to ensure that they meet the eligibility criteria. Eligibility test will be carried out by the field worker according to information on screening and eligibility form. Eligible participants will be explained in detail about the purposes of the survey and support required from them to obtain consent. Those who agree to give consent will be provided with a consent form. If consent is not obtained from the eligible participants, the refusal form will be completed.

ii) Interviewing

After the screening process, eligible participants will be interviewed by an interviewer with a questionnaire. Unique ID will be given to each participant. In case of RDS, respective coupon number in the respective questionnaire will be noted. The checklist form of the participant will be returned to the participant with the signature of the interviewer.

iii) Pre-test counseling

After the interview, the participant will proceed for pre-test counseling which will be conducted by the HTS counselor. During this period along with counseling activities, the participant will be assigned with laboratory number in test list voucher and the checklist form, which will also be signed by HTS counsellor. In the same session, an appointment will also be fixed by HTS counselor to provide the test results

iv) Blood drawing

Survey process will further continue with participant's blood drawing activities carried out by trained health workers.The checklist form of the participant will be updated at this stage as well.

v) Explanation about RDS (valid only for RDS design)

Another interview known as exit interview will proceed after blood drawing process, where the coupon manager will conduct an exit interview; explain about the recruitment explanations and recruitment coupon will be provided to the participant. Along with these processes, the primary incentive will be provided to participant and *incentive-tracking form* will also be maintained by the coupon manager. Finally, the checklist form of the participant will be updated again with the signature of the coupon manager.

vi) Post-test counseling

During this phase, the participant will be provided test results with post-test counseling by HTS counselor. If any referral is needed, the participant will be asked to visit particular referral site. During the post-test counselling process, participant's checklist form will be updated again and retained at the site by the HCT counsellor.

vii) Secondary incentives and test results (valid only for RDS design)

Secondary incentive manager will complete *incentive-tracking form,* and the participant will again be asked to go the HCT counselor to receive the test results. The test voucher will be retained from the participant at this stage. If any referral is needed to the participants along post-test counselling, they will be suggested to visit the particular referral site and the participant will be out of whole survey process.

viii) Quality management

These overall activities will further strengthen with the support of quality management process. Survey supervisor, who will review screening/checklist form on a daily basis, will conduct this process. Similarly, interview questionnaire and coupon tracking excel database will also be reviewed and maintained daily, and the reviewed questionnaire will be transported to the office. This quality management process will be continued throughout the survey process.

Table 10: Variables for IBBS Survey

Categories	Variables
General information	Place of birth, current place of residence, duration of stay at current place and previous place of residence
Personal information	Age, ethnicity, educational status, marital status, age at marriage, current living situation, birth history, pregnancy history, knowledge and use of family planning, history of sex work, and income from sex work and other works, sexual orientation
Information on sexual intercourse	Age at first sex, type and number of sex partners, professional background of client/sex partner, number of clients/sex partners in a day, last week or/and last month
Use of condom and information on sex partners	Condom use with different sex partners (steady and one-time) - in the last sex and the last month, knowledge and use of female condoms (for FSW), access to condoms
Condom accessibility and lubricants	Carry condoms, place to buy condoms and lubricant, the duration is taken to buy condom and lubricants, preferred a place to buy condoms and lubricants.
Use of oral and injecting drugs	Types of drugs used, duration of drug use, frequency of drug use, treatment, needle sharing behaviors, access to safe needles
Alcohol use	Ever use of alcohol, types, had alcohol during last sex.
Awareness of HIV and AIDS	Knowledge of HIV/AIDS and misconceptions
Exposure to intervention programme	Exposure to outreach and peer-education, use of drop-in center, visited HIV testing and counselling centers and sexually transmitted infections (STI) services and participation in community awareness events.
Sexually transmitted infection	Knowledge and use of services available for sexually transmitted infection, currently experiencing STI symptoms
Psychosocial and structural factors	Housing instability, distress, depression, self-esteem, social support, suicidality, stigma, experience of institutional based discrimination, violence, cross-border movement for illicit drug use
Biological (lab testing)	HIV, syphilis, Chlamydia Trachomotitis and Neisseria Gonorrhoea test, Hepatitis B and Hepatitis C

Data collection tools

Behavioral data: Behavioral data will be collected using semi-structured questionnaire related to HIV and STIs. Some of the required data will also be collected from the screening and checklist list form. NCASC will provide the required tools. Pretesting will be done to check the consistency, flow and content of the questionnaire. Feedback issues, if any, that arise during pre-testing will be noted and addressed.

Tablet Computer Data Collection

An application will be developed as per finalized questionnaire. A through the range, skip, the logic check will be assessed during the pretesting. Issues, if any, which arise during pretesting will be notified to the NCASC team. After pre-testing, the data will be exported in statistical software to check the order and format of the variables, and the observation/result will be shared with the study team.

Enumerators will be trained on how to collect data, store it and synchronize with the central database.

Paper-based

During the training, enumerators will be trained to collect the data as per the survey requirement. Furthermore, enumerators will be trained to do back checks every day after the data collection to reduce the missing data, and to ensure completeness of data. If there is any issue/error in the data collection form, the enumerator will rectify it, note it down and submit to the supervisor whenever they meet. If there are some errors which cannot be solved at that moment, the enumerator will go to the health facilities the next day and try to rectify the error, if possible.

A data description table or codebook will be prepared by data manager based on the finalized questionnaire. This data description table will contain information on question number in questionnaire, full question, variable name that will be in database (e.g., educational status will be edustat), variable type, variable length, code list, mandatory (it is mandatory to be filled), checks (like edit controls, range checks, skip pattern), and error message (if response wrongly entered).

Based on finalized data description table, a database will be prepared. A double entry format of the database will be created using range checks, logic checks, and skip pattern. The database thus created will be validated by entering the pretested or proxy data to ensure the order, correctness of question, the correctness of different checks, screen pattern, feasibility in entering data, and clarity of the database. Any issue that arises during validation will be noted down and rectified. This process is continued until all such issues are addressed. After the validation, a total of 10 questions (proxy) will be entered and data will be extracted into a statistical format. The extracted data will be manually checked to make sure it is in it is the analysable format. If there are is no issue, the database will be validated and finalized.

A pre-entry preview will be conducted by the enumerator to check the code/response before data entry, and clarify text which is difficult to read, and deal problem regarding header information. This process will help in ensuring the accuracy of the data entry process, and increase the speed of data entry. The enumerators will note down the corrections they made during the pre-entry review and submit it to the data manager.

The study team will provide a brief orientation to the data entry operator on the basics of the database, data description table, the information to enter, rules for entering the data (E.g. upper case in the case of text). The role of the second data entry operator will be communicated clearly. The process of data entry will be done under the regular monitoring of the data manager.

Heads up double data entry procedure will be used for data entry. Two different individuals will do data entry. The second person entering the data will reconcile all the discrepancies that arise during the data entry. The second data entry person will be a bit experienced when compared to first. If any error arises, the second person will first check the code/response recorded in the questionnaire and check if it is due to transcription error or wrong data entry by first. Depending on this, the second data entry operator will reconcile the data. The discrepancies between the first and second entry operator will be recorded by second data entry person and will be shared to survey team.

After the completion of data entry by data entry operators, data manager will randomly select 5% of all data entered, and will cross-verify with the source (questionnaire). If any discrepancies are found, the data manager will correct the data and record it. After data quality check by the data manager, the data will be exported in statistical software for analysis.

Collection of Biological Data

National guidelines "National Consolidated Guidelines for Treating and Preventing HIV in Nepal 2016" will be followed for collection of biological data. Details of these are in the guidelines.

Statistical Analysis Plan

Data will be analyzed in statistical software. The univariate and bivariate analysis will be performed on all variables. For descriptive analysis, the mean and standard deviation will be calculated for the continuous variable and percentage/proportion for categorical variables.

ANNEX V: DATA QUALITY ASSESSMENT CHECKLIST

National Center for AIDS and STD Control (NCASC) Routine M&E QA/QI Checklist

Name of Service Site: _____   **Facility Name:** _____

Assessment team: _____   **Date:** _____

Sub-category	Scored	Max	Follow up actions recommended	Resources/ support needed	Responsible person(s)	Expected completion date
Management and Administration of M&E						
Data Quality (validity and reliability)						
Data Integrity						
Information Systems Integrity						
Accuracy of Data						
Data use and Feedback						
Total						

Scoring Notes: NA = Not Applicable   0 = No **Method Notes:**   MI = Management Interview SI = Staff Interview

                       1 = Yes Partially   2 = Yes O = Observation   R = Records Review

                                                DETAILED CHECKLIST

1. Management and Administration of M&E	Guidance to the auditors: Sample questions	Method	Score				Observations/ rationale for score	Remarks
1.1 Adequate human resources are available to ensure appropriate data collection, entry, analysis and reporting	You have different registers and forms to fill in. Do you have people to work on this? Is it enough? Check no. of sanctioned posts Available person for last 3 months	R/MI/SI	NA	0	1	2		
1.2 Responsibility for recording and reporting is clearly assigned to the relevant staffs.	Check for assigned focal person Note: check the TOR, JD or guiding notes/letter if possible	R/MI/SI	NA	0	1	2		
1.3 Staffs (New and Old) have been trained on data collection instruments, tools and checklist.	Did you get any training/guidance in the following two areas: 1. Trained on specific programme (VCT, ART, STI…) 2. Training on M&E and database Were the staff members trained on the forms? Who are the newly recruited staff members? Did they get training?	MI/SI	NA	0	1	2		
1.4 Adequate and appropriate tools and checklists are available and used	**Use Observation checklist** to ensure availability of tools for specific service Ask and check for use of those tools	O/MI/SI	NA	0	1	2		
1.5 The national forms and registers are used for recording and reporting the service	Check the standard tools (according to national M&E guidelines)	O/MI/SI	NA	0	1	2		
1.6 Programme budget is adequately available and appropriately used	Operational cost available? Ask about budget provision Ask about its use Note: If possible check for supporting documents	R/MI/SI	NA	0	1	2		
1.7 Availability of physical facilities	Use Observation checklist to ensure(Rooms, computers filing cabinets, email/fax, stationeries) Ask about the functionality of equipments.	O/MI/SI	NA	0	1	2		.

II. MONITORING AND EVALUATION SYSTEM FUNCTIONALITY

2. Data Quality (Validity and Reliability)		Guidance to the auditors: Sample questions	Method	Score				Observations/rationale for score	Remarks
2.1	Data recording and reporting tools are understandable, easy and simple.	Understandable = Ask one question on specific tool Easy and Simple = Ask about comfortableness in report generation from records Are you comfortable using these tools? Do you understand them easily?	R/MI/SI	NA	0	1	2		
2.2	Data recording tools are directly linked to the compilation of essential indicators (incl disaggregating by age, sex, gender when needed).	Are you clear about the source of records for monthly indicator forms? Are you clear about which information goes where?	R/MI/SI	NA	0	1	2		
2.3	Definitions and interpretations for indicators are understood and followed correctly.	Specify relevant indicators for each sites Are you familiar with the definitions of all these indicators? Ask them at least one question about the definition and interpretation of an important indicator	MI/SI	NA	0	1	2		
2.4	Clear instructions are available on how to fill out the recording and reporting forms.	Check for availability and use of job aids	MI/SI	NA	0	1	2		
2.5	Data recording and reporting tools and procedures are clearly understood by all levels of staff involved in the programme.	Ask this question to different levels of staff involved in that programme • Programme manager • Service in-charge/recorder Note: List the instruments and Define the procedure	MI/SI	NA	0	1	2		
2.6	Data collection/recording occurs immediately or shortly after service provision to limit recall bias (E.g., VCT register filled right during counseling session or after completing or end of the day).	Note: **Use Observation checklist** – for at least one case.	MI/SI/O	NA	0	1	2		
2.7	Systems are in place to adjust for double-counting (within and across sites, across periods)	Are there any systems developed to adjust/minimize double counting? What is that? Also check for facility and client code.	R/MI/SI	NA	0	1	2		
2.8	Systems are in place for detecting missing data	How do you know if there is any mistake/missing data in your monthly reports? Show us how you check for missing data.	R/MI/SI	NA	0	1	2		
2.9	Safeguards are in place to prevent unauthorized changes to data	What are the safeguards available to safeguard the unauthorized changes in data? - Restrict access? - Password? - Filing cabinets? - Confidentiality and anonymity of personal data?	MI	NA	0	1	2		

2. Data Quality (Validity and Reliability)		Guidance to the auditors: Sample questions	Method	Score					Observations/rationale for score	Remarks
2.10	Steps are taken to limit calculation errors	How do you ensure the accuracy in calculating the indicators? Explain with some examples (Triangulation, verify with previous reports, double calculation and tally system)	MI/SI	NA	0	1	2			
2.11	Systems are in place for cross-checking and cleaning data	How do you cross-check data before sending the data to district and NCASC?	MI/SI	NA	0	1	2			
2.12	There are quality control measures in place for when data from paper-based forms are entered into computer. E.g. Double entry , post data entry verification	What are the quality control mechanisms?	MI/SI	NA	0	1	2			
2.13	The number of transcription stages (manual transfer of data from one form to another) are minimized to limit transcription errors	Note: Ask specifically about the transcription of reports from Lab, CD4, prescriptions, client card, referral card etc.	R/MI	NA	0	1	2			
2.14	Service site in-charge review and verify data before it is finalized and passed on	Do the service in-charge review the data? How do they do it?	MI/SI	NA	0	1	2			
2.15	All source documents (registers, forms, records) are available for verification and audit purposes	Note: Check for the source documents.	R	NA	0	1	2			

3. Data Integrity		Sample questions recommended for discussion	Method	Score					Observations/ rationale for score	Remarks
3.1.	All sites are reporting on all required indicators according to the specific national timeline.	What is the deadline to collect the field level data? Are all these key indicators are reported on time? Check for 3 months report	R/MI	NA	0	1	2			
3.2.	The data flow process is clear and properly followed according to National M&E guidelines.	What are the data flow steps? Are you clear about the National Protocol in reporting data?	R/MI/SI	NA	0	1	2			
3.3.	Service data is accessible to relevant staff.	Who manages the service data and how is it accessed? Note: Ask specifically to service in-charge or manager about its accessibility and use.	MI/O/SI	NA	0	1	2			

3. Data Integrity		Sample questions recommended for discussion	Method		Score			Observations/ rationale for score	Remarks
3.4.	Targets have been set for key performance indicators.	Note: Ask only for targeted interventions Are the targets set for this project? What are the targets for these key indicators?	R	NA	0	1	2		
3.5.	Reasons for not achieving/ overachieving targets are documented.	Are there any documents for over achieving or under achieving	R	NA	0	1	2		

4. Information Systems Integrity		Guidance to the auditors: Sample questions	Method		Score			Observations/ rationale for score	Remarks
4.1	Clear linkages exist between paper based forms and electronic system	What types of indicators are entered in electronic system and What are the paper sources?	R/MI/SI	NA	0	1	2		
4.2	Data entry is frequent (daily/ weekly) to minimize overload and minimize errors	How often you enter the data?	R/MI/SI	NA	0	1	2		
4.3	Systems are in place to ensure quality of data entered is good	How do you ensure the quality of data entry in to the computer?	SI	N/A	0	1	2		
4.4	Backup system exists for data and is up to date	How often you back up / file your database? Electronic / hardcopy?	R/MI/SI	NA	0	1	2		
4.5	Back-dated data is properly stored and readily available	Where you have stored your back dated data?	R	NA	0	1	2		

5. Data Accuracy		Guidance to the auditors: Sample questions	Service Delivery Point	District	Region	NCASC	Method	Score			Observations/ rationale for score	Remarks
Based on a review of source documents for the following random indicator outputs reported to NCASC, verify that												
VCT/STI												
5.1	Total number of clients tested and counseled for HIV in last 2 months (Jestha and Ashad)	Check the pre-test counseled number, tested number and post-test counseled number Check the total pre-test, tested and post-test figures Check how many new HIV positive cases identified in that duration Verify with sex					R	NA	0	1	2	

5. Data Accuracy		Guidance to the auditors: Sample questions	Service Delivery Point	District	Region	NCASC	Method		Score			Observations/ rationale for score	Remarks
5.2	Total number of HIV positive cases separately reported to NCASC in last 2 months (Jestha and Ashad)	Cross check monthly report and HIV case report for the corresponding month Check if the case was new or old (to assure for double reporting)					R	NA	0	1	2		
5.3	Total number of MARPs tested and counseled for HIV in last 2 months (Jestha and Ashad)	Check the pre-test counseled number, tested number and post-test counseled number Check the total pre-test, tested and post- test figures Check how many new HIV positive cases identified in that duration					R	NA	0	1	2		
ART/OI													
5.4	Total number of new patients started ART during the last two months (Jestha and Ashad)	Verify from last 4 month's reports Verify report with ART and patient card					R	NA	0	1	2		
5.5	Total number of patients on ART transferred in the last two months (Jestha and Ashad)	Verify with respect to age group and sex					R	NA	0	1	2		
5.6	Total number of patients on ART at the end of last 2 months (Jestha and Ashad)	Verify with respect to age group and sex Verify from Treatment and care registers Verify from Drug dispensing register					R	NA	0	1	2		
5.7	Total number of PLHA receiving Cotrim Prophylaxis in last 2 months (Jestha and Ashad)	Verify for episode and person Verify with respect to age and sex Verify from Treatment and care register / Drug dispensing register					R	NA	0	1	2		
5.8	Total number of PLHA diagnosed and treated for OIs in last 2 months (Jestha and Ashad)	Check OI/pre-ART/drug dispensing register Verify with respect to age group, sex and syndromes					R	NA	0	1	2		
PMTCT													
5.9	Total number of pregnant women tested and counseled for HIV at ANC room in last 2 months (Jestha and Ashad)	Verify from maternal and New Born Care Register					R	NA	0	1	2		
5.10	Total number of pregnant women tested and counseled for HIV at labor room in last 2 months (Jestha and Ashad)	Verify from maternal and New Born Care Register					R	NA	0	1	2		

5. Data Accuracy	Guidance to the auditors: Sample questions	Service Delivery Point	District	Region	NCASC	Method	Score				Observations/ rationale for score	Remarks
5.11 Total number of HIV positive pregnant women delivered in last 2 months (Jestha and Ashad)	Verify from maternal and New Born Care Register					R	NA	0	1	2		
5.12 Total number of HIV positive pregnant women received ARV Prophylaxis in last 2 months (Jestha and Ashad)	Verify from PMTCT Register					R	NA	0	1	2		
5.13 Total number of babies born to HIV positive mothers received ARV prophylaxis in last 2 months (Jestha and Ashad)	Verify from PMTCT Register					R	NA	0	1	2		
5.14 Total number of babies born to HIV positive mothers tested HIIV positive at 18 months after birth in last 2 months (Jestha and Ashad)	Verify from Treatment and Care Register					R	NA	0	1	2		

6. Data Feedback and data use	Guidance to the auditors: Sample questions	Method	Score			Observations/ rationale for score	Remarks
6.1 Supervision procedures are planned on a regular basis and are supportive in nature not fault finding	Type/Purpose of supervision. Frequency of supervision by district, region and center. Note: check for last 2 visits and its documentation.	R/MI/SI	NA	0	1	2		
6.2 Adequate and appropriate tools and checklists relevant to each level of staff are available and used to implement and supervise programme activities	What are the tools/checklists for programme supervision? **Use Observation checklist** Note: Use for DACC and Targeted Interventions.	R/MI/SI	NA	0	1	2		
6.3 Data problems/confusions at each level are reported to the next level and solved together	Do you have any confusion on indicators, forms? How do you communicate and solve these confusions?	MI/SI	NA	0	1	2		
6.4 Regular meetings held to examine achievements against targets, other data periodically	How do you review and examine the achievements?	MI/SI	NA	0	1	2		
6.5 Feedback mechanisms are in place	Ask for different methods of feedback provided by and provided to (E.g., Verbal during supervision, email, letters, review meetings etc.)	MI/SI	NA	0	1	2		
6.6 Are necessary changes made in programme interventions as a result of routine data use?	Ask for any necessary changes in programme interventions made by using routine data.	MI/SI	NA	0	1	2		

ANNEX VI: MONITORING CHECKLIST FOR HIV RESPONSE

National Center for AIDS and STD Control (NCASC) Integrated Checklist for HIV Service Monitoring 2016		

Name of Facility:	District:	
Name & Designation of Visitors: 1. .... 2. .... 3. .... 4.		**Date of Visit:**
1. .... 2. .... 3. .... 4.		

1. HIV Testing and Counseling (HTS) site monitoring checklist

S.N	Activities	Yes/ No	Remarks
1	Is a person /staff assigned to do counseling?		
2	Has the working counselor/assigned staff received training on HIV Testing and Counseling?		
3	Has the working counselor/assigned staff received training on HIV related HMIS recording and reporting tool?		
4	Is HMIS 7.1 available in the site? If yes, mention # of registers.		
5	Has HMIS 7.1 register been used for recording HTS services?		
6	If yes, is the register maintained properly (Completeness, Timeliness, Accurate)		
7	Is the counselor/assigned staff clear about the testing algorithm?		
8	Has confidentiality maintained?		
9	Hard copy of the monthly report is in a separate file?		
10	Are records consistent with the submitted report? Please verify at least last 2 months reports and mention the variation in remarks.		
11	How many clients were found HIV positive during last 4 months?		
12	Are the tested positive clients separately reported for individual case reporting?		
13	Are all the tested positive clients referred to the HIV care?		
	Overall Observations and suggestions		

2. PMTCT monitoring checklist			
S.N	**Activities - ANC/MCH**	**Yes/ No**	**Remarks**
1	Have you visited ANC/MCH section?		
2	Have working staffs received training on PMTCT? Mention how many staffs have received the training in the remarks column.		
3	Is there use of Maternal and New Born Health Service Register (HMIS 3.6) for PMTCT record?		
4	If yes, is the register maintained properly (Completeness, Timeliness, Accurate)		
5	Are the duty staffs clear about the PMTCT recording and reporting?		
6	Are records consistent with the submitted report? Please verify at least last 2 months reports of HIV test and mention the variation in remarks.		
7	Were any pregnant woman found HIV positive during last one year? If yes, mention the number in remarks.		
8	If 'Yes', were they referred to the HIV care?		
	Overall Observations and suggestions		

2. PMTCT monitoring checklist			
S.N	**Activities- Labour & Delivery**	**Yes/ No**	**Remarks**
1	Have you visited Labour & Delivery section?		
2	Have working staffs received training on PMTCT? Mention how many staffs have received the training in the remarks column.		
3	Is there use of Maternal and Newborn Health Service Register (HMIS 3.6) for PMTCT record?		
4	If 'No', what is the standard recording tool used in L&D?		
5	Does that tool capture recording of PMTCT services?		
6	If 'Yes', is the register maintained properly (Completeness, Timeliness, Accurate)		
7	Are the duty staffs clear about the PMTCT recording and reporting?		
8	Are records consistent with the submitted report? Please verify at least last 2 months reports of HIV test and mention the variation in remarks.		
9	Were any pregnant woman found HIV positive during last one year?		
10	If 'Yes', were they referred to the HIV care?		
	Overall Observations and suggestions		

3. ART monitoring checklist			
S.N	**Activities- PMTCT cases**	**Yes/ No**	**Remarks**
1	Is there use of PMTCT Service Register (HMIS 7.3) for PMTCT record (HIV positive pregnant women only)?		
2	Were HIV positive identified pregnant women (both newly identified & previously identified) enrolled in the PMTCT service for ART? (Please check the name in HMIS 7.3 and mention total # of cases)		
3	Have all HIV positive pregnant mother received ART?		
4	If 'Yes', is the PMTCT 7.3 register maintained properly (Completeness, Timeliness, Accurate)		
5	Have all HIV exposed live births received Nevirapine prophylaxis?		
6	Were all the exposed babies referred for EID in time? Mention # in the remarks column.		

7	Is ART counsellor/duty staff clear about the PMTCT recording and reporting?		
8	Is record consistent with the submitted report? Please verify the last 2 months report (ART receiving mother).		
9	How many EID cases were found positive and started ART during last one year?		
	Overall Observations and suggestions		

3. ART monitoring checklist

	Activities- ART cases	Yes/ No	Remarks
1	Is there a separate room for ARV dispensing and adherence counseling?		
2	Has the working counselor received training on HIV Clinical Management?		
3	Has the working counselor received training on HIV related HMIS recording reporting?		
4	Are there Treatment and Care register (HMIS 7.4) and Patient HIV care and ART treatment record (HMIS 7.5) available?		
5	If 'Yes', is Treatment and Care Register (HMIS 7.4) used for all clients enrolled in HIV care?		
6	Is the register maintained and updated completely and timely? E.g. client's demographic information, ART start date, regimen, CD4 count at start and current, viral load, treatment substitution/switch, IPT, TB Assessment, treatment status, adherence level, FP need assessment etc.		
7	Is ART counsellor/duty staff clear about the recording and reporting?		
8	Is preparation and submission of the monthly report through HMIS did in time?		
9	Is hard copy of the monthly report in a separate file?		
10	Is there any data discrepancies found between the reported numbers and register? (Please check the past month report and verify with the register, e.g. # clients death, transferred out, lost to follow up, stopped and currently on ART)		
11	Does number of clients currently on ART match with the sum of the number of clients on original 1st line, substituted 1st line and switched to 2nd line? Mention the variation in remarks.		
12	Does number of clients currently on ART match with the sum of the number of clients by Regimens? Mention the variation in remarks.		
13	Are there any clients whose adherence level reported in 'C' level, i.e. less than 80%? Mention the numbers in remarks.		
14	If 'Yes', have you discussed the possible causes of treatment of those clients?		
15	Is there individual file maintained for each ART taking client?		
16	If 'Yes', does individual file contain with the updated Patient card, i.e. HMIS 7.5, HIV diagnosis result, CD4 Count, Viral Load result, Physical examination, treatment and other laboratory reports, IPT status etc?		
17	Does ART counselor do TB assessment for all clients visit at ART site? Observe few cases to verify the correctness of the information provided by ART counselor.		
18	Is filing system of individual files maintained properly/systematically?		
19	Is Transfer in and transfer out records with supportive documents maintained?		
20	Does ART counselor maintain a record of IPT in Treatment and Care Register?		
21	Does ART counselor provide complete information of ART drugs to the patients? Observe the process if possible.		
22	Does ART counselor determine the time for next schedule and record it on HMIS 7.5?		
23	Is there initiation of ARV in line with National Consolidated Guidelines?		

24	Does ART Counselor assess the adherence level in every visit and discuss its importance with the client?		
25	Does ART Counselor coordinate with CHBC & care and support team in the district for LFU/MIS cases?		
26	Is ART Counselor consulted with a doctor for switching of regimen?		
	Overall Observations and suggestions		

3. ART monitoring checklist

S.N	Activities- Logistic management	Yes/No	Remarks
1	Is ARV Drug Dispensing Register available and maintained?		
2	Is ARV Drug Dispensing Register updated right after dispensing the ARVs?		
3	Is Expiry Tracking Chart maintained and updated for ARVs?		
4	Is stock book maintained and updated?		
5	If 'Yes', was there stock out of any ARV drug during last one year?		
6	Is stock on hand and stock in book match? Verify any one item and mention in remarks.		
7	Is expired drug segregation and disposal in practice?		
8	Did the site submit Bi-monthly requisition and report in time?		
9	A Clear understanding of the medicine available in ART by counselor? (Ask few question related to ARV Drugs)		
10	Is ART Counselor managing commodities according to FEFO system to prevent from expiration (ask about FIFO, check shelves check-in/out register)?		
	Overall Observations and suggestions		

4. OST Monitoring checklist

S.N	Activities	Yes/No	Remarks
1	Is there availability of OST register HMIS 7.6		
2	Is the register maintained properly? (only if the register is in use)		
3	Is client dose tracking sheet maintained?		
4	Is there drinking water available for clients?		
5	Hard copy of the monthly report is in a separate file?		
6	Is there any data discrepancies found between the reported numbers and register? (Please check the past month report and verify with the register)		
7	Is there good coordination with social support unit?		
8	Is client's individual file maintained?		
9	Is dispensing machine working?		
10	Is Stock book maintained and available?		
	Overall Observations and suggestions		

5. Monitoring checklist for Laboratory

S.N	Activities	Yes/No	Remarks
1	Do you carry out HIV tests? If yes name the type of HIV test kits (Eliza, tridot, determine.		
2	Has lab technician received training on HIV Rapid testing?		
3	Is the test result directly provided to the client/relatives of the client?		

4	Can the register provide the total HIV test number from the Gynae OPD? (In case of Hospital)		
5	Are HIT Test kits (Determine, Unigold and Stat pack) not expired? Check expiry date.		
6	Does lab personnel know about the testing algorithm?		
7	Is there enough stock of test kits? Verify the stock on hand and stock in the register.		
	Overall Observations and suggestions		

6. Monitoring checklist for district authorities

S.N	Activities	Yes/ No	Remarks
1	Is there enough stock of HIV related HMIS tools at district (HMIS 7.1-7.6 including HMIS 3.6)		
2	Has the HIV related HMIS register dispatched to all the service delivery sites at the district?		
3	Do the service delivery sites submit monthly reports to the district including bi-monthly logistic report?		
4	Is the received report updated timely in HMIS database system? (Please check the updates in the HMIS system)		
5	Is there any verification carried out after receiving reports from the service sites		
6	Is there any discussion meeting carried out regarding the HMIS output?		
	Overall Observations and suggestions		

ANNEX VII: RECORDING AND REPORTING TOOLS FOR HIV RESPONSE

HMIS 3.6 : Maternal and Newborn Health Service Register
HMIS 7.1 : HIV Testing and Counseling Register
HMIS 7.2 : STI Treatment Register
HMIS 7.3 : Prevention of Mother and Child Transmission Register
HMIS 7.4 : HIV Treatment Register
HMIS 7.5 : Patient HIV care and ART Card
HMIS 7.6 : Opioid Substitution Therapy
HMIS 9.3/ 9.4/9.5 : Reporting tools
All above-mentioned registers are found in NCASC website. www.ncasc.gov.np

ANNEX VIII: NATIONAL SURVEILLANCE PLAN

National Surveillance Plan 2017-2021

SN	Major activities	Data source	2017	2018	2019	2020	2021	Responsibility
1	**HIV case reporting**	HIV testing and counselling Register (HMIS 7.1)	■	■	■	■	■	NCASC
2	**National IBBS Surveys**							
2.1	Female Sex workers	IBBS				■		NCASC
2.2	Male having sex with men and Transgender	IBBS			■			NCASC
2.3	People who Inject Drugs (Male and Female)	IBBS			■			NCASC
2.4	Male Labor Migrants	IBBS					■	NCASC
3	**STI Sentinel Surveillance**							NCASC
3.1	Key Population	STI sentinel sites data				■		NCASC
3.2	ANC attendees	STI sentinel sites data			■			NCASC
3.3	General Population	STI sentinel sites data			■			
4	**Size Estimation of Key population**							
4.1	FSW/MSM & TG/ PWID	Mapping				■		NCASC
5	**Estimation and projection (HIV Infection estimate)**	AEM/Spectrum	■	■	■	■	■	NCASC
6	**HIV drug resistance surveillance**							
6.1	Early Warning Indicators	HIV Treatment and Care register (HMIS 7.4)	■	■	■	■	■	NCASC
6.2	Set up of Adverse Drug Reaction monitoring system					■		NCASC
7	**Capacity Building**							
7.1	Training on SGS for programme people	Training signup sheet		■	■		■	NCASC
8.	Implementation of mHealth, DHIS-2 Tracker and Biometric system in ART sites.			■	■	■	■	
9.	Generate programmatic evidence via implementation research "Evaluation of WHO's recommendations on test and treat strategy, managing advanced HIV disease and rapid initiation of ART among people living with HIV (PLHIV) in Nepal'.			■	■	■	■	

LIST OF CONTRIBUTORS

1. Overall lead- Dr Tarun Paudel, Director and Bir Rawal, Statistical Officer, National Center for AIDS and STD Control (NCASC)
2. Task Coordinator- Dr Keshab Deuba, Strategic Information Specialist, NCASC/Global Fund Programs
3. Upendra Shrestha, M and E Coordinator, NCASC/Global Fund Programs
4. Sagun Pant, M and E Officer, NCASC/Global Fund Programs

Save the Children
1. Rajan Shrestha, Senior M & E Manager, Save the Children
2. Bishnu Shrestha, M & E Manager, Save the Children
3. Nilarambha Adhikari, M and E Coordinator, Save the Children

UN Organizations
1. Birendra Pradhan, HIV Specialist, UNICEF Nepal
2. Komal Badal, Strategic Information Associate, UNAIDS
3. Dr Subash Lakhe, National Professional Officer, Communicable Disease Control, WHO Country Office, Nepal

INGO's
1. Pradeep Kumar Thakur, Team leader- M & E, LINKAGES Nepal, FHI 360
2. Divya Raj Joshi, Operations Manager, AIDS Health Care Foundation

Consultant
1. Biwesh Ojha, Consultant, National Consolidate SI guideline on HIV Response

Layout support
1. Roshan Konda, IT and Data officer, NCASC/Global Fund Programs
2. Shiv Hari Adhikari, Comm. and Documentation Officer, NCASC/Global Fund Programs

Overall Guidance and Feedback
1. Rajesh Khanal, Project Manager, NCASC/Global Fund Programs

For further information:
Ministry of Health
National Center for AIDS and STD Control
Teku, Kathmandu
Tel: 977-1-4261653, 4262753, 4258219
Email: data@ncasc.gov.np, Web: www.ncasc.gov.np