



# Electronic Case Management: Streamlining and Optimizing Care for Orphans and Vulnerable Children

Presented by the OVC Task Force and Interagency PEPFAR Colleagues  
Wednesday, October 14<sup>th</sup>

8-9:30 AM New York (GMT-4) | 2-3:30 PM Joburg (GMT+2) | 4:30 PM Nairobi (GMT+3)

# Welcome to Zoom Webinar

If you are unable to hear, connect your speakers by selecting "Join Audio."

Use the up arrow to change your speaker selection.

Please use the chat box to introduce yourself.

Share thoughts and comments by sending a message to "All panelists and attendees."

Audio Settings ^

Chat Q&A

To: All panelists v

Your: All panelists

All panelists and attendees

Leave

The image shows a Zoom Webinar interface. The main content area is black with orange text. On the right, there is a white chat window with blue text. At the bottom, there are icons for Audio Settings, Chat, and Q&A. The chat window has a dropdown menu for recipients. Blue arrows and circles highlight specific elements: an arrow points from the 'Audio Settings' icon to the first instruction; an arrow points from the 'Chat' icon to the second instruction; an arrow points from the 'All panelists and attendees' option in the chat dropdown to the third instruction. The 'Leave' button is visible in the bottom right corner.

# Q&A and Chat

Use the Q&A box to submit questions for the panelists.

You will also be able to view questions that other attendees have asked and comment on them.

The screenshot displays a Zoom meeting interface. At the top center, a window titled "Question and Answer" is open, showing a "Welcome" message: "Welcome" and "Feel free to ask the host and panelists questions". Below this is a text input field with the placeholder "Type your question here...". A blue arrow points to this input field, and a blue circle highlights the "Q&A" icon in the bottom navigation bar. To the right, the "Chat" panel is visible, showing a dropdown menu set to "All panelists" and a message: "Your text can only be seen by panelists". A red "Leave" button is located at the bottom right of the meeting area. The bottom left corner shows "Audio Settings" with an upward arrow.

# Agenda

Presenter	Title
Sally Bjornholm, Senior HIV Technical Officer, Orphans and Vulnerable Children, USAID	Opening Remarks
Seghen Haile, Health Information Systems Technical Advisor, USAID	Using Electronic Case Management System (eCMS) for Efficient and Effective Data Collection
Jenny Mwanza, Data.FI, Senior Technical Advisor, The Palladium Group Sara Miner, Strategic Information Advisor, USAID/Zimbabwe Busoye Anifalaje, Data.FI, Chief Implementation Officer, BAO Systems	Development of a Harmonized OVC MIS for USAID/Zimbabwe using DHIS2
Sasha Angelevski, Chief of Party, Sustainable Outcomes for Sustainable Outcomes for Children and Youth, CRS	An mHealth-based Solution to End-User Electronic Case Management in Uganda; Lessons Learned
Lisa Parker, PhD Director, Measurement and Learning, Palladium  Lauren Oleykowski Senior Technical Advisor, Vulnerable Children, CRS	Facilitated Q&A  Moderator



# Using Electronic Case Management System (eCMS) for Efficient and Effective Data Collection

---

USAID, Office of HIV/AIDS  
Strategic Information, Evaluation and Informatics Division  
Health Informatics Branch

# Outline

- About Us: Introductions
- Interagency Collaboration
- Electronic Case Management System (eCMS) Overview
- Key Systems Considerations: OVC
  - Electronic Case Management System
  - Developing System Requirements
  - Resources on Choosing Technology
  - eCMS Data Quality Considerations
- Resources



# About Us

## *Introductions*

---

# About Us

## Who We Are

The Office of HIV/AIDS (OHA) Health Informatics (HI) Branch and the Orphans and Vulnerable Children (OVC) Branch collaborate to support USAID PEPFAR Missions and partners on the development, deployment, and planning of an Electronic Case Management Systems (eCMS) to support OVC programming.

## Our Technical Experts



**Country Support on eCMS**  
*Technical Assistance, system evaluations, investment planning*



**Data Management and Analytics**  
*Data standardization, custom data analytics*

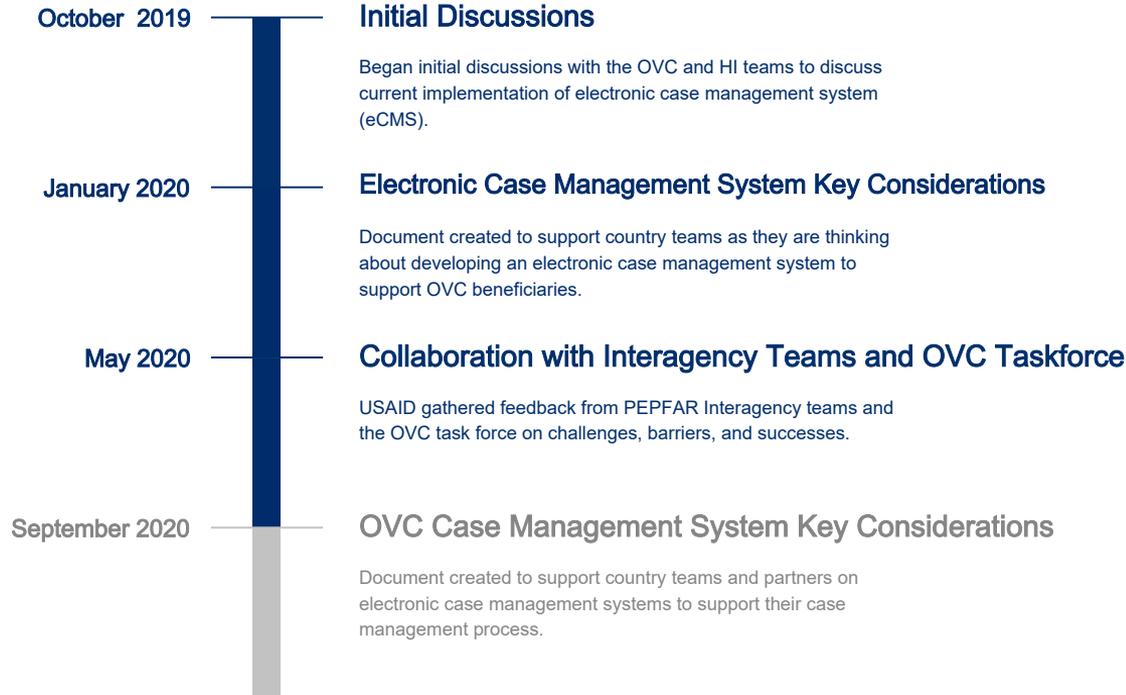


**Application Testing**  
*System deployment, system testing*



**Database Integration**  
*Data migration, data integration*

# Interagency Collaboration to Develop a Considerations Document



**USAID**  
FROM THE AMERICAN PEOPLE

## OVC CASE MANAGEMENT SYSTEM KEY CONSIDERATIONS

**INTRODUCTION**

In September 2019, S/GAC released the MER 2.4 Indicator Reference Guide, which included indicators OVC\_HIVSTAT and OVC\_SERV. These indicators are reported semi-annually at the site level (community and facility) for PEPFAR funded countries. The OVC\_SERV indicator reports how many beneficiaries have been served by PEPFAR OVC programs for children and families affected by HIV, with disaggregates by program participation status (active/graduated), age, and gender. The OVC\_HIVSTAT indicator provides data on orphans and vulnerable children (<18 years old) with self-reported HIV status including HIV positive, HIV negative, or test not required.

Although not required, an electronic case management system that stores key beneficiary information, collects service data electronically, and tracks the progress towards completion of an individual's care plan can both streamline the reporting of OVC indicators into DATIM and provide greater visibility and accountability for partners and service providers monitoring program performance and outcomes. The purpose of this document is to provide country teams with systems considerations to design, deploy, and maintain electronic case management systems in support of OVC programming and reporting.

[LINK](#) to the document!



# Electronic Case Management Systems (eCMS)

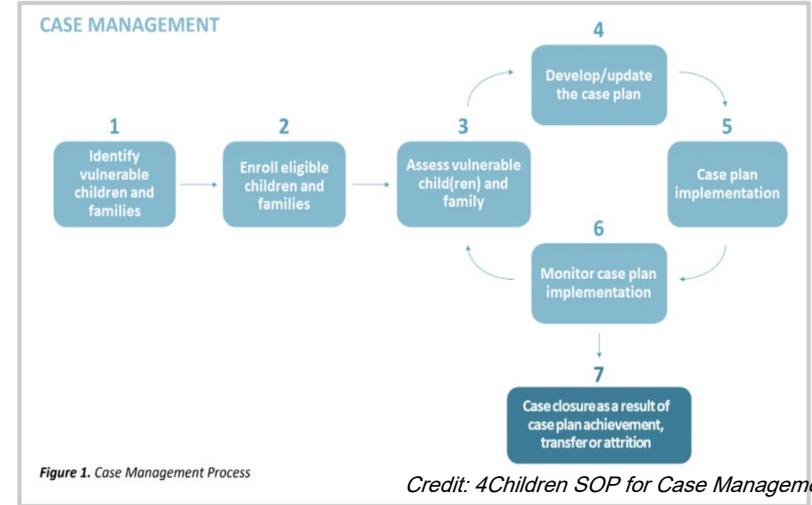
---

*Benefits and Current Use*

# Information Systems for Case Management

An electronic system can support case management processes by:

- Supporting end users to identify and track beneficiaries systematically
- Allowing users to monitor and share the needs and resources of the beneficiary
- Supporting real time documentation of beneficiaries goals, action plans, and objectives
- Monitoring in real time the completion of action and progress toward achievement of objectives/goals and benchmarks.



A case management process is generally supported by the caseworkers (cadre of community-based social service workers) and the case manager.

# eCMS Benefits

## Beneficiary

## End Users

## Reporting and Analysis

## Program Improvement



Supports case workers to identify, track, and refer OVC beneficiaries



Improve care of an OVC beneficiary through a 360 view of client



Supports PEPFAR reporting for OVC\_SERV and OVC\_HIVSTAT and other custom OVC indicators



Improve ability to monitor and evaluate government and donor investments



Allows case managers to track OVC progress and manage workload of case workers



Enhance care for OVCs through improved data outside of the OVC program



Analyze across SNUs and partners to identify best practices



Improve ability to provide oversight to community health programs and implementers



Improve quality of care for the beneficiary through real time data



Refine quality of care for the beneficiary through real time data

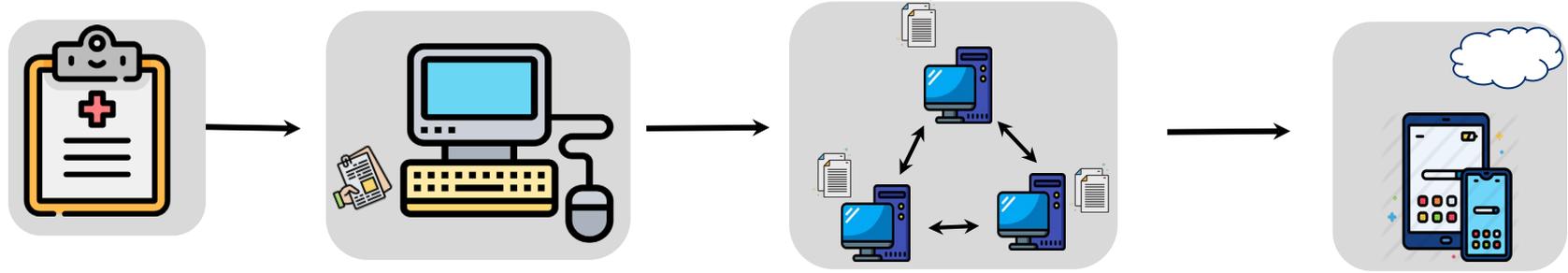


Analyze beneficiary level data to provide customized plan for the OVC



Drive high quality of programs through improved data collection and use

# Range of Current Electronic Case Management Systems



## Paper-based System

All case management data is collected on paper including consent forms, case plans, referral forms, etc.

## Off-line data entry into an electronic system

Case management data is collected on paper. Data is back entered in a stand alone system (i.e. excel, access, and other platforms).

## On-line data entry into an electronic system

Case management data is collected on paper and back entered to a networked system. For example, data can be shared with case workers and case managers. Data can be made interoperable with national systems.

## On-line data entry at point of care into an electronic system

Case management data is collected electronically and can be saved in a cloud for users to access in real time with internet connectivity. Data can be made interoperable with national systems.

# Benefits of moving from paper to online electronic systems

An on-line electronic case management system provides the ability to exchange health information electronically and can help you provide higher quality and safer care for OVC beneficiaries while allowing case workers and community health workers to provide better care.



Provides accurate and up to date information about OVC beneficiaries for case workers and case managers in a timely and coordinated manner



Potential to track beneficiaries from point of care through all levels of clinical care

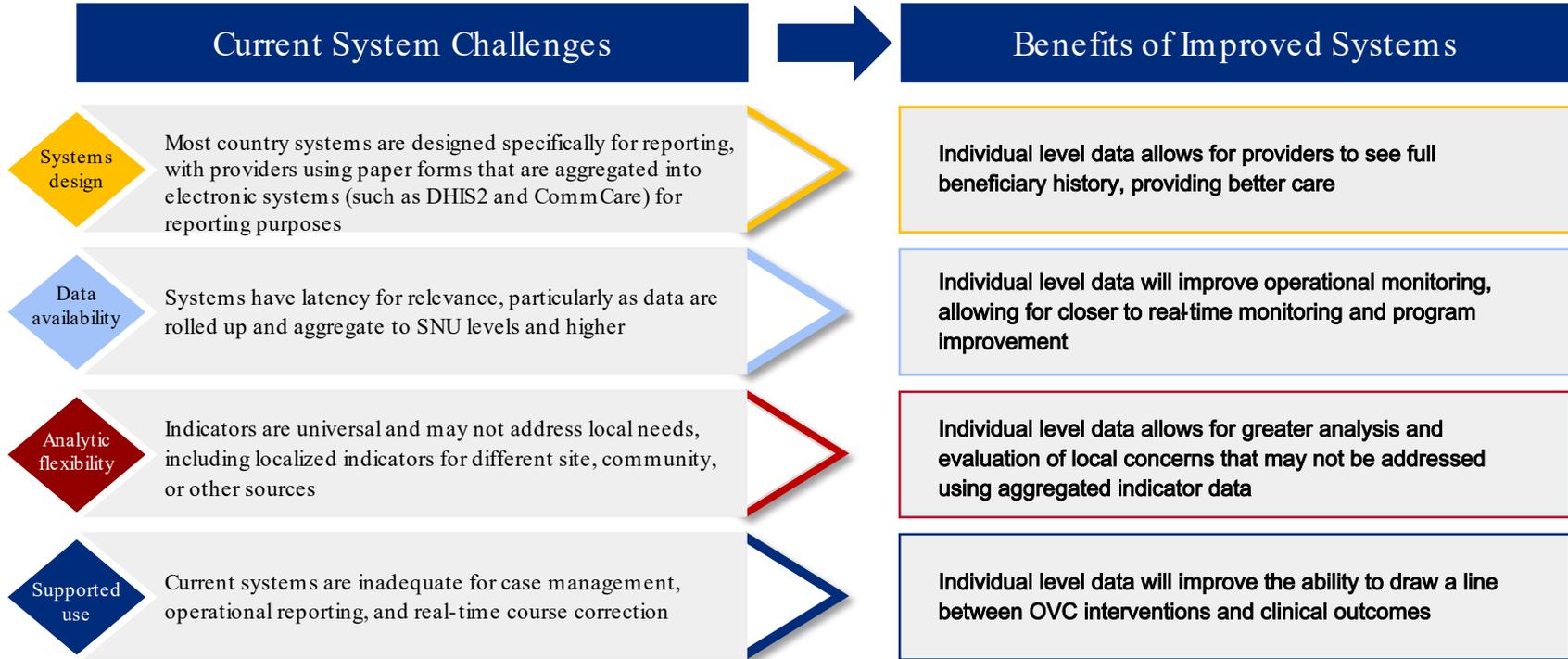


Securely shares beneficiary data with end users (case workers and case managers), and other stakeholders through the continuum of care



Reduces costs through decreased paperwork, improved data security, reduced duplication of HIV testing, and improved health.

# Limitations of Slow Largely Paper based, Aggregate Reporting System



Legacy systems are inadequate to the challenges of caring for children orphaned made vulnerable by HIV



# eCMS Key Considerations

---

*What are the minimum system requirements for a case management system?*

# Assessing Your Program Needs

1

What system have you been using up to this point?

2

What have been the bottlenecks to providing the best care?

3

What are the challenges to reporting?

4

Are there other systems or data to be incorporated? What is the frequency?

5

How motivated are the relevant stakeholders to switch technologies?



# Developing Requirements for a Case Management System

## Country Context

Understand the structure and needs of the country, region, and beneficiaries.

## Cost

Include the full cost of ownership, such as incremental development, deployment, training, refresher training, hardware, etc. in addition to any license costs

## Proposed Use

Is this intended to be used at the point of care, or will data clerks enter data later? Is it used only for PEPFAR-supported programs or by programs supported by other donors?

## Interoperability

Consider whether there are multiple systems in country that need to be capable of merging data or whether the system is intended to send or receive data from other systems such as an EMR, national registry, etc.

## Infrastructure

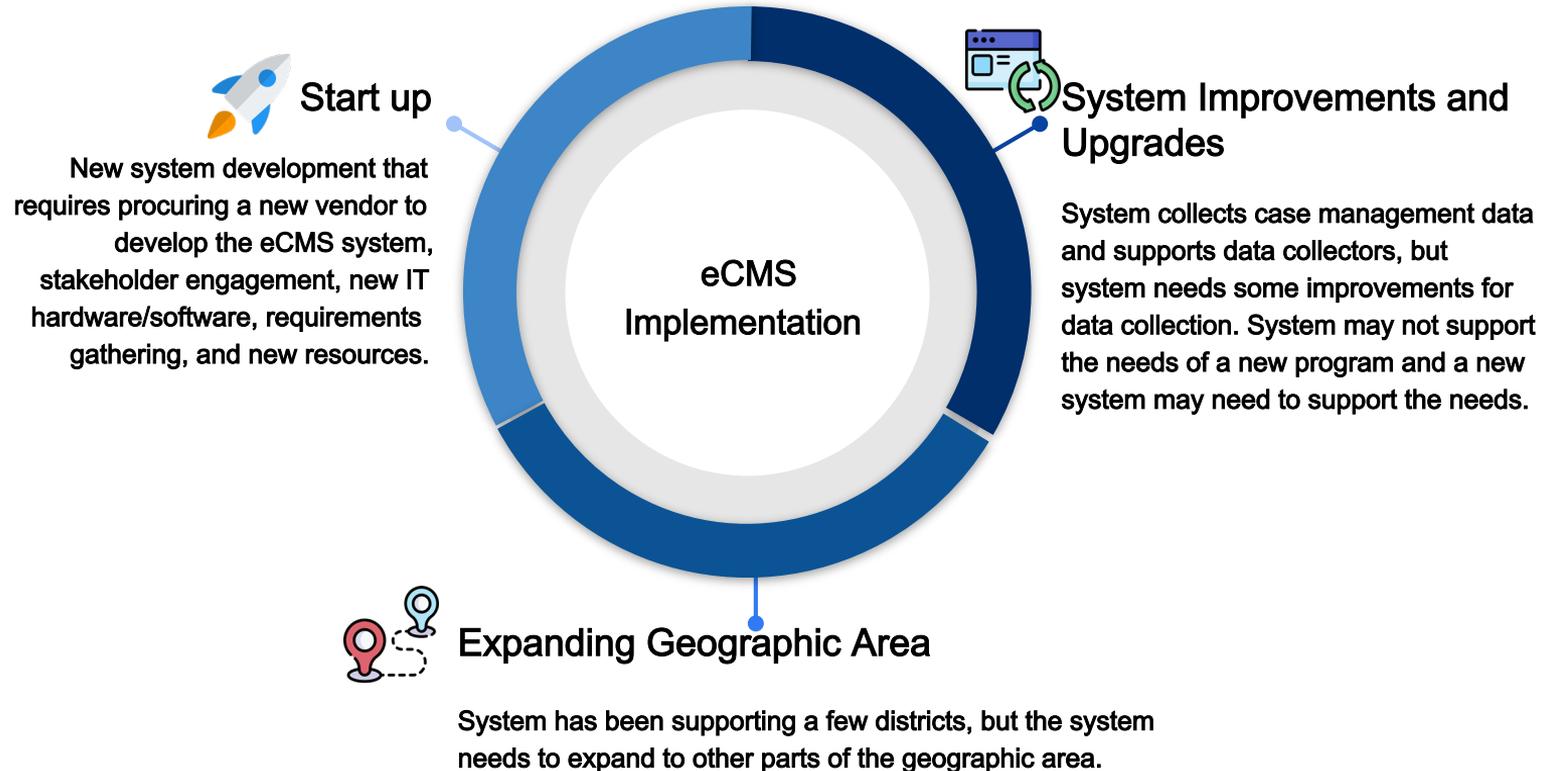
Are there challenges associated with power or network connectivity? How will the users manage those challenges? Who will host the system?

## HR Capabilities

What kind of technology have the intended users been exposed to or used frequently on a prior basis? How will this technology take advantage of that knowledge?

*Parameters to consider when developing an electronic case management system*

# Current System Implementation



# PEPFAR Reporting Needs for OVC\_SERV and OVC\_HIVSTA

Field Content	Format
Beneficiary ID	Alphanumeric
Household ID	Alphanumeric
Beneficiary Names	Text
Beneficiary Date of Birth (DOB)	Date
Sex	Boolean
Beneficiary Types	Characters / Picklist
Location	Characters / Picklist
Service Provider	Characters / Picklist
HIV Status	Characters / Picklist

Field Content	Format
Caregiver HIV Status	Characters / Picklist
OVC Service Received	Alphanumeric/ Picklist
Date of Service	Date
Graduation Benchmarks	Alphanumeric
Graduation Date	Date
Transferred Status	Characters/Picklist
Transfer Date	Date
Sub-populations	Characters/Picklist

# System Data Quality Considerations

## Missing Data

Beneficiary ID	Household ID	HIV Status	Viral Suppression
AOL0010D	L000987	HIV+ on ART	
AOL0120D	L000987	HIV+ on ART	N/A

Validate

## Data Structure: One to One Mapping

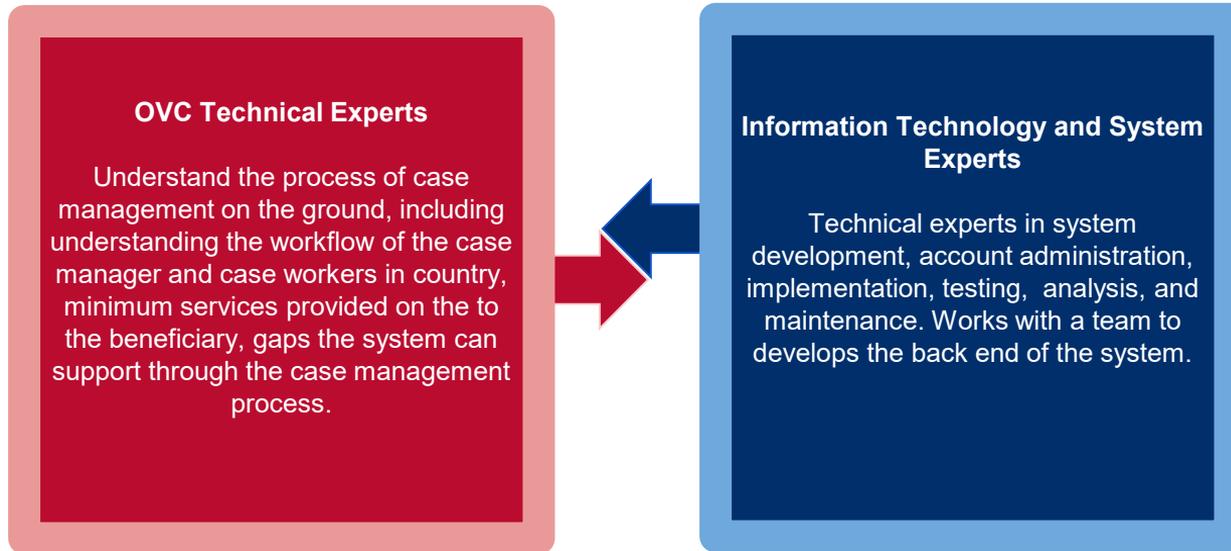
Service ID	Domain	Service Name
10001	HEALTHY	Completed referrals for developmental support for HEU and HIV infection
10002	SAFE	Emergency shelter / care facility
10003	STABLE	Cash transfer or another social grant
10004	SCHOOLED	Receive regular assistance / support with homework (e.g., homework club participation)

## Data Structure

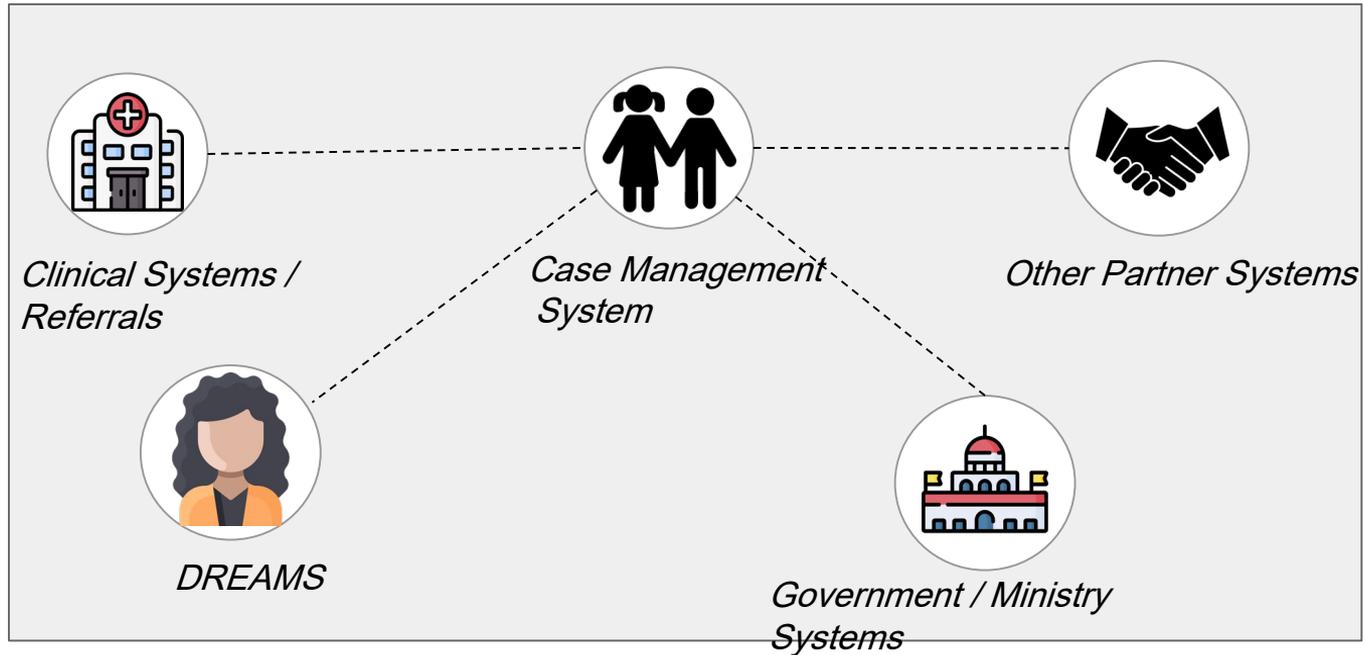
Date
01/13/2020
13/01/2020
Jan 13, 2020
13 Jan 2020
01-13-2020
January 13, 2020

Consistency

# Systems Development Considerations



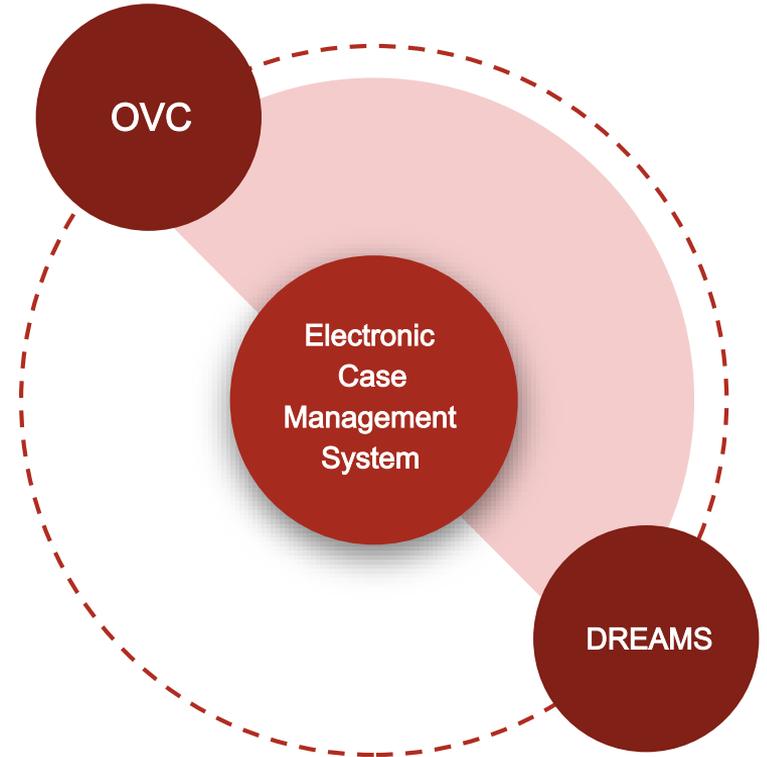
# Linking eCMS to Other Systems



As partners and country teams are developing electronic case management systems, teams should consider linking to other clinical and community systems. An eCMS system should also consider having an interoperability components to communicate to transfer data to other systems (i.e. Ministry Systems).

# Linking OVC and DREAMS Systems

- Linking separate systems
  - Use UIDs to identify beneficiaries to link between the two systems
  - When expanding an existing system, assess if the case management system can support your DREAMS system
  - Develop a system workflow process that supports DREAMS end users and their analytic needs
- Combined OVC and DREAMS system
  - DREAMS and OVC services recorded separately, but within the same system
  - DREAMS layering module supports AGYW\_PREV reporting



# Resources

- OHA Health Informatics and OVC Branches Collaborating team
  - Seghen Haile (shaile@usaid.gov)
  - Julianna Kohler (jkohler@usaid.gov)
  - Joshua Volle (svolle@usaid.gov)
  - Sally Ann Bjornholm (sbjornholm@usaid.gov)
  - Maury Mendenhall (mmendenhall@usaid.gov)

## Other Helpful Resources:

- Digital Investments Principals
- Principles for Digital Development
- Global Goods Guidebook



**USAID**  
FROM THE AMERICAN PEOPLE

Thank you



# Development of a Harmonized OVC MIS

For USAID/Zimbabwe using DHIS2 Tracker

---

Jenny Mwanza  
Data.FI

Sara Miner  
USAID, Zimbabwe

Busoye Anifalaje  
Data.FI



# Current Information systems in Zimbabwe

## Overview

- Six implementing partners providing OVC, DREAMS and sexual violence prevention (SV\_PREV) services, each using a separate system
- Customized indicators aggregated into excel and emailed to USAID monthly by each IP
- DATIM indicators calculated independently in each system and manually transferred

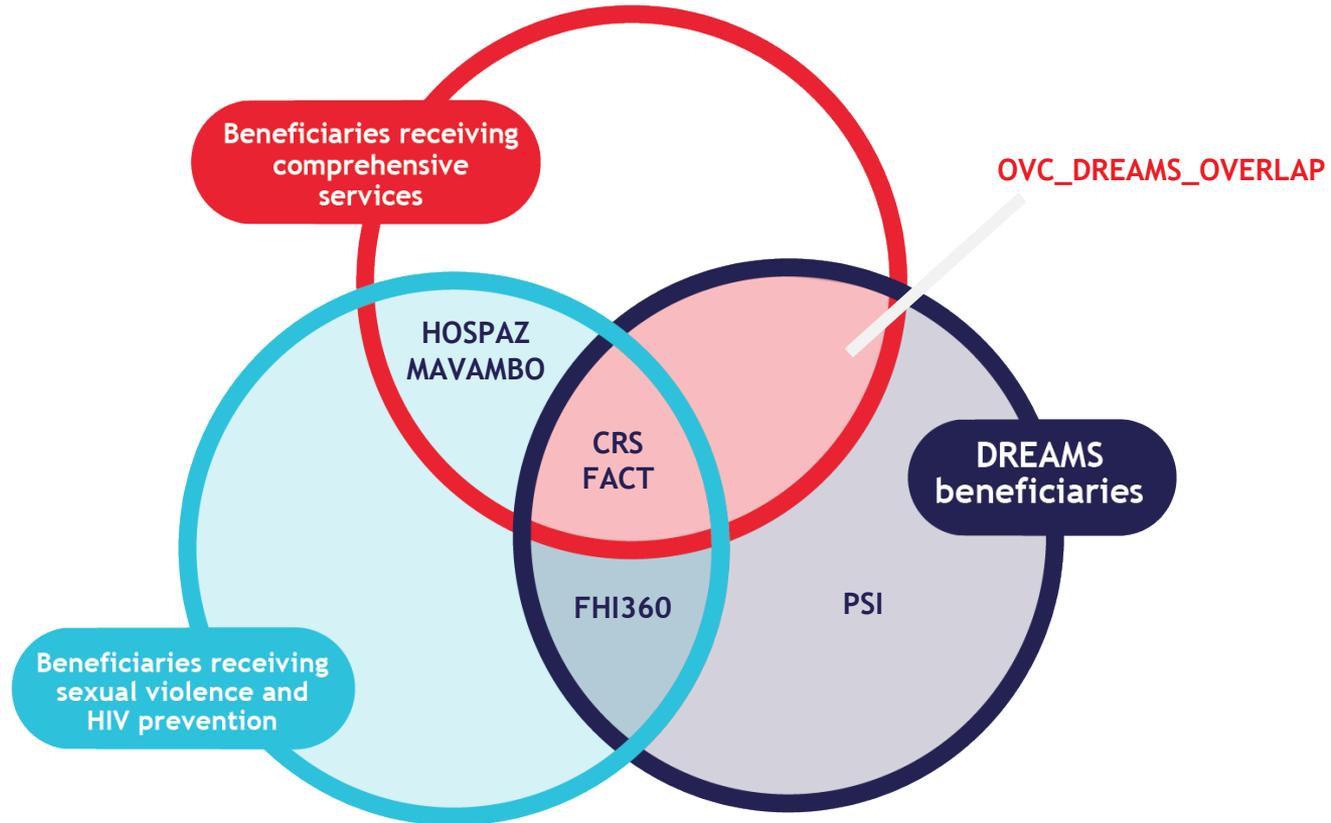
## Challenges

- Possibility of slightly different definitions of services provided and variations in calculation of complex indicators requiring scripting
- Data only available after one month; no longitudinal performance indicators available; inefficient for USAID to maintain separate systems

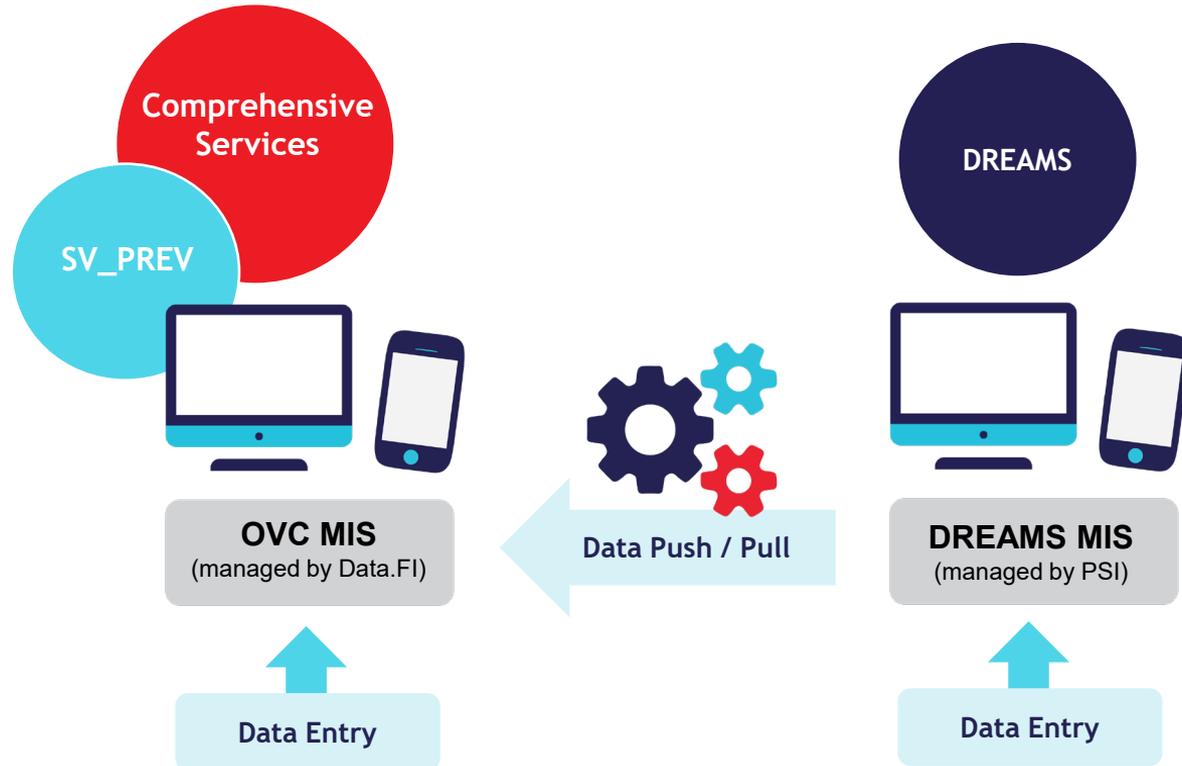
# Harmonized OVC MIS proposed

- USAID/Zimbabwe has requested the support of Data for Implementation (Data.FI) to develop a harmonized case management information system (MIS) for use across six IPs
- Data.FI has supported the consolidation of 80+ data collection forms into a core set of six forms which will allow for reporting of Zimbabwe specific process indicators and MER performance indicators
- The open source software, District Health Information System 2 (DHIS 2), has been selected as the platform of choice given ease of customization, stability of the software, and an extensive and active community of practice.
- The tracker module of DHIS2 provides the ability to collect individual level data and calculate indicators when multiple events are-recorded and date stamped for one individual

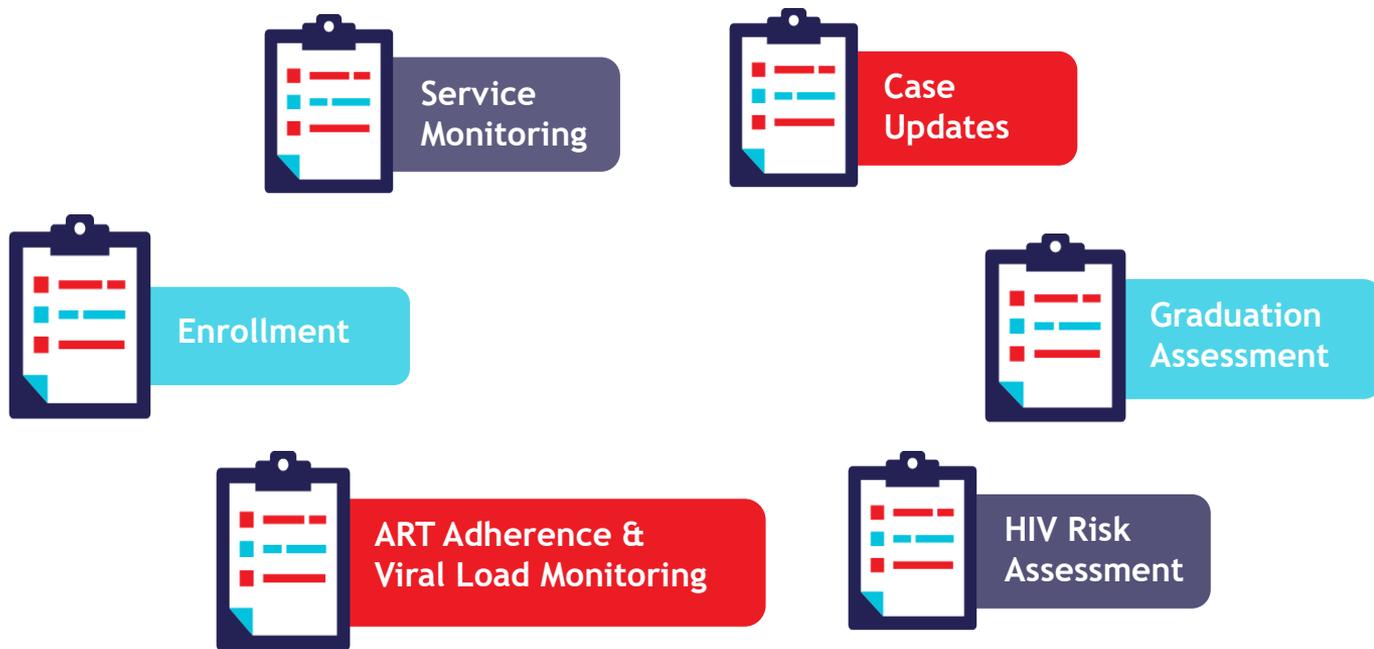
# Implementing partners in Zimbabwe



# System Architecture



# Harmonized data collection forms



# Tracking Services

Aligns identification of need to referral to service delivered. . .

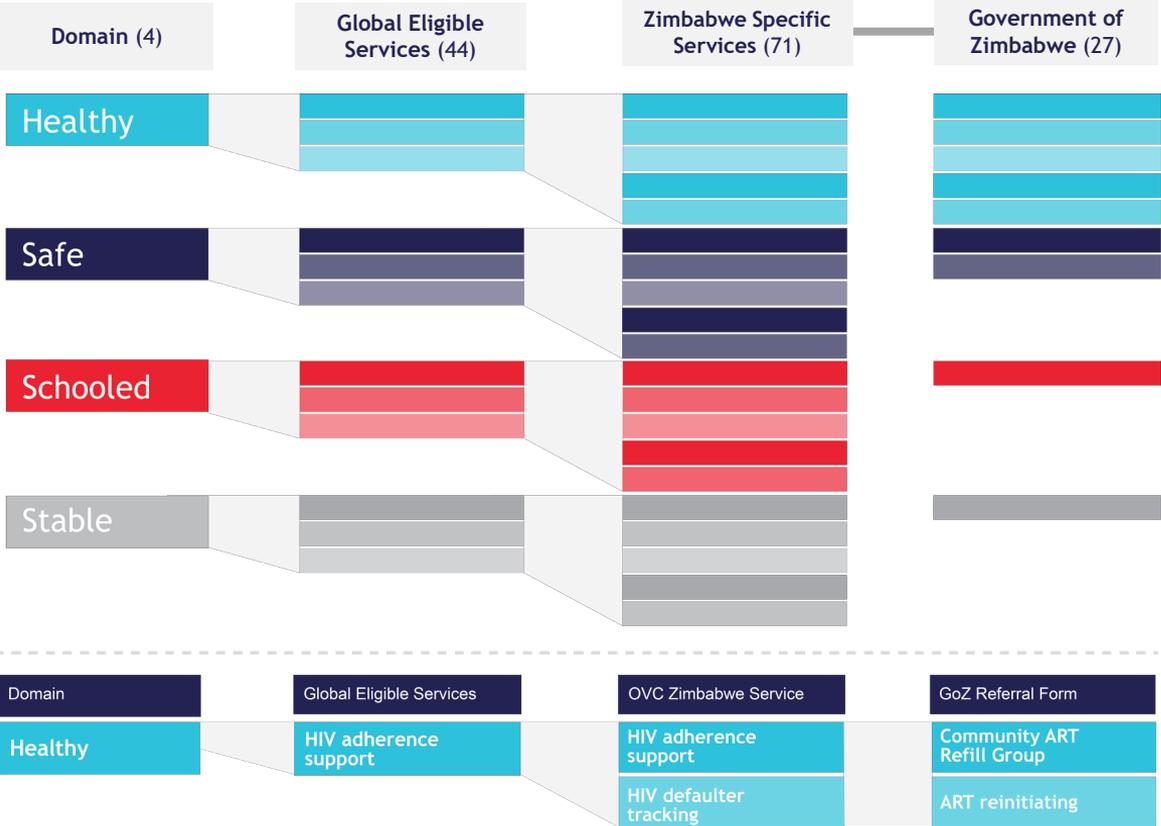
	Identification of Need	Referrals		Service delivered
		Made	Received	
HIV testing	Oct 01, 2020	Oct 03, 2020		Oct 10, 2020
School fees	Oct 15, 2020			Oct 20, 2020
Defaulter Tracking			Mar 15, 2020	Mar 20, 2021

---

## Process Indicators

- % of completed referrals
- Average time between referral made and service delivered

# Harmonizing of services



# Harmonized OVC MIS

Is this a good idea?

## Advantages

- Scripting of complex indicators will facilitate real time access to progress against targets (Active & Exit, HIV status unknown disaggregates)
- Standard application of formulas will ensure we are comparing “like with like”
- Streamline reporting from IP to USAID for country specific indicators
- Cost efficiency of maintaining a central, high quality system, over maintaining multiple systems with varying functionalities
- Versions released at regular intervals & in concertation with USAID

## Disadvantages

- Inability to immediately modify system to meet one IP's reporting needs
- Centralized maintenance will be required

# Development in Zimbabwe

Year One

Year Two

2020

2021

**September 2020**

OVC MIS System Design including harmonized data entry screens, mobile data capture requirements, sustainability plan for hosting & capacity building, complex indicator calculations, and analytics mockups

**May 2021**

System documentation shared with local administrators & Training of Trainers

**July 2021**

Training for system admins and ToT provided, and central support ticketing system is employed

**April 2021**

Legacy data imported and dashboards validated by USAID & IPs

**June 2021**

Data Exchange between OVC MIS and DREAMS operational and validated

Questions?





## FOR MORE INFORMATION

Emily Harris, Data.FI AOR, USAID Office of HIV/AIDS  
[emharris@usaid.gov](mailto:emharris@usaid.gov)

Jenifer Chapman, Data.FI Project Director  
[jenifer.chapman@thepalladiumgroup.com](mailto:jenifer.chapman@thepalladiumgroup.com)

---

Data for Implementation (Data.FI) is a five-year cooperative agreement funded by the U.S. President's Emergency Plan for AIDS Relief through the U.S. Agency for International Development under Agreement No. 7200AA19CA0004, beginning April 15, 2019. It is implemented by Palladium, in partnership with JSI Research & Training Institute (JSI), Johns Hopkins University (JHU) Department of Epidemiology, Right to Care (RTC), Cooper/Smith, IMC Worldwide, Jembi Health Systems and Macro-Eyes, and supported by expert local resource partners.

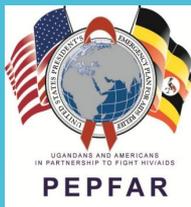
This presentation was produced for review by the U.S. President's Emergency Plan for AIDS Relief through the United States Agency for International Development. It was prepared by Data for Implementation. The information provided in this presentation is not official U.S. government information and does not necessarily reflect the views or positions of the U.S. President's Emergency Plan for AIDS Relief, U.S. Agency for International Development or the United States Government.



# *An mHealth-based Solution to End-User Electronic Case Management in Uganda*

*Presenter: Sasha Angelevski  
Chief of Party SOCY, CRS Uganda  
OVC Taskforce Webinar*

*October 14, 2020*



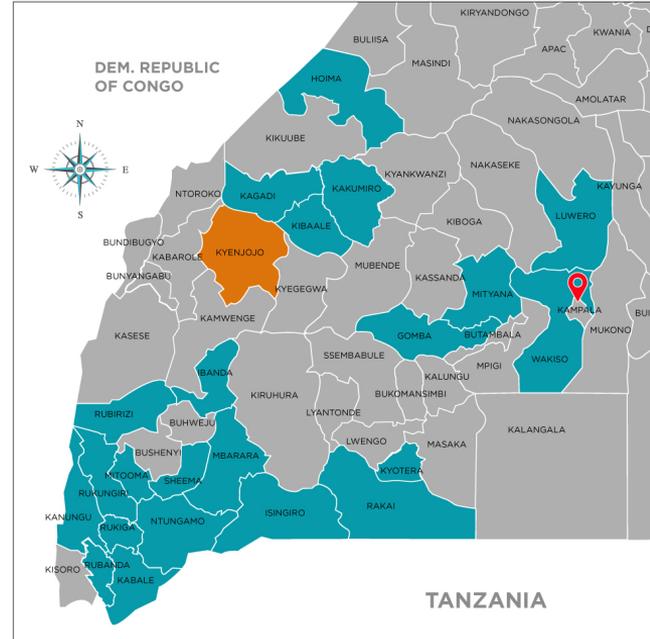
**USAID**  
FROM THE AMERICAN PEOPLE



# Sustainable Outcomes for Children and Youth (SOCY)

- Sustainable Outcomes for Children and Youth in Central and Western Uganda (SOCY) is a \$49,592,041 USAID-funded six-year (2015 – 2021) program designed to improve the health, nutrition, education and psychosocial well being of orphans and vulnerable children, as well as reduce abuse, exploitation and neglect.
- The program has reached 128,835 children and their caregivers in 24 districts, 101% of the COP 19 target.
- SOCY initiated ICT4D for case management to streamline the case management process workflow and ensure timely and accurate data collection.

**Catholic Relief Service (CRS) Uganda**  
Sustainable Outcomes for Children and Youth (SOCY)



**Legend**

- ICT4D Targeted districts
- Project Targeted districts
- Non-targeted districts
- 📍 CRS Uganda Head Office



**USAID**  
FROM THE AMERICAN PEOPLE



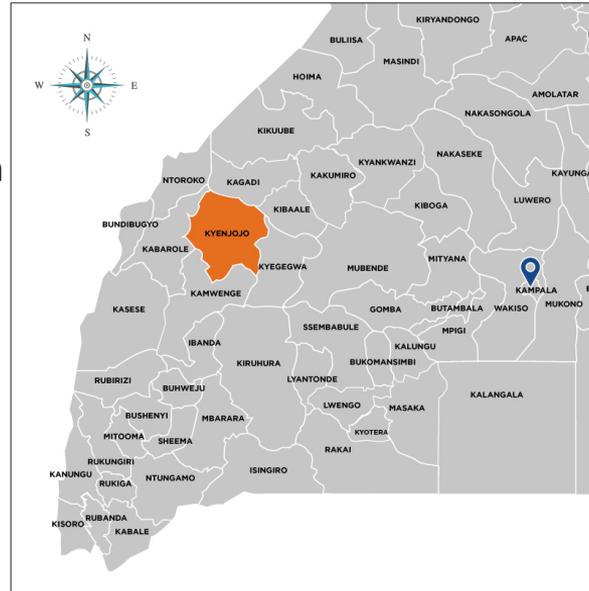
UGANDANS AND AMERICANS  
IN PARTNERSHIP TO FIGHT HIV/AIDS

# Electronic Case Management System Background

- SOCY piloted an mHealth-based solution to collect case management data, conduct linkages and referrals as well as collect individual SILC data for members of the SILC groups.
- This mHealth solution was developed based on the Dimagi's Commcare platform and was designed to work offline and only synchronize when it attains network connectivity.
- The project was piloted in 3 sub counties in Kyenjojo district: Kihuura, Katooke and Kyenjojo Town Council.

## Catholic Relief Services (CRS) Uganda

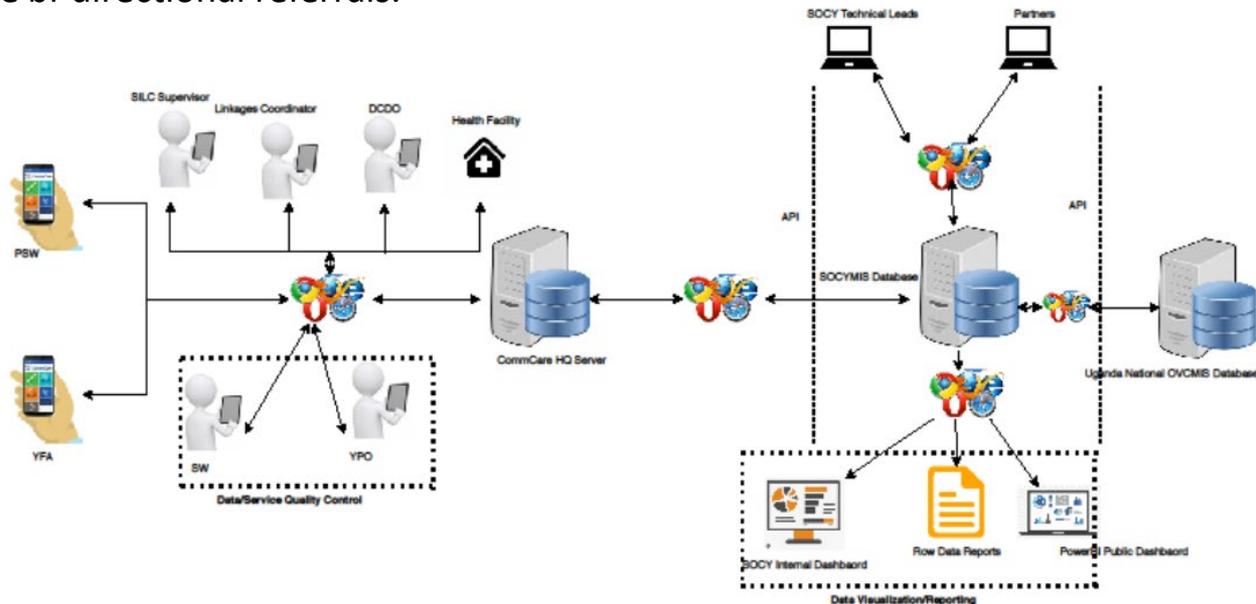
Sustainable Outcomes for Children and Youth (SOCY)  
ICT4D Pilot sites



- Targeted Districts
- Non-targeted Districts
- CRS Uganda Head office

# Electronic Case Management System Users

- The project equipped Social Workers- SW (3), Para Social Workers- PSWs (54), SILC Supervisors (1), Youth Project Officers - YPO (1), Youth Field Agents-YFA (2), and Community Development Officers-CDO (3) with tablets and smart phones.
- The project also worked with the Clinical partners and Community Development Office to manage bi-directional referrals.



# System Development

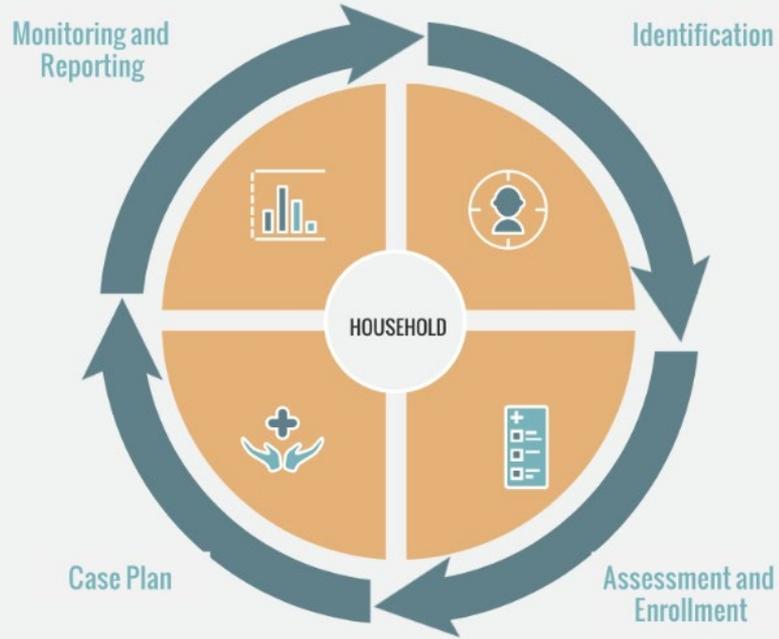
- We utilized an iterative process(Agile) that took 5 months to develop the working prototype of the app.
- Further periodic refinement of the app is done based on the feedback from the end-users/stakeholders.
- A user-centered approach was used to guide the App development process.
- All the stakeholders were involved; SOCY Technical leads, Para Social Workers, Social workers, SILC supervisors, Youth Program Officers, Youth Field Assistants, Field Agents, Project Manager, M&E teams.
- On the introduction of the referral module, Community Development Officers and Health Facility Referral focal persons were involved in the module design.

# System Deployment

- Deployment also entails training which was necessary for social workers and PSWs to learn to use the app.
- We conducted the following trainings for the SW/PSW .
  - Basic phone usage,
  - App functionality and usage,
  - App Troubleshooting skills,
  - Data Security and privacy,
  - Device security.
- The SW were further trained on leadership skills.

# Electronic Case Management Process

## SOCY ICT4D CASE MANAGEMENT



### Identification

#### Health facility:

- ART Clinics
- OPD
- Mother baby Care points
- HIV+ Women
- HIV + Children and Adolescents
- Sexually abused & Pregnant AGYW
- Other caregivers not suppressed on treatment

#### Community:

- PLHIV
- CBOs and NGOs
- CDO
- Probation Office



### Case Plan

- Referral management plan based on issues identified in the Household Improvement plan (HIP).
- Referrals
- HIV testing
- HES Interventions (SILC, Cottage, backyard gardening)
- Education (school subsidy)



### Assessment and Enrollment

- Using Household Assessment tool (HAT) benchmarks household needs are identified.
- The benchmarks fall under these categories
  - Stability
  - Schooled
  - Health
  - Safe



### Monitoring and Reporting

- Monitor implementation of HIPs through home visit tool
- Track supervision of services based on HIP
- Reporting into SOCY MIS and National OVCMS

# SOCY Learning Questions and Early Results

## Time taken to complete home visit and enrolment tools

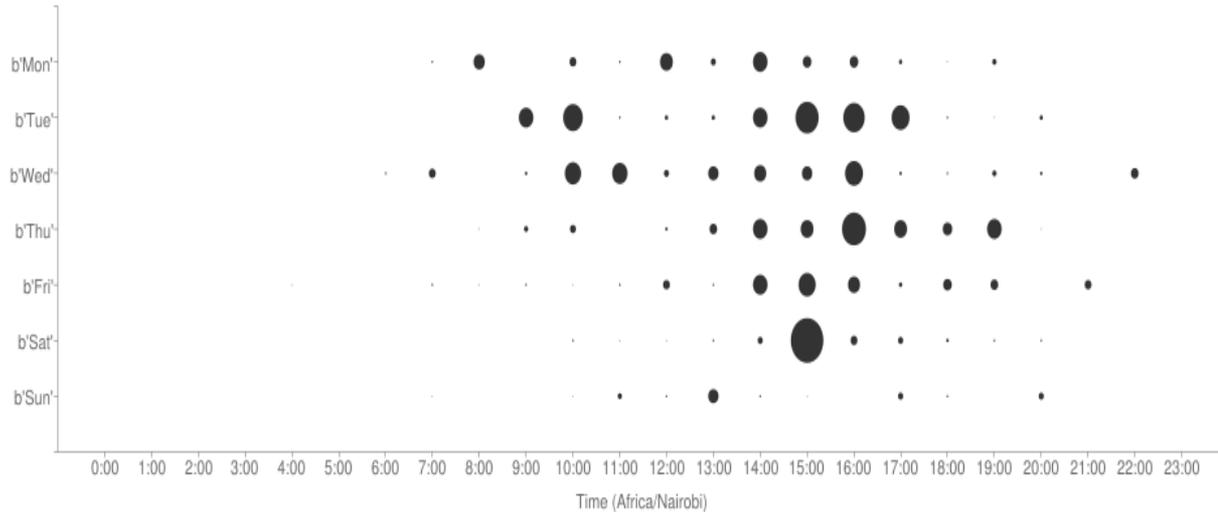
Category	Time taken	Paper based in Kibaale (control)	e-based home visit tools in Kyenjojo (treatment)
Para social workers (home visit) tool	30 minutes or less	54%	76%
	30-60 minutes	46%	24%
Social Workers (Enrollment) tools		1-2 hrs.	45-60 minutes

- Reduced the time taken to conduct home visits and enrollment by PSWs and SWs, without compromising on the quality of the visit.
- Reduced incompleteness and accuracy in the data collected because of the streamlined workflow.
- Allows the SW and SILC supervisors to review the tools to check appropriateness of services provided against the HIP and provides immediate feedback through the Caller User Groups (CUG).
- Reduces the cost and time involved in physically collecting tools, reviewing and data entry and eliminates loss of the tools.
- Enhances data security and privacy, with inbuilt access controls to the data on the devices and processes of transmission to the servers is encrypted and authenticated to ensure no data loss or unauthorized access.
- Minimizes data and service fraud through geolocator which is incorporated in the e-tools tools and tracks the time when the home visit has taken place.

# SOCY Learning Questions and Early Results, cont.

- Home Visit times captured from the frontline worker devices and locations during home visit.
- Home visits are normally done between 7:00 and 18:00 hours.

Worker Activity Times: Hour vs. Weekday



# Considerations for eCMS Sustainability

- Lessons learned regarding sustainability of eCMS system, especially regarding:
  - Potential to scale up nationally depending on the geolocation and cell network coverage from technical perspective scale-up is quite possible.
  - Potential to link with national reporting requirements/systems is at this point in Uganda also feasible, with additional commitment and resources.
  - Ability of local primes to take on management of eCMS is quite possible.

# Resource Investments to expand eCMS

- What investment of resources is necessary to ramp up use of eCMS?
  - Initial time spent on development of both systems, paper based/SOCY MIS vs. eCMS, is almost the same
  - Overall cost of the SOCY paper-based MIS training and deployment is lower compared to eCMS, cost difference of 5:1
  - Training & Capacity development cost is also higher for the eCMS with a cost factor ratio of 2:1
- What are the cost benefits/payoffs to making this investment?
  - If eCMS is set up at scale from the start of the program, over LOA of ~ 5yr. Initial high cost for the set up is offset with the lower cost recurring cost for eCMS
  - Overall flexibility that eCMS everchanging reporting requirements and PEPFAR reporting indicators

# Thank you





**Question and Answer**  
**Please type any questions in**  
**the Q&A box.**



**Thank you!**