# Data Quality Assurance Tool for Program-Level Indicators

January 2007

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# Acknowledgments

# I. Introduction to Data Quality

## Section I. Objective

To outline the essential parameters of data quality, to show how data quality fits within the President's Emergency Plan for AIDS Relief (Emergency Plan) system of results reporting, and to provide an overview of the Data Quality Assurance Tool for Program-Level Indicators.

> ## Section I Map
>
> Section I is divided into three parts:
>
> 1. The Role of Data Quality in the Emergency Plan.
> 2. What is Data Quality?
> 3. The Data Quality Assurance Tool for Program-Level Indicators.

## I.1. The Role of Data Quality in The Emergency Plan

The Emergency Plan emphasizes data quality because it is explicitly evidence based and results oriented. Good data are needed to inform the design of interventions and to monitor and evaluate the Plan's quantitative progress toward pre-determined treatment, prevention, and care targets. **Ultimately, the Emergency Plan is committed to accuracy of information for purposes of accountability and, more importantly, for use of quality data to improve programs.**

More specifically, the Plan's emphasis on evidence and results places data quality at the center of a project cycle in which target setting and results reporting are inextricably linked. In order for targets to be meaningful and realistic, the quality of the data on which they are based must meet minimum standards of acceptability. Similarly, progress reports will only offer stakeholders a concise and accurate reflection of whether the Emergency Plan is "working" if the supporting data are of high quality.

Attention to data quality ensures that target-setting and results reporting are informed by valid and sensitive information, and that reporting partners and participating country programs are thinking about and collecting and organizing this information in the same manner. In this way, attention to data quality leads to improved program performance and to more efficient resource management. The diagram above illustrates the idea that the value of periodic (annual) revision and the resetting of targets, and of periodic (semi-annual and annual) reporting of results, is only as high as the quality of the data informing these activities.

**Diagram 1.1.** Data Quality and the Emergency Plan Cycle of Program-Level Management



## I.2 What is Data Quality?

In its most basic sense, data quality means that the information collected as part of the Emergency Plan's monitoring and evaluation system adequately represents the program's activities. *Adequately represents* means that the information is accurate and reliable. Accurate information is interpreted as measuring what we intend to measure (that the information is correct), and reliable information implies that it has been collected and measured in the same way (consistently) by all programs during all reporting periods.

More specifically, a program's information system adequately represents a program's activities if, along with accuracy and reliability, the data have qualities of completeness, precision, timeliness, and integrity. A simple framework for this idea is illustrated in Diagram 1.1 on the following page.

The dimensions of data quality shown in Diagram 1.2 are fundamentally influenced by the ways in which results of U.S. Government (USG) in-country program activities are monitored and mapped to information systems. Operational definitions of the six dimensions are presented in Table 1.1 on page 4.

At a more macro level, data quality is systematically influenced by factors that are inherent to the Emergency Plan's monitoring and evaluation system (e.g., definitions of program-level indicators, upstream & downstream support, and double counting). These factors are ubiquitous and influence data quality regardless of country program, program-level indicator, or implementing partner.

**Diagram 1.2.** Schematic Framework of Data Quality

**REAL WORLD**

In the *real world* project activities are implemented in the field. These activities are designed to produce results that are quantifiable.

**INFORMATION SYSTEM**

*Information systems* represent these activities by collecting the results that were produced and mapping them to some form of recording system.

**Data Quality**: how well the **information system** represents the **real world**.

**Data Quality**

Real World

1. Accuracy
2. Reliability
3. Completeness
4. Precision
5. Timeliness
6. Integrity

Information System

| Table 1.1.  Operational Definitions of Data Quality Dimensions | |
|---|---|
| **Dimension of Data Quality** | **Operational Definition** |
| **Accuracy** | Also known as validity.  Accurate data are considered correct: the data measure what they are intended to measure.  Accurate data minimize error (e.g., recording or interviewer bias, transcription error, sampling error) to a point of being negligible. |
| **Reliability** | The data generated by a program's information system are based on protocols and procedures that do not change according to who is using them and when or how often they are used.  The data are reliable because they are measured and collected consistently. |
| **Completeness** | Completeness means that an information system from which the results are derived is appropriately inclusive: it represents the *complete* list of eligible persons or units and not just a fraction of the list. |
| **Precision** | This means that the data have sufficient detail.  For example, an indicator requires the number of individuals who received HIV counseling & testing and received their test results, by sex of the individual.  An information system lacks precision if it is not designed to record the sex of the individual who received counseling & testing. |
| **Timeliness** | Data are timely when they are up-to-date (current), and when the information is available on time.  Timeliness is affected by: (1) the rate at which the program's information system is updated; (2) the rate of change of actual program activities; and (3) when the information is actually used or required. |
| **Integrity** | Integrity is when data generated by a program's information system are protected from deliberate bias or manipulation for political or personal reasons. |

## I.3.  The Data Quality Assurance Tool for Program-Level Indicators

This *Tool* addresses two issues intrinsic to the Emergency Plan's monitoring and evaluation system that can systematically compromise data quality: (1) the Upstream and Downstream framework for target setting and results reporting; and (2) double counting.  A third issue is symptomatic of the first two and involves the comparability of reported results over time.  Taken together, these are the fundamental data quality challenges inherent in the process of compiling and summarizing data for the Semi-Annual and/or Annual Program Results, and for setting programmatic targets in the context of Country Operational Plans or their equivalent.

These three challenges affect every Emergency Plan program, regardless of the unique set of factors that make one country program different from another.  Consequently, this *Tool* views data quality in broad strokes; it is designed to provide clear and practical guidance so that each country program understands the fundamental constraints to good results reporting and addresses them in the same way.

**Box 1.1. Guiding Principles of the Data Quality Diagnostic Tool**

1. The *Tool* is intended to be "field-friendly." Every attempt has been made to recognize the environment of intense work that USG/SI Teams experience while preparing Semi-Annual and/or Annual Report data under tight deadlines.

2. The *Tool* is designed to maximize the number of data quality problems that are solved in the field before the data are submitted to OGAC. This would facilitate and make more efficient the process of results reporting at OGAC in Washington.

3. The *Tool* is not exhaustive. Problems with counting program-level results are often specific, whereas the *Tool* is designed to be general: it provides how-to protocols and methodologies for solving data quality issues that regularly occur across program areas, partners, indicators, and countries.

4. Though much effort is currently being devoted to harmonize data quality tools among other major donors, this *Tool* is specific to the Emergency Plan.

The *Tool* builds upon existing Office of the Global AIDS Coordinator (OGAC) documentation. It should be used in conjunction with current guidance, especially PEPFAR planning and reporting guidance.

# II. Upstream and Downstream Results Reporting

## Section II.  Objective

To outline the essential parameters of upstream-downstream categories of USG support and show how they relate to results.  The diagnostics and tools emphasize reliability: they are designed to help the USG approach the upstream-downstream dynamic according to consistent and standardized protocols and methodologies.

**Section II Map**

Section II is divided into five parts:

1. Explaining and Defining the Upstream and Downstream Framework.
2. Making the Connection between USG Support and Reported Results.
3. When USG Support and Reported Results Are Out of Balance.
4. How to Avoid Upstream-Downstream Double Counting.
5. How to Create an Audit Trail for Upstream-Downstream Results.

*II.1.A. Explaining the Upstream and Downstream Framework*

The essential logic of the Emergency Plan upstream-downstream framework is the following: the USG provides <u>support</u> to upstream and downstream <u>activities</u> which in turn contribute to upstream (indirect) and downstream (direct) <u>results</u>.  An important piece of this logic is that USG upstream (indirect) results can result in numbers of individuals receiving prevention, treatment, or care services at sites that are not supported by USG resources.

**Diagram 2.1.** The Emergency Plan Upstream – Downstream Framework

National, Regional or
District-Level Organizations

USG Supported Activities
*(examples)*

▫ Commodities          ▫ Infrastructure
▫ TA for reporting / HMIS   ▫ Drugs
▫ Supplies             ▫ Supervision
▫ Training             ▫ Quality assurance
▫ Policy development    ▫ Curriculum development
▫ Lab support          ▫ Logistics/procurement systems
▫ Protocol development  ▫ Clinical standards and protocols
▫ M&E systems development ▫ Overall system strengthening

Specific USG Supported
Service Delivery Sites

Overall Individual-Level Results
*(USG and non-USG supported sites)*

***n*** Individuals Receiving Prevention
***n*** Individuals Receiving Care
***n*** Individuals Receiving Treatment

**Indirect**
**(Upstream)**

**Direct**
**(Downstream)**

The **solid line** in Diagram 2.1 (above) that connects downstream USG-supported site-specific activities with individual-level results indicates a direct relationship.

That is, USG support of site-specific activities is directly connected to the number of individuals documented at the site as having received HIV/AIDS prevention, treatment, or care services. This number is derived from patient tracking systems, client registers, participant rosters, and other forms of site-specific information.

The **dashed lines** in Diagram 2.1 represent upstream system strengthening activities that are empirically (indirectly) connected to individual site-specific results.

The logic here is that without essential upstream system strengthening activities national HIV/AIDS prevention, care, and treatment programs that provide direct patient services would either:

1. not function at all downstream; or
2. would function downstream at reduced efficiencies and effectiveness.

Consequently, fewer individuals would receive prevention, care, and treatment without upstream system strengthening activities.

Therefore, it is reasonable and appropriate to empirically connect USG supported national-level system strengthening activities upstream with the national-level number of individuals receiving prevention, care, or treatment services at non-USG supported sites.

The same logic holds for connecting USG supported sub-national (e.g. province or district) level system strengthening activities upstream with the commensurate sub-national level number of individuals receiving prevention, care, or treatment services at non-USG supported sites.


### II.1.B. Defining the Upstream and Downstream Framework

Section V (Appendix, Page 45) of this *Tool* contains verbatim definitions of the Upstream-Downstream framework from three different OGAC documents. The definitions show that the only important <u>change in language</u> between these key documents involves adding "upstream" and "downstream" to the original terms *indirect* and *direct*, respectively.

This new language should help to clarify the nature of USG support to a country's HIV/AIDS program and is used throughout this *Tool*. These definitions are summarized in Text Box 2.1 shown on the following page.

## Box 2.1.  Summary Definitions of the Upstream and Downstream Framework

For quick reference, the definitions shown in the Appendix can be essentially condensed to the following:

### Downstream (direct)

Refers to the number of individuals who receive prevention, care, and treatment services through service delivery sites/providers that are directly supported by USG interventions/activities (e.g., commodities, drugs, supplies, supervision, training, quality assurance) at the point of actual service delivery.

### Upstream (indirect)

Refers to the number of individuals receiving prevention, care, and treatment services as a result of the USG's macro-level contribution to system strengthening or capacity building of the national HIV/AIDS program.

Examples of upstream (indirect) activities for which USG provides support are:

1. Development of national or provincial/regional HIV/AIDS policies.
2. Development and implementation of national or sub-national HIV/AIDS clinical standards and guidelines, as well as associated training protocols and programs.
3. Technical assistance for the development and maintenance of national or sub-national commodity and drug procurement and logistics systems.
4. National or sub-national laboratory support.
5. Technical assistance for strategic information activities such as national or sub-national surveillance and health management information systems.

The apparent emphasis on the number of individuals receiving prevention, care, and treatment services is actually offset by the Emergency Plan's equivalent monitoring of the number of service outlets; the number of organizations provided technical assistance; and the number of individuals trained.

Drawing definitional boundaries around the two terms is important for data quality because *clear definitions of whether support is upstream or downstream imply that all USG programs are interpreting the direction of their support in the same way.* Five key terms can be used to generally distinguish upstream from downstream. These terms are outlined below in Table 2.2.

| Table 2.2. Five Concepts that Generally Distinguish Upstream & Downstream Support | | | |
|---|---|---|---|
| **Distinguishing Term** | **Description** | **Upstream** | **Down-stream** |
| 1. Capacity building | Although *capacity building* is typically associated with upstream (indirect) types of support, under the Emergency Plan it also defines much of what occurs in the context of downstream (direct) USG support, e.g., training. System strengthening (below) appears to have become the preferred term for the kind of capacity building under the Emergency Plan that is categorized as upstream and not site-specific. | ✓ | ✓ |
| 2. System strengthening | *System strengthening* essentially defines the interventions and activities that occur at the national or macro level and are generally focused on the national HIV/AIDS program as a whole. | ✓ | |
| 3. Site-specific (Downstream) | Downstream (direct) support is associated with a unique service delivery point **that receives USG assistance** where individuals go to directly receive prevention, care, or treatment services. The site is a <u>place</u> that has a name and an address (a building, a clinic, a school, a church, a community center, a household, etc.) where the intervention (including a prevention event site) occurred or occurs. | | ✓ |
| 4. Direct counts of individuals receiving services | Results from site specific and/or downstream activities are associated with *counting* discrete names (or other unique identifiers) of individuals from record systems in order to derive total numbers of individuals receiving prevention, care, or treatment services. These "direct counts" are auditable: they must be linked to individuals that can be identified from source documents such as a participant list, a patient tracking system, or a record in which each individual receiving the intervention is clearly documented with a name and/or a unique identification number. | | ✓ |
| 5. Indirect estimates of individuals receiving services | Estimation is sometimes used because system strengthening activities may not be directly linked to uniquely identifiable individuals that can be traced to a USG-supported information system. Commonly, upstream system strengthening results are derived from host country government statistics on the total (national or sub-national) numbers of individuals receiving prevention, care, or treatment services. | ✓ | |

Framing results by category of support is also important because the data sources and estimation procedures used to derive upstream (indirect) results are different from the data sources and estimation procedures used to derive downstream (direct) results.

## II.2. Making the Connection between USG Support and Reported Results

In claiming results related to upstream (indirect) and downstream (direct) activities and support, and particularly results related to the **seven** Emergency Plan indicators for which both upstream and downstream target setting and results are required, the fundamental problem is to empirically connect the level of USG support to service activities. This problem can be broken down into three steps, each of which has important implications for data quality (Box 2.2).

> ### Box 2.2. Three Diagnostic Steps toward making the connection between USG support and results
>
> 1. Justify the empirical connection between USG support and reported results.
> 2. Select a data source as a basis for results reporting.
> 3. Assess the quality of the selected source of data.

The exercises presented in this section relate to the steps shown above and are designed to help SI/USG teams address the essential process of connecting USG support with the results reported to the program-level indicators. Connecting upstream system strengthening activities with site-specific results—represented by the dashed lines in Diagram 2.1 (page 8)—is the most challenging and therefore receives the most extensive treatment here.

### II.2.A. Justifying the Empirical Connection between USG Support and Reported Results

This step is important because reporting results to a program-level indicator is not simply an empirical exercise. Rather, there is a subjective element involved that has to do with ensuring that the results are commensurate with the level of support for the activity. Here is the question that this diagnostic should help the USG to answer:

*"Does the level of USG support appear to logically connect with the quantitative result?"*

Connecting USG upstream system strengthening support and site-specific results (the dashed lines in Diagram 2.1) is not straightforward. The first step toward solving this data quality challenge is to assess the impact or the magnitude of USG upstream system strengthening for this direction of support. This is the purpose of Checklist 2.1 on the following page.

The presence of a check in the "YES" column for one or more of the checklist items in BOTH panels strongly indicates that the USG upstream system strengthening support is sufficient to claim the complete number of reported results instead of a fraction of that number (*complete number* implies the total national-level number, or 100% of the total available count).

If, for a given program-level indicator, "NO" or "DK" (Don't Know) is checked for all items, then the USG support is insufficient to claim 100% of the available site-specific numbers as a result. **Instead, the USG (not at the partner level) must identify and justify a way to estimate the appropriate fraction of these totalsthat is commensurate with the USG support, and then document the estimation procedures that were used**. This is covered later in Part II.4 "How to Create an Audit Trail for Upstream – Downstream Results."

| Checklist 2.1.  Assessing USG Upstream System Strengthening Support | | | |
|---|---|---|---|
| **Assessment Criteria** | **YES** | **NO** | **DK** |
| **PANEL ONE** | | | |
| 1.  This capacity building/system strengthening activity or product is directed toward/focused on the <u>national, regional, or district level</u>.<br>OR: | | | |
| 2.  The total amount of USG person-days invested in this activity represents a <u>substantial investment of human resources</u>.* <br>OR: | | | |
| 3.  The <u>dollar value invested in this activity is substantial</u>.* <br>AND: | | | |
| **PANEL TWO** | | | |
| 4.  The reported result <u>would not have occurred</u> without the support provided by this system strengthening activity.<br>OR: | | | |
| 5.  The <u>quality of the result</u> would have been unacceptably low without the support provided by this activity.<br>OR: | | | |
| 6.  The system strengthening support provided represents a substantial contribution toward <u>sustainability</u>. | | | |

*  It is difficult to derive an acceptable Emergency Plan-wide definition of "substantial" given the varying sizes of country programs, the absolute numbers diagnosed with AIDS, HIV sero-prevalence rates, USG staffing, the nature of the Emergency Plan country assistance, etc. Consequently, using this checklist as a starting point, in each country the USG needs to justify and document its assessment of upstream system strengthening support.

Having used Checklist 2.1 to think systematically about the upstream USG support, the USG should next use Checklist 2.2 (below) for the purpose of further assessing and justifying the connection between its **upstream system strengthening support and site-specific results** (the dashed lines in Diagram 2.1).

| | Question | YES | NO |
|---|---|---|---|
| | **Checklist 2.2. Further Justifying the Connection between Upstream System Strengthening Support and Site-Specific Results** | | |
| 1. | Does sufficient documentation exist on implementing partner activities commensurate with the level of upstream support that is being claimed? (e.g., if the USG team claims 100% of the national number on ART as a result of upstream system strengthening support, the USG must be able to document partner system-strengthening activities that have a measurable effect on some aspect of ART service provision at the national level that justifies claiming all ART numbers for the country.) | | |
| 2. | Has the USG shared its estimation procedures and upstream system strengthening support results with the appropriate government and other key counterparts? Ideally the counterpart(s) will have been involved in estimating the empirical connection from support to results from an early date so that potential misunderstandings about claiming upstream (indirect) results will be minimized. | | |
| 3. | Is the USG prepared to adjust/revise its upstream (indirect) system strengthening results in order to elicit host country governmental agreement or approval? | | |
| 4. | In the case of governmental non-approval, is the USG team confident enough with its answer to the first two items in this list to move forward **without** adjusting or revising results? <br><br> (If the answer here is yes, then the USG should inform the appropriate government counterpart(s) of the decision to move forward with the specific estimated results and the reasons for doing so.) | | |

*II.2.B. Connecting Upstream (Indirect) System Strengthening Support with Site-Specific Results: An Example of the Dashed Lines in Diagram 2.1*

If the USG supports a national HIV/AIDS program by designing national prevention of mother-to-child transmission (PMTCT) practice standards and a related training curriculum, and then conducts national-level training workshops for Ministry of Health (MOH) PMTCT practitioners, it is reasonable to view these system-strengthening activities as enhancing the quality of national PMTCT services in a way that justifies claiming 100% of the national results for the number of pregnant women who received HIV counseling and testing for PMTCT and received their test results or **t**he number of pregnant women provided with a complete course of antiretroviral prophylaxis for PMTCT.

*II.2.C. Assessing USG Downstream (Direct) Support*

For USG **downstream (direct) support**, there is also a need to empirically connect support to site-specific activities, although in many cases this connection may be easier to justify than for upstream support. Completing Checklist 2.3 (below) can help to verify this connection and justify claiming 100% (or some smaller proportion) of the individuals receiving services at the site.

| Checklist 2.3. Assessing USG Downstream (Direct) Support | | | |
|---|:---:|:---:|:---:|
| Assessment Criteria | YES | NO | DK |
| **PANEL ONE** | | | |
| 1. Compared to other donors/partners, the <u>dollar value</u> that we invest at the service delivery site(s) is substantial.*<br>OR: | | | |
| 2. We have <u>frequent (i.e., more than one day per week) contact</u> with service delivery site personnel, patients, and/or clients.<br>OR: | | | |
| 3. We <u>regularly assist with essential M&E functions</u> provided at the service delivery site(s).<br>AND: | | | |
| **PANEL TWO** | | | |
| 4. Quality prevention, care, and/or treatment services at the site(s) <u>would not occur</u> in the absence of our support.<br>OR: | | | |
| 5. The <u>quality</u> of the services provided at the service delivery site(s) would be unacceptably low without our support.<br>OR: | | | |
| 6. The support provided represents a substantial contribution toward <u>sustainability</u> of services at the service delivery site(s). | | | |

\* See the explanation of "substantial" in the footnote for Checklist 2.1 (page 13).

The standard approach is for reporting partners to claim 100% of the individuals for downstream (direct) results. Therefore, if "YES" is checked for any of the items in Panel One AND in Panel Two of Checklist 2.3, then USG downstream (direct) support is assumed to be of sufficient impact to justify claiming 100% of the site-specific results for the program-level indicator under consideration.

If "NO" or "DK" (Don't Know) is checked for all items in both panels, then the USG support is insufficient to claim 100% of the individuals at the site as a result. **Instead, the USG must identify and justify a way to estimate the appropriate fraction of this total that is commensurate with USG support, and then document the estimation procedures that were used**. This is covered later in this section in Part II.4 "How to Create an Audit Trail for Upstream – Downstream Results."

A frequent downstream (direct) data quality challenge at the USG country level is the extent to which multiple partners are simultaneously reporting 100% of the individuals receiving services from the same service delivery site. This is covered in **Section III: Double Counting of Program-Level Results.**

*II.2.D. Selecting a Data Source as a Basis for Results Reporting*

The size and scope of the Emergency Plan means that, in general, its **upstream** (indirect) system strengthening activities are designed to have national impact. Up to now, this section has presented the USG with diagnostics that are designed to scrutinize this assumption of national impact so that the essential connection between support and results is closely monitored.

If the assumption of national-level impact is upheld, then host government national-level statistics or results are the place to first look for data on which to base results. Although there may be concerns about the quality of host government data, they generally provide a useful baseline for results reporting over time.

However, when such data are not available or it is not sufficiently reliable, the sources listed in Table 2.3 (below) should be explored. In some cases, a combination of these sources may prove useful to justify upstream results reporting.

| Table 2.3. Selecting a Source of Data for Upstream (Indirect) Support Estimation |
| --- |
| Data sources for estimating the number of individuals receiving a site-specific service as a result of USG upstream (indirect) systems-strengthening support. |
| 1. Host government <u>national-level</u> or sub-national statistics or results. |
| 2. Local non-governmental organization national or sub-national statistics. |
| 3. Programmatic (monitoring) data from relevant Emergency Plan reporting partners. |
| 4. Programmatic (monitoring) data from relevant non-Emergency Plan reporting entities. |
| 5. Other (specify) _____ |

Relying on host government national-level or sub-national statistics or results is preferable. If they are not available, other sources of programmatic data may be available for providing a quantitative basis for estimating upstream support.

What if the USG is prepared to claim only a fraction of the system strengthening results? This occurs when the upstream support is clearly not of a national impact, such as when the USG provides technical assistance to organizations having local or district-level impact.

An example of this case is provided below.

Assume that all the USG-sponsored PMTCT systems-strengthening activities are concentrated in a particular **region** of the country. In this case, a reasonable way to estimate the upstream count is to apply the applicable percentage of geographical coverage to the national total.

In this case, the number of individuals benefiting from this USG upstream support could be estimated by using the three-step process shown below in Worksheet 2.1.

| Worksheet 2.1. Illustrative Steps Toward Estimating System Strengthening Results for USG Sponsored PMTCT Activities that are Sub-National | |
| --- | --- |
| 1. | From survey or surveillance findings, derive the number of HIV-infected pregnant women in the region. |
| 2. | From the same or comparable sources, derive the percentage of pregnant women who seek prenatal care (in the region, or nationally if regional estimates are unavailable). *The simplistic assumption made here for the purpose of this example is that all prenatal care includes PMTCT.* |
| 3. | Apply the percentage seeking prenatal care to the number of HIV-infected pregnant women in order to come up with your estimate. |

For **downstream** support, the *choice* of data on which to base results is limited to individual site-specific results that are derived from patient tracking systems and other information systems that are an inherent part of the operation of the point of service.

### II.2.E. Assessing the Quality of the Selected Source of Data

The quality of national-level data can be a topic of legitimate debate, but these data generally provide a consistent source (from one reporting period to the next) and their use often facilitates interaction/communication with the host government.

Checklist 2.4 (on the following page) assists in the process of assessing the quality of the data that are available and appropriate as a basis for **upstream** system strengthening results.

| Checklist 2.4. Assessing the Quality of Data for Upstream Site-Specific Results | | |
|---|:---:|:---:|
| **Question** | **YES** | **NO** |
| Evaluate the quality of the potential source of data for estimating upstream support by answering the following questions: | | |
| 1.  Are the data measuring the same thing (number of individuals receiving a particular service) that you are trying to report on? | | |
| 2.  Do the data reflect the appropriate level of coverage (e.g., national, regional, local) that you wish to report on? | | |
| 3.  Are the data complete with respect to the overall statistics you need and the disaggregated values (like sex and age group of individuals receiving services)? | | |
| 4.  Do the data cover the same time period that you wish to report on? | | |
| 5.  Are the data valid? (e.g., are they believed to be accurate?) | | |
| 6.  Can you get full access to the data that you would like to use? | | |
| 7.  Can you be reasonably sure that the same set of data will be available to you next year? | | |
| 8.  Will use of these data result in a different estimation procedure from what was done during last year's Annual Report preparation? | | |

The Emergency Plan has worked with other partners to develop an M&E Systems Strengthening Tool and a Data Quality Audit Tool that, taken together, provide the necessary protocols for evaluating the data quality of **downstream** site-specific results reporting.

Checklist 2.5 (on the following page) is based on these tools and provides the USG with a comprehensive assessment of downstream site-specific quality of reported results. Responses to these 15 questions can be analyzed for patterns associated with data quality (e.g. standard definitions, standard or compatible forms, clearly documented instructions, trained staff, availability of source documents for auditing, etc.). Those questions that receive a NO can be used to develop an M&E systems improvement plan.

| Checklist 2.5. Assessing the Quality of Data for Downstream Results | | |
|---|---|---|
| **Question** | **YES** | **NO** |
| Evaluate the data quality of downstream results by answering the following questions: | | |
| 1. Does the site have a list of operational definitions of what is being counted (e.g., what constitutes a person on treatment, a person counseled, a person tested) that meet the *Indicator and Reporting Guidance*? | | |
| 2. Are the same operational definitions systematically followed by all points of service in this Program Area? | | |
| 3. Does the site have procedures for avoiding double counting *within* each point of service (e.g., when an individual receiving the same service multiple times at the <u>same</u> service point is counted more than once)? | | |
| 4. Does the site have procedures for avoiding double counting *across* points of service (e.g., when an individual receiving the same service multiple times at <u>different</u> service points is counted more than once)? | | |
| 5. Does the reporting system enable the clear identification of a *drop out* or a person *lost to follow-up*? | | |
| 6. At each point of service, is the responsibility for data-collection clearly assigned to the relevant staff (i.e., it is in their job description)? | | |
| 7. Do all points of service use standardized or compatible data collection forms (e.g., medical records, registers)? | | |
| 8. Are clearly written instructions available on how to fill out the data collection forms? | | |
| 9. For reporting on aggregated numbers of people reached/served, do all points of service use standardized or compatible reporting tools/forms? | | |
| 10. Are clearly written instructions available on how to use the reporting tools/forms related to people reached/served? | | |
| 11. At all levels at which data are aggregated, are reports received from lower levels systematically verified for completeness and obvious mistakes? | | |
| 12. At all levels at which data are aggregated, are procedures in place to reconcile discrepancies in reports? | | |
| 13. Are quality controls in place for when data from paper-based forms are entered into a computer (e.g., double entry, post-data entry verification)? | | |
| 14. Are all data source documents (e.g., medical records, registers) available for auditing purposes? | | |

## II.3. When USG Support and Results Are Out of Balance

Justifying the connection between USG support and reported results is the essential reporting task under the Emergency Plan. It is not a straightforward task, and its solution requires a mix of empirical and subjective analysis to identify outlier cases where reported results are *out of balance* with USG support.

The data quality challenge is to determine whether the connection between USG support and reported results is reasonable and balanced.

How frequently do reported results appear out of balance? There is no good answer to this question because: (1) the expected results of USG support are often based on subjective factors; and (2) there is no standard process to identify and adjust reported outliers. The examples listed below are offered as illustrations of situations in which the USG may need to take steps to adjust outliers.

*An Upstream (Indirect) Example*

Suppose implementing partners in Country X provided a total of 60 person-days of technical assistance to the country's MOH/Dept. of HIV/AIDS for the purpose of designing, testing, and implementing the new national training curricula to be followed by all in-service HIV/AIDS clinical providers. Country X reported a total of 2,500 individuals receiving ART on the basis of its upstream system strengthening support for treatment. (2,500 is the total number receiving ART from the country's national ART program.)

Partners in Country Y provided a total of five person-days of technical assistance to ensure that the new national training curricula were copy-edited, made camera-ready, and produced in an attractive and accessible package in order to maximize use. Country Y also reported a total of 2,500 individuals receiving ART on the basis of its upstream system strengthening support for treatment. (As in Country X, the figure of 2,500 individuals represents the total number receiving ART in Country Y's national ART program.)

Country X and Country Y reported the same results based on levels of USG support that varied substantially. This comparison suggests a situation where results are *out of balance* with support.

*A Downstream Example*

Suppose an implementing partner (Partner 1) provided a $10,000 investment for partial salary support for one physician working at an NGO-managed ART delivery site. The site serves 10,000 patients. This partner reports a result of 10,000 individuals receiving ART services. Another implementing partner (Partner 2) provided site-specific support through a $1,000,000 investment for infrastructure, drugs, personnel, and quality assurance at a particular site that serves 1,000 patients. This partner reports a result of 1,000 individuals receiving ART services.

The wide disparity between the level of USG support and reported results might lead an independent observer to conclude that support and results are out of *balance.*

The steps in Checklist 2.6 should be taken to help ensure that reported results are balanced and reasonable in terms of the level of USG support. The steps are essential when large numbers are associated with upstream capacity building support to national programs.

| Checklist 2.6. Steps to Ensuring that Reported Results are Balanced and Reasonable | | | |
|---|---|---|---|
| Did you… | YES | NO | Explanation |
| 1. Use the diagnostics to assess USG support? | | | The diagnostics presented in the previous section present multiple factors for assessing USG support. These should be used as the first step toward uncovering situations where the connection between support and results appears out of balance. |
| 2. Scrutinize the result by comparing it to equivalent data points? | | | The next step involves evaluating the extent to which, for a given indicator, the reported results are substantially different than equivalent support-result connections from other partners or from other reporting periods. This evaluation gets the USG closer to identifying an outlier. |
| 3. Contrast the result with its target? | | | Does the reported result appear to be in-line with its target? If not, does the result deviate substantially from the appropriate target? Substantial deviation may be a sign that the reported results are "out of balance" with support. Further examination should determine whether results need adjustment. |
| 4. Look for reporting overlap: double counting? | | | Does the reported result significantly overlap with those of other donors and/or the host government? Double counting can also occur at a single site where multiple implementing partners all report 100% of the total number of results. When partner results are aggregated to arrive at country totals, the USG country team is expected to adjust totals downward to account for the overlap before reporting results to OGAC in the Semi-Annual Progress Report (SAPR) and the Annual Progress Report (APR). |
| 5. Relate the program-level result to the M&E Systems Strengthening Tool? | | | The M&E Systems Strengthening Tool is designed to generate quantitative assessment scores of how well equipped a reporting partner is to manage Emergency Plan results reporting. The Tool essentially asks whether the core elements of an M&E system are in place and operational. If a partner's self-assessment is low, and their results reporting for a particular program-level indicator appears out of balance, further examination is warranted. |
| 6. Conduct a data quality audit? | | | The final step toward uncovering a reporting outlier may be to conduct a data quality audit. Data quality audit tools are available, and in most cases the results of such audits can be used to verify the M&E capacity of a reporting partner, to identify specific data quality issues in results reporting, and to generate accuracy estimates for reported indicator results. |

If a reporting outlier is present, the USG must look for alternative criteria to adjust results in a way that brings them into balance with support. *Alternative criteria* might involve taking a closer look at whether USG support overlaps with other donors and/or national program activities. **If so, then the USG should consider revising its results on the basis of consultation and coordination with other donors, partners, and/or the host country government.**

## II.4. How to Create an Audit Trail for Upstream - Downstream Results

*II.4.A. The Importance of Creating an Audit Trail*

Probably the <u>single most important step</u> that the USG team can take toward increasing the quality of reported data involves documentation. To a data quality auditor, the results reported under upstream support are subject to the same rigorous standards as the downstream results. Good data quality practices require that USG teams, to the extent possible, ensure that data reporting protocols and procedures for all implementing partners are clearly documented, as shown in Box 2.3.

> ### Box 2.3.  Creating an Audit Trail for Upstream-Downstream Results
>
> 1. An "audit trail" is established (a collection of documents that includes the original source of the data and notes on any aggregation, tallying, editing, and summarizing of the data that occurs);
> 2. Results are reported in the same manner over time to ensure reliability;
> 3. Measurement and/or instrumentation error are minimized; and
> 4. The USG team and OGAC understand exactly how the results are derived.

*II.4.B. A Worksheet to Guide the Documentation of Upstream Support*

Worksheet 2.2 (on the following page) has name fields for each partner that is providing upstream support to achieve results for the particular indicator. Next to each name the USG will have a list of codes to write in based on the type of upstream support provided and the level of support (these are explained in the worksheet instructions). Completing the worksheet effectively documents all the USG-funded upstream activities that are jointly achieving results for a particular indicator at the national, regional, or district level.

This documentation task is important because a data quality auditor will typically examine the extent to which a reported result is empirically connected with the magnitude of support, and then examine this connection over multiple reporting periods in order to discern a pattern.

*USG: complete the worksheets, make and carefully store copies of the completed worksheets, and be prepared to provide one or all of them to OGAC Headquarters upon request.*

## Worksheet 2.2. Upstream Activity Documentation

**Program-Level Indicator: (example) 5.2. Number of pregnant women who received HIV counseling and testing for PMTCT and received their test results.**

| (1) Reporting Partner | (2) Type of Support (Code) | (3) Level of Support (Code) | (4) Actual Upstream Count | (5) Source of Count (Code) | (6) Estimation Procedure? | (7) Government Clearance? | |
|---|---|---|---|---|---|---|---|
| | | | | | | **YES** | **NO** |
| 1. | | | | | | | |
| 2. | | | | | | | |
| 3. | | | | | | | |
| 4. | | | | | | | |
| 5. | | | | | | | |
| 6. | | | | | | | |
| 7. | | | | | | | |
| 8. | | | | | | | |
| 9. | | | | | | | |
| 10. | | | | | | | |

**Upstream Activity Documentation:  Instructions for Completing Worksheet 2.2**

*Instructions for Column 1: Reporting Partner*

In the row(s) under this column write in the name(s) of the prime partner(s) implementing upstream activities that produce results for a particular indicator.  Use as many rows as you need to make sure that all reporting partners are included in the template.

| Codes for Column 2.  Type of Support | |
|---|---|
| **Type of Support** | **Code** |
| Training | 1 |
| Lab Support | 2 |
| Monitoring & Evaluation | 3 |
| Logistics and/or Distributions Systems | 4 |
| Policy Development | 5 |
| Protocol and/or Curriculum Development | 6 |
| Other System Strengthening _____ | 7 |

| Codes for Column 3.  Level of Support | |
|---|---|
| **Level of Support** | **Code** |
| National | 1 |
| Regional | 2 |
| District or Other Sub-Regional | 3 |
| Local or Community | 4 |
| Other Geographical Level of Support _____ | 7 |

*Instructions for Column 4: Actual Upstream Result*

Under Column 4 write in the **number of individuals reached** for the particular indicator.

| Codes for Column 5.  Source of the Upstream System Strengthening Result | |
| --- | :---: |
| **Source of Upstream System Strengthening Result** | **Code** |
| Host Government Service Statistics for National or Sub-National Area | 1 |
| Published National Survey or Projection | 2 |
| Unpublished National Survey or Projection | 3 |
| Reporting Partner Estimate | 4 |
| Other Estimate | 7 |

*Instructions for Column 6: Estimation Procedure*

Write in or attach a separate sheet of paper outlining in detail how the upstream system strengthening result was mathematically constructed.

*Instructions for Column 7: Government Clearance*

Place a check indicating "YES" or "NO" based on whether the USG was able to clear its fiscal year (FY) 2005 upstream system strengthening support estimate with the appropriate host country government agency or body.

# III. Double Counting of Program-Level Results

## Section III Objective

The objectives of this Section are to (1) outline the types of double counting that can occur during Emergency Plan reporting; (2) identify program-level indicators that are particularly vulnerable to double counting so that limited resources available to prevent double counting can be targeted; (3) provide a worksheet that prompts the USG to document potential solutions to their double counting challenges; and (4) avoid double counting of upstream and downstream results.

> ### Section III Map
>
> Section III is divided into four parts:
>
> 1. Types of Double Counting in the Emergency Plan.
> 2. Program Areas Especially Vulnerable to Double Counting.
> 3. How to Avoid Double Counting.
> 4. Understanding and Avoiding Double Counting of Upstream and Downstream Results.

## III.1. Types of Double Counting in the Emergency Plan

Double counting can occur for any of the Emergency Plan's indicators and can occur in many different circumstances. In the *Indicator and Reporting Guidance* most of the program-level indicators were accompanied by text stating that when calculating the indicator double counting should be avoided. Despite its multiplicity, the problem of double counting can be categorized into four essential types:

### Type I: Within Partner Double Counting of Individuals

One partner at one site provides the same service (training, treatment, care, etc.) multiple times to the same individual within one reporting period and counts the individual as having received the service multiple times within the same reporting period.

Example:  A reporting partner provides Counseling & Testing training to Individual B in May 2006 and the same Counseling & Testing training to Individual B in June 2006.  When reporting on "Number of individuals trained in counseling and testing according to national and international standards" the reporting partner counts Individual B twice.

Example:  The M&E specialist at a palliative care service site is counting the number of patients receiving palliative care for the reporting period.  The M&E specialist counts the total number of palliative care visits made to the site instead of the number of unique individuals who received

palliative care services during the reporting period. Since the same individual may visit the site for palliative care more than once during one reporting period, the M&E specialist is double counting individuals.

*Type II: Between Partner Double Counting of Individuals*

Two or more partners supply the same service (prevention, treatment, care, etc.) to the same individual at the same site or different sites within one reporting period and both partners add the individual to their count of the service delivery.

Example:  One reporting partner pays for staff salaries at an ARV treatment site.  Another reporting partner provides ongoing quality assurance assistance at the same ARV treatment site.  When counting the "Number of individuals receiving antiretroviral therapy at the end of the reporting period (includes PMTCT+ sites)" each reporting partner claims all of the individuals provided treatment from the clinic.

When each of these partners sends its treatment results to the USG at the end of the reporting period, the USG may not have any way of knowing that the individuals counted as receiving direct support for ART from one partner are the same individuals counted as receiving direct support for ART from another partner.  The result is that the same individual may be counted twice in one reporting period for receiving ART.

Example:  One reporting partner provides AB prevention outreach messages at a site on the East side of the city.  Another reporting partner provides AB prevention outreach messages at a site on the West side of the city.  Individual X visits the East side AB outreach site in January and participates in the outreach session.  Then, Individual X visits the West side AB outreach site in February and participates in the outreach session.

When reporting on the "total number of individuals reached through community outreach that promotes HIV/AIDS prevention through abstinence and/or being faithful," the East side counts Individual X, and the West side counts Individual X.  As a result of this, Individual X is counted twice for receiving community outreach that promotes HIV/AIDS prevention through AB in the same reporting period.

*Type III: Double Counting of Sites*

Partners provide the supplies and/or services to the same organization within one reporting period and count that organization as one of their service points.

Example:  Partner A provides M&E training to providers at the *Crossroads Blood Safety Site*.  Partner B provides blood safety equipment to the *Crossroads Blood Safety Site*.  When reporting on the "Number of service outlets carrying out blood safety activities" both Partner A and Partner B count the *Crossroads Blood Safety Site*.

Unless the USG/SI team knows that each partner has reported the same blood safety site, the site is double-counted and thus the number of blood safety sites is inflated.

*Type IV: Double Counting Due to Overlap of Upstream and Downstream Support*

A partner supports activities that result in a site (and individuals receiving services at that site) as benefiting from both upstream and downstream USG support, and the partner counts the site and individuals served under both the upstream (indirect) and downstream (direct) results. (This issue is described and depicted in Section II of this *Data Quality Assurance Tool*.) The *July 29, 2005 Guidance* describes this type of double counting as follows:

> *"It is assumed that some of the individuals who receive services at sites directly supported by the Emergency Plan are the same individuals who receive services as the result of [upstream] indirect support through national, regional or local systems strengthening. To avoid double counting, if an individual is being reached directly though a USG supported site and also indirectly through USG support to national, regional or local systems strengthening, only include the individual in the [downstream] direct counts. Individuals reached though [upstream] indirect support should be in addition to those reached via [downstream] direct support in order to make these categories mutually exclusive" (page 6).*

Type IV double counting is treated more extensively at the end of this section.

## III.2. Program Areas Especially Vulnerable to Double Counting

Double counting can occur when counting the results for any Emergency Plan indicator. However, some indicators (e.g. OVC, Palliative Care and TB, and prevention) are more prone to double counting because of the difficulty inherent in tracking the individuals being served and/or the multiple types of programs implemented to assist clients.

Partners and USG/SI teams should be extra vigilant in examining the risk of double counting when reporting results.

## III.3. How to Avoid Double Counting

On the following pages guidance is presented for avoiding each of the four types of double counting. This is not intended to address or solve all combinations and permutations of double counting, but rather is designed as a field-appropriate tool to effectively **manage the problem**.

| Worksheet 3.1. Guidance on How to Avoid Double Counting | |
|---|---|
| **Type of Double Counting** | **Guidance** |
| **Type I** | 1) In the same Program Area an individual may receive multiple training and services, but that individual can only count once toward "number of individuals trained" and once toward "number of individuals who received" a given service. <br><br> 2) Every partner must be encouraged to find a way to uniquely identify each individual receiving a service so that at the end of the reporting period there are accurate, legible lists of individuals (by name, by ID number) that can be used to make direct counts of individuals receiving training and/or service provision. <br><br> 3) For reporting on number of individuals receiving a service, count unique names, not number of visits to a site. <br><br> 4) Once an individual visits a site to receive a service, that person's name or ID should be listed only once, with a separate, nested field created to record how many subsequent times the individual visits the site and receives a service. |
| **Type II** | USG/SI teams should be able to *quantify* the extent to which, for any Program Area, more than one reporting partner claims the same individual as receiving a service or the same site as benefiting from support. The magnitude of this type of double counting is unknown. Special studies could be designed (e.g., matching names of individuals across multiple partner reporting systems) to generate estimates of the fraction of results that is attributable to Type II double counting, but until then, the focus should be on minimizing the potential for double counting. <br><br> Preventing this type of double counting mostly involves <u>mapping</u>: depicting the exact locations of partners and sites across a paper or computerized representation of the program landscape, and then attaching to that map details about Program Area, the number and population characteristics of individuals receiving services, and so on. Simple or complex, such maps allow the USG/SI teams to (1) identify places where multiple partners are potentially overlapping in their support; and (2) work with partners toward uncovering and rectifying the double counting problem. (See Table 10.) |
| **Type III** | The USG/SI team should draw a geographically accurate map of all the service delivery sites in the country program. Each site should be coded to signify Program Area, Implementing Partners that provide support to the site, and type of support. At a minimum the USG/SI team should know: <br><br> 1) Exactly how many service delivery sites are in the country; <br><br> 2) What Program Area(s) is/are represented at each site; and <br><br> 3) Which Partners provide what kind of support to the site. This knowledge forms the basis for communication between the USG/SI team and the relevant partners about the risk of double counting sites. |
| **Type IV** | See the section in this Diagnostic on "Visual Representation of the Dynamic Relationship between Direct and Indirect Support and Results." The three diagrams presented in that section clarify the different ways that the USG/SI team must calculate total numbers reached by accounting for potential overlap between direct and indirect support. |

Worksheet 3.2 (below) is one example of the kind of matrix that would allow the USG to categorize sites by Program-Level Indicator and reporting partner. The worksheet could be copied into a spreadsheet or photocopied for each Indicator. Codes should be used to identify reporting partners in order to avoid entering all partner names into the small worksheet spaces.

The idea of a matrix for Type II Double Counting originates with the *July 29, 2005 Guidance*. The specific language is taken from page 15, but is duplicated for several indicators throughout the Guidance:

*"In order to avoid double counting, countries will need to monitor their activities by partner, programmatic area, and geographic area. This matrix is an excellent program management tool as well as helping to adjust for double counting by partner, among partners, and among USG agencies" (page 14).*

| Worksheet 3.2. Matrix for Type II Double Counting | | |
|---|---|---|
| **Program-Level Indicator:** _____ | | |
| **Name and Location of Site** | **USG Partners that Provide Support to the Site [Use Partner Codes for Ease of Entry]** | **Check ✓ if multiple partners present at site** |
| 1. | 1._____  4. _____<br>2._____  5. _____<br>3._____  6._____ | |
| 2. | 1._____  4. _____<br>2._____  5. _____<br>3._____  6._____ | |
| 3. | 1._____  4. _____<br>2._____  5. _____<br>3._____  6._____ | |
| 4. | 1._____  4. _____<br>2._____  5. _____<br>3._____  6._____ | |
| 5. | 1._____  4. _____<br>2._____  5. _____<br>3._____  6._____ | |
| 6. | 1._____  4. _____<br>2._____  5. _____<br>3._____  6._____ | |
| 7. | 1._____  4. _____<br>2._____  5. _____<br>3._____  6._____ | |
| 8. | 1._____  4. _____<br>2._____  5. _____<br>3._____  6._____ | |

**Summary**: Without attention to key issues, the impact of double counting could be problematic. However, the USG should try to do three things:

1. Understand and be able to identify each of the four essential types of double counting that commonly occur in Emergency Plan program-level results reporting.
2. Identify where the greatest risk of double counting is likely to occur due to the concentration of partners, client populations, weaknesses in M&E capabilities, etc.
3. Manage activities to prevent double counting by using the Worksheets presented in this *Data Quality Assurance Tool.* Initial activities could include exploring opportunities to increase partners' abilities to track individuals, and encouraging partners to coordinate and share information on **how they empirically connect USG support and program-level results**.

OGAC is considering performing specific country and indicator specific surveys/studies to try to develop (1) robust estimates of the extent of double counting in the Emergency Plan; and (2) double counting adjustment methodologies. Some Emergency Plan countries are beginning to explore methods to address the data quality challenge of double counting.

### III.4. How to Avoid Double Counting when Upstream System Strengthening Support Leads to Site-Specific Results

On the following pages three diagrams are presented (Diagrams 3.1-3.3). In each diagram upstream and downstream support are shown as leading to downstream results in different ways.

The diagrams also provide a graphical illustration of how <u>service delivery sites</u> represent the primary boundary between upstream and downstream support.

Three diagrams are used instead of one because upstream and downstream support and results are conceptualized differently depending upon a number of factors, including the nature of the national HIV/AIDS program, the distinction between public and private patients/clients, and the nature of USG support within a given country.

In two of the three cases depicted by the diagrams there is the potential for double counting because upstream and downstream results can overlap at service delivery sites.

Each of the diagrams is followed by the formula that needs to be applied in that context in order to avoid double counting.

**Diagram 3.1.** Example: Emergency Plan country program in which all "Downstream" USG support for ARV treatment occurs in sites also associated with "Upstream" USG support to the National HIV/AIDS Program.

**UPSTREAM SYSTEMS STRENGTHENING ACTIVITIES**

- Training at national level
- Lab support
- M&E
- Logistics
- Procurement systems

- Policy development
- Protocol development
- Curriculum development
- Capacity development
- Other

**USG Staff & Partners**

**DOWNSTREAM SITE-SPECIFIC ACTIVITIES**

- Commodities
- Staff salaries
- Drugs
- Supervision
- Quality assurance

- TA for reporting / HMIS
- Infrastructure
- Supplies
- Training at site
- Other

X

Y
(Subset of X)

**X = Estimate of the national, regional, & local level number of individuals receiving ART services.**

**Y = Counts of uniquely identified individuals receiving ART at USG supported sites.**

**Total # of Individuals Receiving ART in the Country**

**X**: The total number of individuals receiving ART through the national HIV/AIDS program. (Assumes that the Upstream support is a <u>national level activity</u>, e.g., a national drug supply chain system.)

**Y**: The total number of individuals receiving ART and counted as Downstream at those <u>specific sites</u> benefiting from USG support.

To avoid double-counting of individuals that receive both Upstream and Downstream support, the reported number of individuals receiving upstream (indirect) ART should be equal to **X – Y.**

**Diagram 3.2.** Example: Emergency Plan country program in which PMTCT "Upstream" USG support is associated with public sector (national program) sites and Downstream USG support is directed to both public and private sites.



**UPSTREAM SYSTEMS STRENGTHENING ACTIVITIES**

- Training at national level
- Lab support
- M&E
- Logistics
- Procurement systems
- Policy development
- Protocol development
- Curriculum development
- Capacity development
- Other

**USG Staff & Partners**

**DOWNSTREAM SITE-SPECIFIC ACTIVITIES**

- Commodities
- Staff salaries
- Drugs
- Supervision
- Quality assurance
- TA for reporting / HMIS
- Infrastructure
- Supplies
- Training
- Other

X = Estimates of the national level number of individuals receiving PMTCT services.

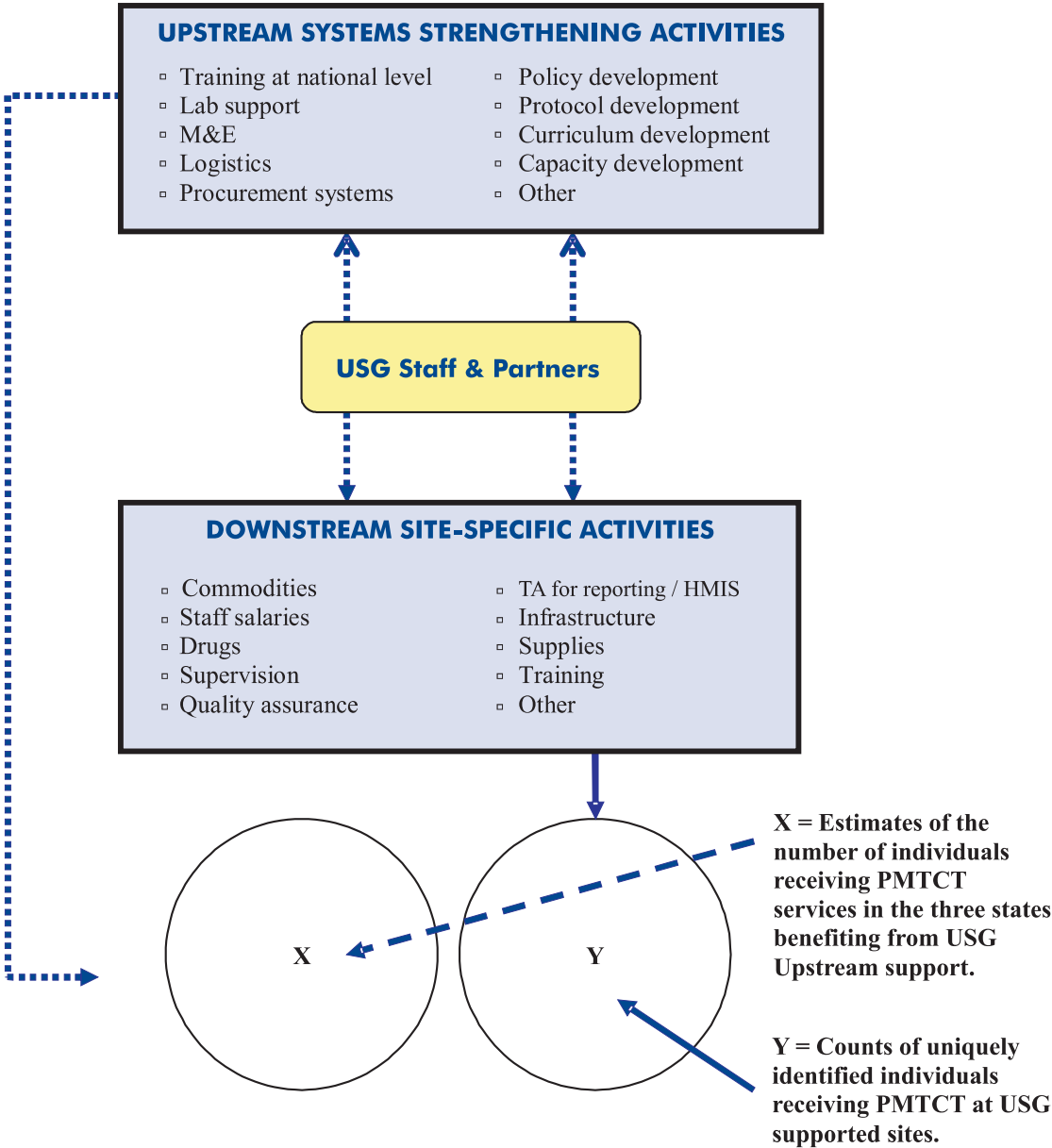Y = Counts of uniquely identified individuals receiving PMTCT services at USG supported sites.

Here the USG supports the national HIV/AIDS program that only benefits public sector sites (e.g., a PMTCT standards & practice training of public sector providers). The assumption is that every individual reported in the public sector as receiving PMTCT services benefits from this **Upstream** support (**X**).

USG **Downstream** support (**Y**) in PMTCT overlaps with (**X**) because it occurs at some public sector sites supported by the national program. Therefore (**XY**) is a subset of those individuals estimated as benefiting from USG **Upstream and Downstream** support in PMTCT. **XY** should equal the sum of individuals seen at those public sector sites that receive downstream support and are associated with the national program.

To avoid double-counting of individuals that receive both upstream and downstream support, the total reported number of individuals receiving PMTCT = **X + Y − XY. Those using COPRS should check instructions for entering upstream (indirect) and downstream (direct) results.**

**Diagram 3.3.** Example: Emergency Plan country program where the individuals benefiting from Upstream USG support to the National PMTCT Program do not overlap with the individuals that benefit from Downstream USG support for PMTCT.



**UPSTREAM SYSTEMS STRENGTHENING ACTIVITIES**

- Training at national level
- Lab support
- M&E
- Logistics
- Procurement systems
- Policy development
- Protocol development
- Curriculum development
- Capacity development
- Other

**USG Staff & Partners**

**DOWNSTREAM SITE-SPECIFIC ACTIVITIES**

- Commodities
- Staff salaries
- Drugs
- Supervision
- Quality assurance
- TA for reporting / HMIS
- Infrastructure
- Supplies
- Training
- Other

X

Y

**X = Estimates of the number of individuals receiving PMTCT services in the three states benefiting from USG Upstream support.**

**Y = Counts of uniquely identified individuals receiving PMTCT at USG supported sites.**

Here all PMTCT interventions are sub-national. For example, in three states (**X**), the USG supports state-level training of public health PMTCT providers; there are no USG directly supported sites in these three states.

Outside of these three states (**Y**), the USG is directly supporting some number of PMTCT sites that do not benefit from any Upstream support for PMTCT services.

The total number of individuals receiving PMTCT services in this example = **X + Y**, because there is no need to adjust for the possibility of double counting.

# IV. Comparing Program-Level Results over Multiple Reporting Periods

## Section IV Objective

The objective of this Section is to outline the usefulness of comparing program-level results over multiple time periods and to introduce simple techniques for identifying data quality outliers.

> ### Section IV Map
>
> Section IV is divided into three parts:
>
> 1. Reliability and Program-Level Results.
> 2. Comparing Program-Level Results over Time.
> 3. Documenting Outliers.

## IV.1. Reliability and Program-Level Results

Reliability is a key dimension of data quality. Data are reliable if, over multiple reporting periods, you have measured the same thing in the same way. Only by using reliable data over time can program managers evaluate the effectiveness of their program and determine the direction and efficiency of their program. Reliable data help to inform effective management decisions, such as where to invest additional resources.

The availability of reliable data from one reporting period to the next allows for the comparison of reporting results over time. Time comparisons can quickly alert Emergency Plan managers and other stakeholders of changes in performance, programmatic gaps to be filled, and whether targets are being met; such information leads to refined strategic planning and can be important tools for policy development.

### IV.1.1. Example of Data Sources

With the continuous production of Annual and Semi-Annual Progress Reports USG/SI teams and OGAC have an increasing ability to compare program-level results over time, e.g.:

1. The FY04 Annual Report – through September 2004.
2. The FY05 Semi-Annual Report – Oct. 1, 2004 through March 31, 2005.
3. The FY05 Annual Report – Oct. 1, 2004 through Sept. 30, 2005.
4. The FY06 Semi-Annual Report – Oct. 1, 2005 through March 31, 2006.
5. The FY06 Annual Report – Oct. 1, 2005 through Sept. 30, 2006.
6. Etc.

These data will provide OGAC with its first opportunity to compare the results from Year 1 of the Emergency Plan to the full 12-month results from Year 2.* At a minimum, the FY05 Annual Report results can be compared to the FY05 Country Operational Plans (COP) targets set for Sept 2005 (revised in the FY05 Semi-Annual Report) for the purpose of strategic planning and program improvement.

COPs and their other bilateral country equivalents also contain annual targets against which program-level results should be compared. *It is essential that results are compared with targets over multiple reporting periods in order to discern issues of data quality.*

The problem is that without standard levels of data quality, none of these data points is comparable over time. More specifically, unless the data reported at each time period represent valid measurements and are measured in the same way over time, then comparisons over multiple reporting periods are not meaningful.

* The FY04 Annual Report technically covers the period from late January, 2004 (when the first appropriation of funds from the Congress occurred) to September 30, 2004. This is an eight-month period, compared to the FY05 Annual Report which covers the full 12 months from October 1, 2004 to September 30, 2005.

## IV.2. Comparing Program-Level Results over Time

### IV.2.A. *Three Data Quality Factors Affecting Comparing Results over Time*

Three basic factors affect the data quality of program-level results comparisons over time:

#### Programmatic

The results from one reporting period could appear inconsistent with the equivalent results from another reporting period because of real changes in program implementation and increased or decreased program activity.

#### Measurement

Changes in Emergency Plan indicator definitions could result in program-level results being measured in different ways across time periods. In this case, the results from one reporting period would not necessarily be directly comparable with the results from another reporting period.

#### Instrumentation

Instrumentation refers to the way in which data are collected. The methods used to collect and compile results during one reporting period may not be the same methods used to collect and compile results during the next reporting period. As a result of this "instrumentation bias" the two sets of results may not be directly comparable.

### IV.2.B. Examples of Comparisons to Check for Data Quality

There are several "natural comparisons" that USG/SI teams can already make. Here, we highlight two obvious contrasts: (1) comparing the FY04 Annual Report and the FY05 Annual Report; and (2) comparing the Revised FY05 COP targets and the FY05 Annual Report.

For each indicator, or for a subset of key indicators that USG/SI teams can choose, the USG/SI teams should plot or otherwise depict such comparisons so that the change over time (or for the same time period if comparing targets to results) can be visually assessed. The teams should then examine the comparisons for logical progression of results from one reporting period to the next.

For example, what is the difference between the FY04 Annual Report result and the FY05 Annual Report result? Does the difference look reasonable? Why or why not? Are there any other reported values in the sets of comparison that appear to represent substantial departures from logical or expected results?

Where <u>large deviations</u> from the expected trend occur, the reporting partners should investigate and be prepared to provide an explanation. Specific issues are presented below.

### IV.2.C. Comparing the FY04 Annual Report and the FY05 Annual Report

Although it should be clear that the "first year" of the Emergency Plan was actually abbreviated, the results from the FY04 Annual Report were nevertheless reported in the First Annual Report to Congress and for all practical purposes constitute the Project baseline. Understanding that the direct comparison is compromised by unequal time periods, it still makes sense to place results from the two Annual Reports side-by-side in order to have a starting point for examining progress over time.

For a number of reasons the program-level results from the FY05 Annual Report should be larger than for the abbreviated first year. If not, then this is an obvious area in which documented explanations are called for. At the same time, it is reasonable to assume that for many reporting partners (and USG/SI teams) the M&E capacity needed to effectively satisfy Emergency Plan reporting requirements was uneven and under development during the first year of the Project. As a result of this, it is likely that data quality issues played a more significant role in the reporting process during the first year of the Project, and this could help to explain those comparisons where the FY05 Annual results appear wholly out of line with the FY04 Annual results.

### IV.2.D. Comparing the Revised FY05 COP targets and the FY05 Annual Report

Perhaps the most obvious programmatic comparison involves viewing the FY05 Annual results with the FY05 COP (Table 2) targets that in some cases were revised in the FY05 Semi-Annual Program Results. The essential question to ask here is: "Were the FY05 targets met?" Unlike the percentage of targets met during FY04, when there was scant data and experience on which to base the setting of targets, the FY05 targets should prove relatively more accurate or realistic. The USG/SI teams should be prepared to work closely with partners in order to explain and document situations where the FY05 COP targets and the FY05 Annual Report results are substantially divergent.

*IV.2.E. Using Three Data Points to Compare Treatment Results*

There is a special situation in which the USG/SI team can plot the time period results for individuals receiving ART using the FY04 Annual Results, the FY05 Semi-Annual Program Results, and the FY05 Annual Results. Such a comparison over reporting periods is only possible with the treatment indicator since it is measured at the end of the time period, and the number on treatment is expected to continue to rise over time as new patients on ARVs are added to patients continuing treatment, with some discontinuation due to loss to follow-up or death. Since results for the other relevant indicators are period data; the two 12-month results would presumably be out of line with the six-month result. The unique situation available by using the treatment results could result in a plot like the one shown in Figure 4.1 below.

**Figure 4.1.** Time Series Plot Showing a Logical Progression in the Total Number of Individuals Reached with ARV Treatment over Three Emergency Plan Reporting Periods in a Country: September 30, 2004; March 31, 2005, and September 30, 2005.
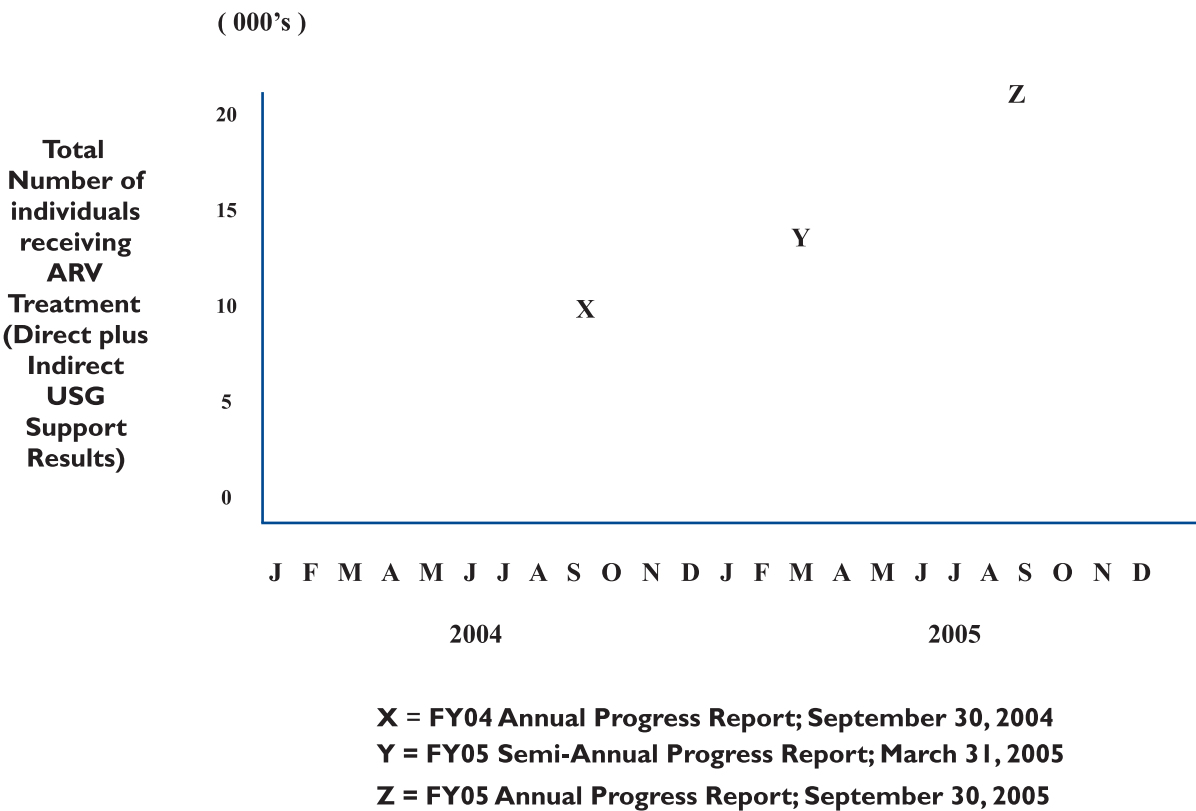


Figure 4.1 shows the result of plotting the results for a given indicator (in this case the number of individuals reached with ART) in a given country over three time periods. The time series shows that the progression in number of individuals reached with treatment is logical; it does not appear to deviate from what might be expected in terms of program results.

Specifically, Figure 4.1 indicates that a total of approximately 10,000 individuals were reported as reached with USG support for ART by September 30, 2004; about 13,000 were reported as reached by March 31, 2005; and about 20,000 individuals were reported as reached with USG support for ART by September 30, 2005.

Figure 4.2 (below) depicts an Emergency Plan country program where the progression of Treatment results appears to deviate from the expected or logical pattern. The plot reveals the presence of an "outlier" that should prompt the USG/SI team to conduct further analysis and document the likely reasons for the deviation in results over time.

**Figure 4.2.** Time Series Plot Showing an Outlier Trend in the Total Number of Individuals Reached with ARV Treatment over Three Emergency Plan Reporting Periods in a Country: September 30, 2004; March 31, 2005, and September 30, 2005.

( 000's )

```
                    20 ┤

Total
Number of
individuals         15                           Y              Z
receiving
ARV
Treatment           10                    X
(Direct plus
Indirect
USG                  5
Support
Results)
                     0
                       └─────────────────────────────────────────
                        J F M A M J J A S O N D J F M A M J J A S O N D

                              2004                        2005
```

X = **FY04 Annual Progress Report; September 30, 2004**
Y = **FY05 Semi-Annual Progress Report; March 31, 2005**
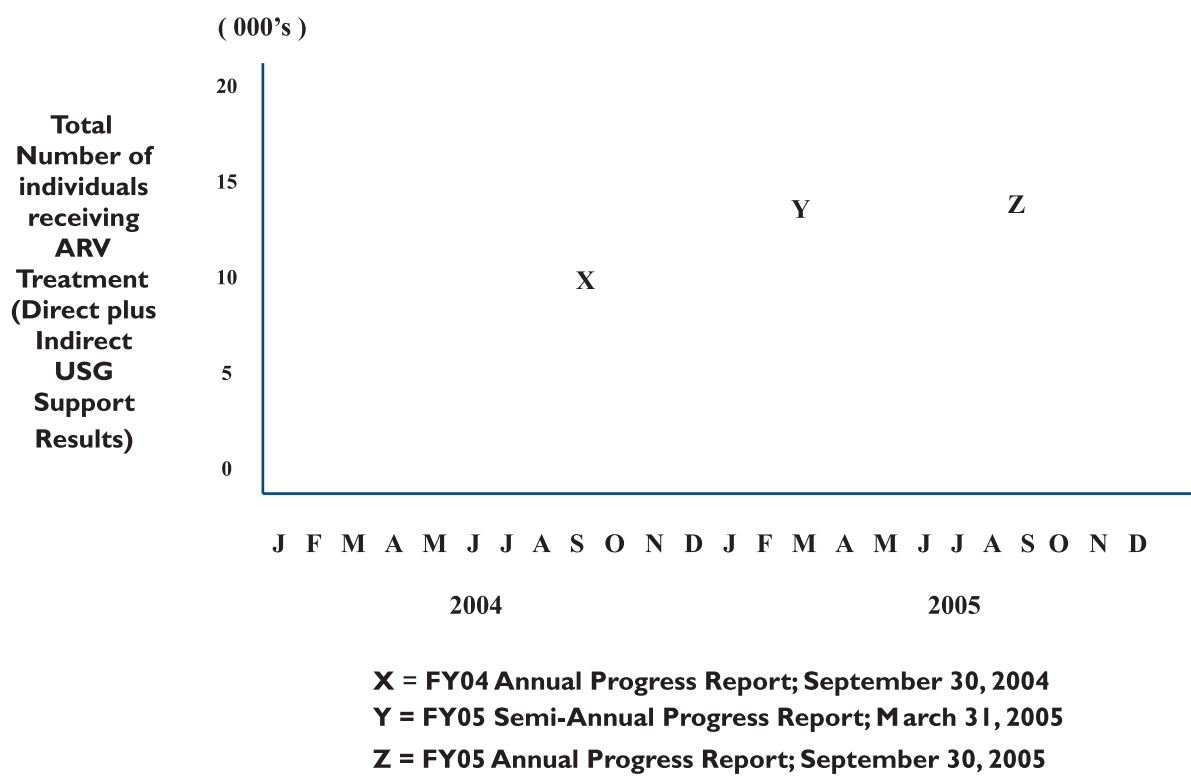Z = **FY05 Annual Progress Report; September 30, 2005**

Figure 4.2 shows that the progression in number of individuals reached with treatment appears to deviate from what might be expected in terms of program results. Specifically, Point Z suggests that the number of individuals reported as reached with USG support for ART had not increased over the six months between March 31, 2005 and September 30, 2005.

Rapid scale-up of HIV/AIDS Treatment support is a basic goal of the Emergency Plan. Consequently, the expected time series pattern would show a progressive increase in the numbers of individuals reached with USG support for ART from one reporting period to the next.

In Figure 4.2 Point Z is an outlier; it substantially deviates from the expected pattern. The first question to be asked is whether the outlier resulted from a data manipulation error such as a data entry error, an arithmetic error that might have occurred during aggregation or analytical steps, or simply a misreporting by one or more partners. If these possibilities are eliminated, then additional steps should be taken to try to document the reason for the outlier. Procedures for identifying, explaining, and documenting outliers are outlined on the following page.

## IV.3.  Documenting Outliers

In the case of treatment results, the opportunity exists to construct a useful time series. Figure 4.1 uses older program results to show an <u>expected progression</u> in program-level results across reporting periods, while Figure 4.2 shows an <u>outlier</u> in program-level results. The task for which the USG/SI team is responsible is ***documenting the outlier***.  Doing so consists of three parts:

1. Identify the outlier and briefly describe why it is considered an outlier;
2. Explain the most reasonable cause of the outlier; and
3. Document whether and how OGAC should explain (or in some cases adjust) the outlier for the purpose of achieving a reliable set of time series data that can be compared across multiple reporting periods with confidence.

Checklist 4.1 (below) is designed to assist the USG/SI team in documenting any potential outliers in program-level results across multiple reporting periods.

| Checklist 4.1.  Identifying an "Outlier" by Comparing Results over Time | | |
|---|---|---|
| **Question** | **TRUE** | **NOT TRUE** |
| 1. We have compared all of our (e.g.) FY05 APR program-level results with their equivalent FY04 APR results. | | |
| 2. We have compared all of our (e.g.) FY05 APR program-level results with our FY04 APR results <u>and</u> with our FY05 Semi-Annual results. | | |
| 3. Based on our comparisons there were no outliers in any of our program-level results. | | |
| 4. If the answer to #3 above is "NOT TRUE" then proceed to the documentation template (next page). | | |

Worksheet 4.1 (on the following page) provides a worksheet for documenting outliers in program-level results that have been identified by the USG/SI team.  An outlier is any result that the USG/SI team decides does not fit the expected pattern of change over time.

Remember that an outlier is not necessarily a problem.  Rather, it should alert the USG/SI team to look more closely at the result and come up with plausible explanations for its presence.

Based on these explanations, a plan of action might be outlined which could include such tasks as contacting the relevant reporting partners and/or contacting the appropriate SI Advisors, etc.

## Worksheet 4.1. The "Outlier" Documentation Worksheet*

1. In the space below, write the Program-Level Indicator that you have identified as an outlier:

 

2. In which specific reporting period does this Indicator appear to deviate from its expected pattern?

 

3. In one sentence state why the result is considered an outlier:

 

4. Briefly note your explanation(s) for the outlier:

 

5. Briefly outline any action steps that should be taken:

 

\* Applicable for comparing treatment results across the FY04 Annual Report, the FY05 Semi-Annual Report, the FY05 Annual Report, and the FY06 Semi-Annual Report.

# V. Appendix

## V.1. Important Downstream (Direct) and Upstream (Indirect) Definitions

There are at three important sources for defining downstream (direct) and upstream (indirect) support from OGAC. The relevant sections from two of these documents are quoted verbatim below, in no particular order. All formatting (e.g., headings, bullets, text boxes) and emphasis (e.g., italicized or underlined text) are original. It should be noted that one of the three important sources (the *Indicator and Reporting Guidance*) has recently undergone revision so is not quoted in this Appendix, but its language will closely mirror that of the *FY07 COP Guidance* shown below.

1. **The President's Emergency Plan for AIDS Relief: FY 2007 Country Operational Plan Guidance. (Pages 24-25)**

*USG DOWNSTREAM (DIRECT) SUPPORT:*

Projects the number of individuals receiving prevention, care and treatment services through service delivery sites/providers that are directly supported by USG interventions/activities (commodities, drugs, supplies, supervision, training, quality assurance, etc.) at the point of service delivery. An intervention or activity is considered to be a type of "downstream (direct) support" if it can be associated with counts of uniquely identified individuals receiving prevention, care and /or treatment services at a unique program or service delivery point benefiting from the intervention/activity.

*USG UPSTREAM (INDIRECT) SUPPORT:*

For upstream (indirect) results, project the number of individuals receiving prevention, care and treatment services, beyond those counted above under downstream (direct) USG support, as a result of the USG's contribution to system-strengthening or capacity-building of the national HIV/AIDS program as a whole.

Examples of upstream (indirect) support include:

- Development of national HIV/AIDS policies
- Development and implementation of national HIV/AIDS clinical standards and guidelines, as well as associated training protocols and programs
- Technical assistance for the development and maintenance of national commodity and drug procurement and logistics systems
- National laboratory support
- Technical assistance for strategic information activities such as surveillance and facility-based health management information systems.

It is assumed that some of the individuals who receive services at sites directly supported by the Emergency Plan are the same individuals who receive services as the result of upstream (indirect) support though national systems strengthening. To avoid double counting, if an individual is being reached directly through a USG supported site and also indirectly through USG support to national systems strengthening, only include the individual in the downstream (direct) counts. Individuals reached through upstream (indirect) support should be <u>in addition</u> to those reached via downstream (direct) support in order to make these categories <u>mutually exclusive</u>.

## 2. Action Today, A Foundation for Tomorrow: The President's Emergency Plan for AIDS Relief, Second Annual Report to Congress.

**Note**: At the end of each of the Prevention, Treatment, and Care Chapters of the *Second Annual Report to Congress* a section titled "Accountability" includes definitions of downstream and upstream support. The definitions are repeated in each of these three chapters and do not change; therefore it is not necessary to quote them more than once.

The verbatim section on *Accountability* that includes definitions of downstream and upstream support shown below is taken from page 37 of the chapter on prevention.

### *Accountability: Reporting on the Components of Prevention*

The First Annual Report to Congress of the Emergency Plan described ways in which U.S. support is provided. Where partnership limitations or technical, material or financial constraints require it, the Emergency Plan, or another international partner, may support every aspect of the complete package of prevention, treatment, or care services at a specific public or private delivery site, in coordination with host-country national strategies.

### *Downstream Support*

In many areas, the Emergency Plan will coordinate with other partners to leverage resources at a specific site, providing those essential aspects of quality services that others cannot provide due to limited technical and/or financial circumstances. For example, in some settings components of services are provided to specific sites through the host-country government or other international partners such as the Global Fund to Fight AIDS, Tuberculosis and Malaria, while the Emergency Plan may contribute other essential services, training, commodities, and infrastructure. "Downstream" site-specific support refers to these instances where the Emergency Plan is providing all or part of the necessary components for quality services at the point at which services are delivered.

### *Upstream Support*

Beyond the site-oriented downstream components of services, support is required to provide other critical elements, which may include the training of physicians, nurses, laboratory technicians, other health care providers, and counselors or outreach workers; laboratory systems; strategic information systems, including surveillance and monitoring and evaluation systems; logistics and distribution systems; and other support that is essential to the roll-out of quality services. This coordination and leveraging of resources optimizes results while limiting duplication of effort among international partners, with roles determined within the context of each national strategy. Such support, however, often cannot easily be attributed to specific sites because it is national or regional in nature, and, in fact, many sites benefit from these strategic and comprehensive improvements. Therefore, this support is referred to as "upstream" support and is essential to developing sustainable network systems for prevention, treatment, and care.