



# **Functional Requirements for a United States President’s Emergency Plan for AIDS Relief monitoring, evaluation, and reporting reference app for South Africa**

## **PEPFAR MER 2.0 Reference App for South Africa**

### **1. Goals/Scope**

The purpose of this application (app) is to provide a more available version of the United States President’s Emergency Plan for AIDS Relief (PEPFAR) monitoring, evaluation, and reporting (MER) reference guide to its implementing partners required to report on PEPFAR indicators in South Africa. The app will equip PEPFAR partners with a reference app that guides them through the indicator reporting requirements and how they link to the South African context (e.g., national guidelines, national protocols, and data sources for South Africa). A mobile app with offline data access will allow users to access downloaded content without an internet connection. Ultimately, the goal is that this reference will help partners more effectively report on improvements in HIV/AIDS service delivery.

### **2. Background**

Digital Square (PATH) is a partnership between the United States Agency for International Development (USAID) and PATH to mobilize and coordinate digital health resources. Digital Square’s aim is to enable the global digital health community to move beyond the stasis caused by perpetual piloting of experimental projects, strengthen the existing ecosystem for digital health investments, and encourage new investments from traditional and nontraditional donors.

USAID has been supporting South Africa’s efforts to strengthen information systems and information use in the health sector for several years and is keen to continue providing assistance to tackle these challenges. PEPFAR is the US Government’s initiative to help save the lives of those infected with and affected by HIV/AIDS around the world. In South Africa, PEPFAR supports the national HIV and AIDS program to provide more than 3.7 million South Africans with antiretroviral treatment (ART)—saving countless lives, keeping families together, and increasing South Africa’s overall economic productivity.

PEPFAR is currently focusing on sustainable control of the epidemic through attainment of the Joint United Nations Programme on HIV/AIDS’ (UNAIDS’) ambitious 90-90-90 global goals: 90 percent of people with HIV diagnosed, 90 percent of them on ART, and 90 percent of them virally suppressed by 2020.



Indicators are an essential component of effective monitoring and evaluation systems, in this context providing information to help effectively manage responses to the AIDS epidemic. A MER 2.0 guidance document provides a reference about indicators and is meant to streamline and prioritize indicators for PEPFAR programs. The app will provide a reference tool to help standardize and improve the monitoring, reporting, and usage of MER indicators in South Africa.

### **3. Software Vendor Scope of Work and Deliverables**

#### **Scope of work:**

- To develop a mobile app, available on specified platforms and usable on phone and tablet devices, that meets or exceeds the requirements outlined.
- To review the business processes, requirements, and user scenarios defined by USAID South Africa.
- To collaborate closely with the USAID and PATH teams, using an agile or iterative development methodology, throughout the assignment.
- To refine the requirements and develop technical specifications and documentation.
- To track development, issues, and defects in a systematic way.
- To test the software against requirements and specifications.
- To provide a mechanism for user feedback and testing during the process.
- To provide an opportunity for a code review.
- To develop user documentation.
- To orient and train the USAID administrator to update and maintain content. Work will be onsite in Pretoria, South Africa.
- To deploy the app for mobile and tablet devices and on iOS and Android operating systems.

#### **Deliverables**

The selected software developer will be required to deliver:

- Mockups and user interface design for review by USAID and PATH.
- Final documentation of requirements and design.
- Written manual/user guide for administrator.
- Prototype of app for tablet and smartphone.
- Published app for Android and iOS.
- Source code for the app. All source code will be released under free and open source licenses.
- Cost estimates and requirements for sustaining the app (hosting, updating, etc.).

## 4. Users

User	Wants and needs
Monitoring and Evaluation Officers of implementing partners	Easily access and navigate app to better understand MER requirements and how to comply with them with South Africa data sources and systems.
PEPFAR program staff	Easily access MER definitions during site visits and partner management.
PEPFAR MER Manager for South Africa (administrator)	Easily manage and update content and monitor usage without requiring technical skills.

Note: MER indicators are managed globally by Data for Accountability Transparency Impact Monitoring (DATIM) staff, which will not be primary users for this app.

## 5. User Stories and Acceptance Criteria

The table below outlines user requirements. In general, the app must be user-friendly and intuitive to navigate.

### The app

Process	User story	Acceptance criteria
<b>Core app and indicator functionality</b>		
Access the app	As a user, I need to be able to download and install the app on my mobile phone or tablet.	<ul style="list-style-type: none"> <li>Published to and available on multiple app stores (Apple App Store for iOS, Google Play Store for Android).</li> <li>Available for Android.</li> <li>Available for iOS.</li> <li>Available in mobile and tablet versions, where available, or designed for tablet viewing when not available.</li> <li>Content is pre-loaded on the app when it is installed (i.e., no additional steps are required to load content for the first time.)</li> </ul>
Access the app	As a user, I need to be able to use the app while offline.	<ul style="list-style-type: none"> <li>Content is available when offline.</li> </ul>
Share the app	As a user, I need to be able to share a link to the app so that other potential users can be made aware of it and install it.	<ul style="list-style-type: none"> <li>Allow user to share link to download app. (This can be done through existing app store functionality.)</li> </ul>
New user orientation	As a new user, I need to be able to open the app to a loading of splash screen with the name of the app so that I immediately know what the app is.	<ul style="list-style-type: none"> <li>Loading opens a splash screen. This is a branding preference.</li> <li>Allow users to quickly see the name of the app and the PEPFAR logo.</li> </ul>

Process	User story	Acceptance criteria
New user orientation	As a new user, I need to be able to receive an orientation to the app so I understand what is available in it and how to navigate it.	<ul style="list-style-type: none"> <li>• Introduction of PEPFAR and the app content.</li> <li>• Enables user to navigate to a menu with User Orientation content, shown in Appendix A: boxes 4, 5, and 6 of the diagram.</li> </ul>
Returning user open	As a returning user, I need to be able to skip the orientation so that it is faster to navigate to the content I need.	<ul style="list-style-type: none"> <li>• Enables user to skip orientation and begin using the app.</li> </ul>
User orientation	As a user, I need to be able to view a brief background on PEPFAR South Africa program so that I can learn more about it and what it does.	<ul style="list-style-type: none"> <li>• Should have key words highlighted, with functionality such a pop up with definition when screen is tapped on key words.</li> </ul>
User orientation	As a user, I need to be able to view a brief summary of the indicators so that I know what's available in the app.	<ul style="list-style-type: none"> <li>• Should populate info with key words highlighted.</li> <li>• Key words pop up with definition on screen tap.</li> </ul>
User orientation	As a user, I need a guide on how to navigate and use the app so that I can find what I'm looking for.	<ul style="list-style-type: none"> <li>• Able to find basic content describing how to use the app.</li> </ul>
Indicators	As an M&E Officer, I need quick access to the section with indicators so that I can navigate to the primary use for the app quickly.	<ul style="list-style-type: none"> <li>• Multiple options for an effective layout should be considered for this, such as</li> <li>• Indicators should be accessible with one tap in the app (e.g., by a set menu on the screen).</li> <li>• The indicators section should help users see a connection between the app and the DATIM reporting platform (see Annex D), such as through use of a similar color scheme and font.</li> <li>• Indicator ranges can be displayed as color-coded.</li> </ul>
Select favorites	As a user, I need to be able to bookmark content so that I can quickly access the content I need with less navigation.	<ul style="list-style-type: none"> <li>• User can add pages to favorites so they are easy to navigate to.</li> </ul>
Learn more	As a user, I need to be able to learn more about the organizations tied to the app to understand who created this app and why.	<ul style="list-style-type: none"> <li>• About: Include details about the organizations responsible for the app (Digital Square, PEPFAR, and USAID).</li> </ul>

Process	User story	Acceptance criteria
Learn more	As a user, I need to be able to find other resources with website links so that I can find resources to help me do my job more efficiently.	<ul style="list-style-type: none"> <li>Resources: Include links to PEPFAR, USAID, CDC, and other US Government related sites.</li> <li>For future scalability, location-specific references should be tracked, such as through a country attribute with South Africa-specific resources differentiated.</li> </ul>
View indicators	As a partner M&E Officer, I need to be able to view indicators so that I can understand their definitions, purpose, data elements, and related indicators.	<ul style="list-style-type: none"> <li>For each grouping of indicators, include a menu page with all indicators under that section.</li> <li>Indicator groups: <ul style="list-style-type: none"> <li>1st 90</li> <li>2nd 90</li> <li>3rd 90</li> <li>Health System Strengthening</li> <li>Prevention</li> </ul> </li> <li>For each indicator include content in sections that are collapsible. Sample content is available in Annexes B and C.</li> <li>Indicators should allow for the potential for location-specific indicators (South Africa in this version), so data should include a way to differentiate global or country-specific indicators.</li> </ul>
Search app	As a user, I need to be able to search the app so that I can quickly find content.	<ul style="list-style-type: none"> <li>Provide a function for users to search for content.</li> </ul>
<b>Map</b>		
View PEPFAR districts	As an M&E Officer, I need to be able to quickly view where PEPFAR is and what PEPFAR is doing so that I can see where my work fits in relation to the broader PEPFAR investments.	<ul style="list-style-type: none"> <li>Interactive map detailing agency, partner, and activity in South Africa.</li> <li>Allow user to see a quick view of where PEPFAR is working and what PEPFAR is doing there.</li> <li>Geographic map of South Africa with districts color-coded by different categories, including by agency, partner, and indicator.</li> <li>Map can zoom to the district level and display partner and program details.</li> <li>Where possible, leverage mapping capabilities being used in an Open Data Kit-based app that reports to the Digital Health Atlas.</li> </ul>

Process	User story	Acceptance criteria
Calendar		
View PEPFAR calendar	As a partner M&E Officer, I need to be able to view a calendar with key dates and event details, so I am aware of key dates to submit PEPFAR-required reports in a timely manner.	<ul style="list-style-type: none"> <li>• Minimal navigation is required to see calendar details, such as through an event details pop up on tap.</li> <li>• A calendar with key dates pop up with event details (color-coded to match regular events).</li> <li>• Events can be color-coded to show key dates.</li> </ul>
View PEPFAR Calendar	As a partner M&E Officer, I need to be able to view event details, so that I am aware of opportunities to interact with PEPFAR staff and other partners.	<ul style="list-style-type: none"> <li>• Focus is on upcoming events, with past events removed from prominent display.</li> <li>• Event information includes: date, time, location, intended audience, and a link to additional details.</li> </ul>



## App administration

The table below outlines administrative and functional app requirements.

Process	User story	Acceptance criteria
Core app and indicator reference		
Update app content	As a PEPFAR app administrator, I need to be able to update app content so that the content stays relevant.	<ul style="list-style-type: none"> <li>• Making content updates does not require technical skills to perform.</li> <li>• Manual work for updating app content should be minimized. How this is achieved can be determined in working with the developer, but may include functionality to:               <ul style="list-style-type: none"> <li>○ Import a file to update content.</li> <li>○ Make content updates in a web browser.</li> </ul> </li> </ul>
Update Orientation content	As a PEPFAR app administrator, I need to be able to update orientation content so that the content stays relevant.	<ul style="list-style-type: none"> <li>• Able to update, add, and remove orientation content.</li> </ul>
Update Indicators	As a PEPFAR app administrator, I need to be able to update indicator content so that the content stays relevant.	<ul style="list-style-type: none"> <li>• Able to update indicator content, including South Africa-specific indicator content.</li> <li>• Able to remove indicator content.</li> <li>• Able to add indicator content, including a mechanism for adding new attributes in the future.</li> <li>• Provide a mechanism to update indicator group icons (seen in the MER 2.0 reference guide, see References section).</li> </ul>
Update Resources	As a PEPFAR app administrator, I need to be able to update resource content so that the content stays relevant.	<ul style="list-style-type: none"> <li>• Able to update, add, and remove resources.</li> </ul>
Update About content	As a PEPFAR app administrator, I need to be able to update About content so that the content stays relevant.	<ul style="list-style-type: none"> <li>• Able to update, add, and remove content in the About section.</li> </ul>
Update launch icon.	As a PEPFAR app administrator, I need to be able to update the launch icon so that the content stays relevant.	<ul style="list-style-type: none"> <li>• Provide a mechanism to update the launch icon.</li> </ul>

Process	User story	Acceptance criteria
<b>Calendar</b>		
Update Calendar event content	As a PEPFAR app administrator, I need to be able to update event content so that the content stays relevant.	<ul style="list-style-type: none"> <li>• Update, add, and remove events.</li> <li>• Allow for easy loading of the initial event content.</li> </ul>
<b>Mapping</b>		
Update Map content	As a PEPFAR app administrator, I need to be able to update map content so that the content stays relevant.	<ul style="list-style-type: none"> <li>• Update, add, and remove map content, including locations and districts.</li> <li>• The solution should be built in a way that does not preclude expanding use of the app to other countries or regions.</li> <li>• The solution should allow for updating districts if district lines are redrawn.</li> <li>• The solution should consider a future need to expand the existing categories to the map.</li> </ul>

## Additional functional and non-functional requirements:

- The app should be developed in a way that allows for future scaling, such as by allowing country-specific content to be differentiated (South Africa for the initial context).
- The app should be available in English, but consideration should be given to allow for future localization.
- Where appropriate, common DATIM standards and codes should be used, as defined in OpenHIE’s DATIM Data Import and Exchange Resources at <https://ohie.org/metadata/datim/#current>.
- The app should include the capability to subscribe to metadata updates from the OpenHIE metadata clearing house, which is hosted on the Open Concept Lab (OCL).

## 6. Out of Scope

The following functionality is not required in this app:

- Support for languages other than English. However, the app should be developed to allow for future localization and scaling.
- A glossary.
- Data collection for indicator reporting. In relation to indicators, the app will only be a reference application.



## 7. References

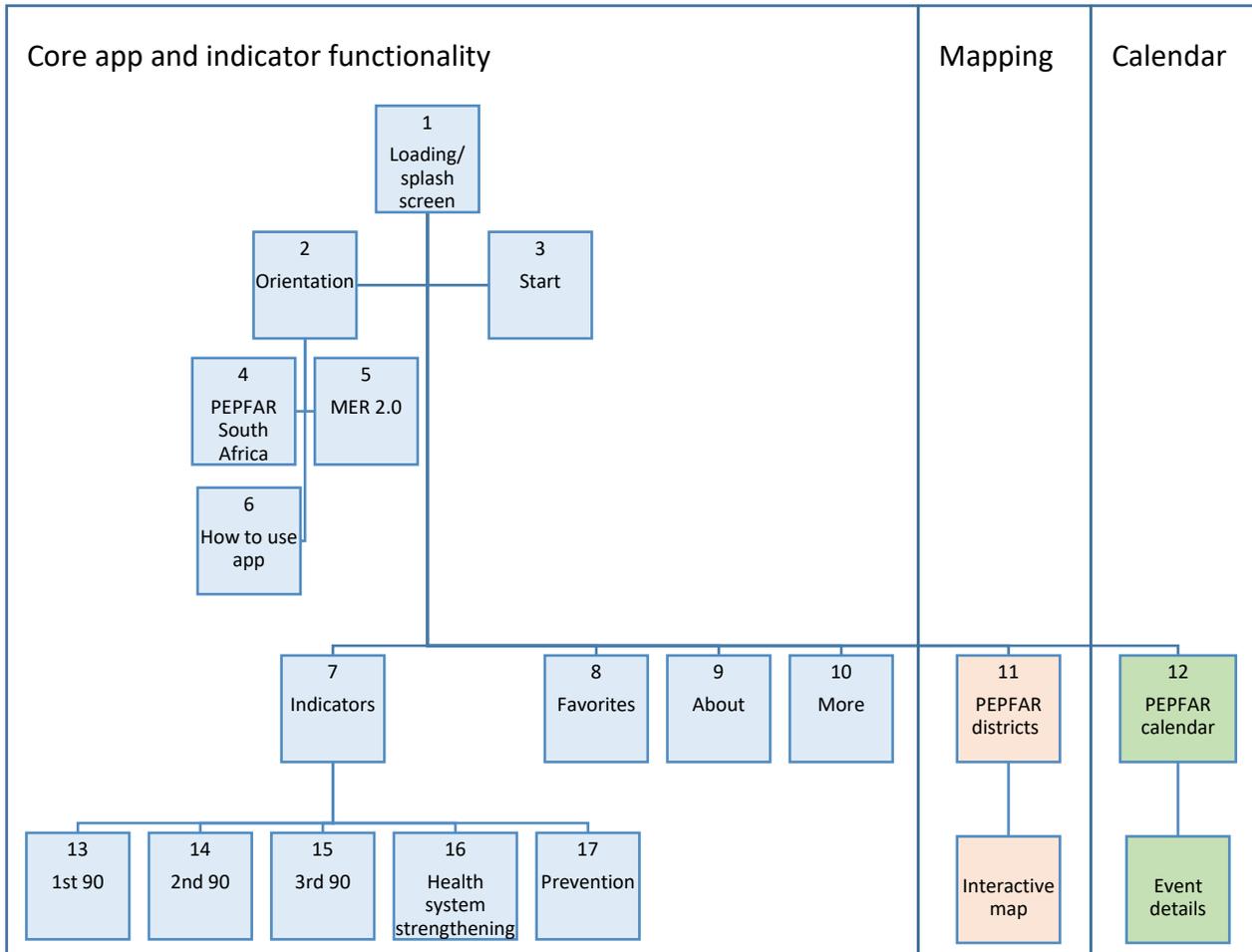
[MER 2.0 Indicator Reference Guide, Updated Release, V2.2, January 2018](#): Important reference document; contains the icons linked to each indicator group that should be reflected in the app.

Available at [https://datim.zendesk.com/hc/en-us/article\\_attachments/360000175383/MER\\_2.0\\_Indicator\\_Reference\\_Guide.pdf](https://datim.zendesk.com/hc/en-us/article_attachments/360000175383/MER_2.0_Indicator_Reference_Guide.pdf).

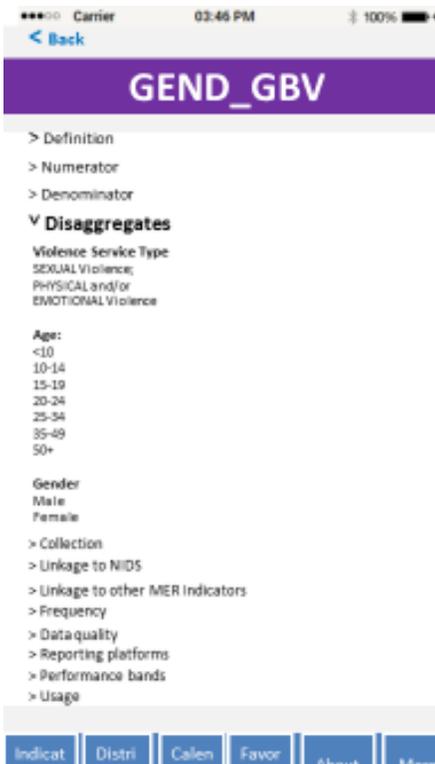
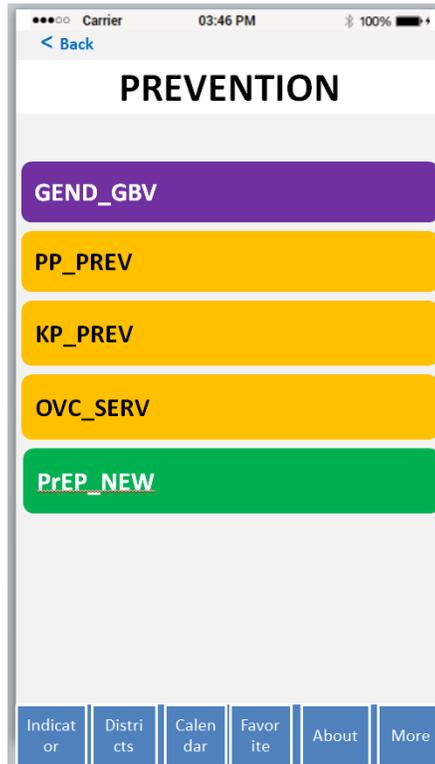
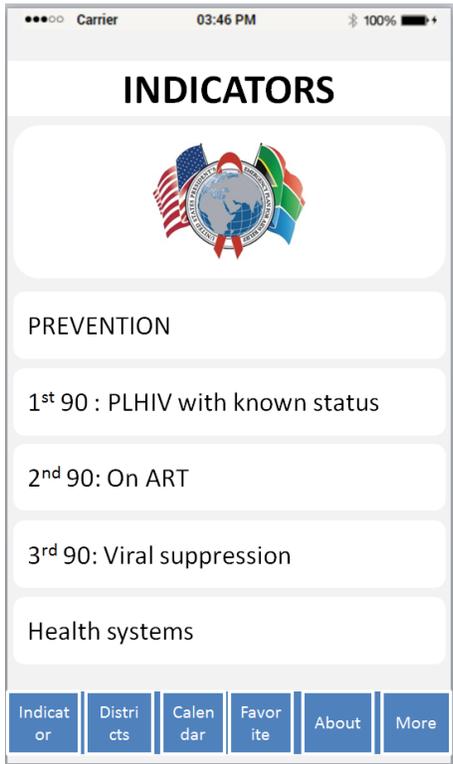
## 8. Annexes

- A. Draft map of content in app: Outlines how the different types of information are linked.
- B. Sample design of the indicator landing page: Draft mock-up of design from the PEPFAR administrator.
- C. Example of indicator content.
- D. Screenshot of DATIM: The information system implementing partners are required to use for reporting these indicators.

### A. Map of content in app



**B. Sample design that shows the content to be included.**



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## GEND\_GB

- > Definition
- > Numerator
- > Denominator
- > Disaggregates
- > Collection
- > Linkage to NIDS
- > Linkage to other MER Indicators
- > Frequency
- > Data quality
- > Reporting platforms
- > Performance bands

**Annual indicator Oct yr1 – Sep yr2**

<80%	80-90%	>90%
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> Usage

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## DISTRICTS

PEPFAR South Africa Priority districts

Map showing South African provinces: NW, F.C., WC, EC, K.C., K.F.S., N.C., N.W., F.S., G.C., L.F., N.F., N.W., N.E., N.W., N.E., N.W., N.E., N.W., N.E., N.W., N.E., N.W., N.E.

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## Thabo Mofutsanyane

Map showing Thabo Mofutsanyane district with support partners:

- Right to Care (District support partner)
- Childwell fare BFN (OVC partner)
- FHI 360 (OVC partner)

Legend:

- Grey box: District support partner
- Blue box: OVC partner

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### C. Example of indicator content for South Africa

INDICATOR CODE	HTS_TST	TX_NEW
DEFINITION	Individuals who received <b>HIV testing services AND</b> received their <b>test results</b>	Adults and children newly enrolled on antiretroviral therapy
NUMERATOR	Number of individuals who received HIV testing services and received their test results	Number of adults and children newly enrolled on antiretroviral therapy (ART)
DENOMINATOR	N/A	N/A
DISAGGREGATES	<p><b>Age:</b>            &lt;01            9-10            10-14            15-19            20-24            25-34            35-49            50+</p> <p><b>Gender</b>            Male            Female</p> <p><b>Result</b>            Positive            Negative</p> <p><b>Modality:</b>            Home-based testing: <b>Testing that occurs in a person's home</b>            Index Testing: <b>Testing individuals in the social or sexual networks of HIV-positive persons</b>, including family members, sexual partners, needle-sharing partners, and other high-risk contacts. <b>Facility index testing includes if the index case finding/tested originated in the facility</b>, and the subsequent testing was done at the facility            Inpatients: Including surgery and any inpatient ward            Malnutrition facilities: Clinics and inpatient wards predominately dedicated to the treatment of malnourished children            Mobile testing: Any ad hoc or temporary testing locations            Other community platforms: <b>Ad hoc testing campaign</b> and <b>OVC testing should be entered under this modality</b>            Other PITC: this includes any other PITC modality that is not captured above, such as testing women and their partners or family members in labor and delivery wards</p>	<p><b>Age:</b>            &lt;01            9-10            10-14            15-19            20-24            25-49  <b>50+</b></p> <p><b>Gender</b>            Male            Female</p> <p><b>Modality:</b>            TB/HIV            Pregnant at initiation of ART            Breastfeeding at initiation of ART            Key population</p>

INDICATOR CODE	HTS_TST	TX_NEW
	Pediatric - Under 5 Clinic: Testing for children under 5 in any health facility setting PMTCT -ANC Only: HIV testing for pregnant women as part of the PMTCT program at antenatal care clinics TB: This includes all TB patients originating from TB clinics and contacts of TB patients. TB_STAT (New negatives and Newly positives) VCT: A standalone <b>VCT center</b> that exists <b>outside of a designated health facility</b> (e.g. Drop-in-center, wellness clinic VMMC: This is HIV testing for males as part of the VMMC programs both in facility based and mobile outreach programs VMMC programs	
<b>COLLECTION</b>	For an individual to be counted under this indicator, that individual's HIV diagnosis (neg/pos) must be confirmed	The numerator can be generated by counting the number of adults and children who are newly enrolled in ART in the reporting period
<b>Linkage to NIDS</b>	HIV test client 15-49 years HIV test client 19 months – 14 years (if available in PIDS) HIV test client 50+ Antenatal client HIV 1st test (unless ANC test included in HIV test client 15-49) Infant rapid HIV test around 18 months Positives HIV test positive client 15-49 years Antenatal client HIV 1st test positive Antenatal client HIV re-test positive HIV test client positive <15	Adult started on ART during this month - naïve Child under 15 years started on ART during this month - naïve Total clients started on ART during this month – naïve Pregnancy disag: Antenatal client initiated on ART Linkage to NIDS
<b>Linkage to other DATIM indicators</b>	KP_PREV OVC_HIVSTAT PMTCT 1st tests PMTCT re-test positives PP_PREV TB 1st tests VMMC	PMTCT_ART TB_ART
<b>FREQUENCY</b>	Quarterly: Oct-Dec --->Jan Jan-Mar --->Apr Apr-Jun--->Jul Jul-Sep--->Oct	Quarterly: Oct-Dec --->Jan Jan-Mar --->Apr Apr-Jun--->Jul Jul-Sep--->Oct

INDICATOR CODE	HTS_TST	TX_NEW
<b>QUALITY</b>	Numerator = sum of disaggregates The total number of individuals receiving HTS (numerator) should be equal to the sum of each individual disaggregation group (age/sex/test result, service delivery modality)	Numerator = sum of disaggregates ART Transfer/In patients should NOT be counted under this indicator PMTCT_ART new (life-long ART, new) should equal to TX_New (pregnant) TB_ART new (life-long ART, new) should equal to TX_New (TB) TX_CURR >= TX_NEW
<b>REPORTING PLATFORMS</b>	<b>DATIM</b> Facility Sub-district <b>DIMES</b> Ward	<b>DATIM</b> Facility
<b>PERFORMANCE BANDS</b>	<b>How Annual Totals are Calculated</b> Sum across all reporting periods  <b>Oct-Dec</b> greater than 25% 15-25% less than 15% <b>Jan-Mar</b> greater than 50% 40-50% less than 40% <b>Apr-Jun</b> greater than 75% 65-75% less than 65% <b>Jul-Sep</b> greater than 90% 90-80% less than 80%	<b>How Annual Totals are Calculated</b> Sum across all reporting periods  <b>Oct-Dec</b> greater than 25% 15-25% less than 15% <b>Jan-Mar</b> greater than 50% 40-50% less than 40% <b>Apr-Jun</b> greater than 75% 65-75% less than 65% <b>Jul-Sep</b> greater than 90% 90-80% less than 80%
<b>USE</b>	Monitor trends in the uptake of HTS Disaggregation by test result Monitor access to and uptake of HTS by population (age, sex, test result), and HTS setting and service delivery modality	Monitoring the HIV services cascade, specifically the successful linkage between HIV diagnosis and initiating ART Disaggregation of new on ART by age/sex at ART initiation, pregnancy status at ART initiation, and breastfeeding status at ART initiation is important to understand the percentage of new ART initiations coming from priority populations Performance Target versus Results Linkage HTS_POS vs TX_NEW Retention rate TX_NEW versus TX_NET_NEW

