DDD Final Activity Report: December 2019 – May 2022

Background

From December 2019 to May 2022, the Meeting Targets and Maintaining Epidemic Control (EpiC) project, funded by the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) and the United States Agency for International Development (USAID) and led by FHI 360, received funding through Headquarters Bridge Funds, Sustainable Financing Initiative (SFI), and respective Country Operational Plan funding to support decentralized antiretroviral (ARV) drug distribution (DDD) in 11 countries in Africa (Figure 1).

Goal: Support decentralized delivery of antiretroviral therapy (ART) by establishing appropriate and sustainable mechanisms for referral linkages, quality control, support, and monitoring

Objectives:

- Develop DDD guidelines, standard operating procedures (SOPs), tools, and training materials that can be adapted for use by countries
- Provide guidance on modifying DDD in the context of COVID-19
- Support countries to introduce and scale up DSD models under the DDD approach

This activity supports differentiated service delivery (DSD), a responsive, person-centered approach that adapts HIV services to reflect the preferences, expectations, and needs of people living with and vulnerable to HIV. The World Health Organization (WHO) describes DSD models for HIV treatment using four categories. Table 1 shows how the different DSD models fit within the WHO DSD framework and those supported under this activity indicated in the gray and darker blue quadrants.

The DDD approach expands the client choice of location to access antiretrovirals (ARVs) outside of the health facility enabling clients to receive refills at convenient community locations including private sector pickup points, community pharmacies, private clinics, or unmanned lockers or kiosks (Figure 1). DDD enables clients to access ARVs where they live or work, reduces travel time and cost, reduces wait time, and decongests health facilities.

EpiC is a global cooperative agreement dedicated to achieving and maintaining HIV epidemic control. It is led by FHI 360 with core partners Right to Care, Palladium International, and Population Services International (PSI).
For more information about EpiC, including the areas in which we offer technical assistance, click here.

Table 1. DSD models by differentiated service delivery categories

		WHO	
		Individual	**Group**
WHERE	**Facility**	**Facility- Based Individual Models** ▪ Fast-Track ▪ Multimonth dispensing	**Facility- Based Group Models** ▪ Adherence clubs ▪ Community adherence groups ▪ Family clubs ▪ Teen/adolescent clubs
	Community	**Community-Based Individual Models** ▪ Peer-led home delivery ▪ Courier service home delivery ▪ Private pharmacy refills ▪ Private clinic refills ▪ Automated locker refills ▪ Community-based distribution points (health posts, CBO/CSO)	**Community-Based Group Models** ▪ Community adherence groups ▪ Community ART groups (CARs/PODIs) ▪ Client-led ART delivery

Across 11 countries, that received EpiC central funding, five DSD models were introduced and are currently being implemented in 10 countries in Sub-Saharan Africa (Figure 1): private/community pharmacies, private clinics, automated lockers, home delivery through courier services or community workers, community ART groups (CAGs) or community ART distribution points (PODIs). Other community-based models include distribution through community-based organizations (CBOs), civil society organizations (CSOs), or at health posts. The project also promoted DDD in other countries beyond the 11 through HQ activities such as webinars and tools described below.

Figure 1. Countries that received EpiC support for DDD and models implemented under EpiC

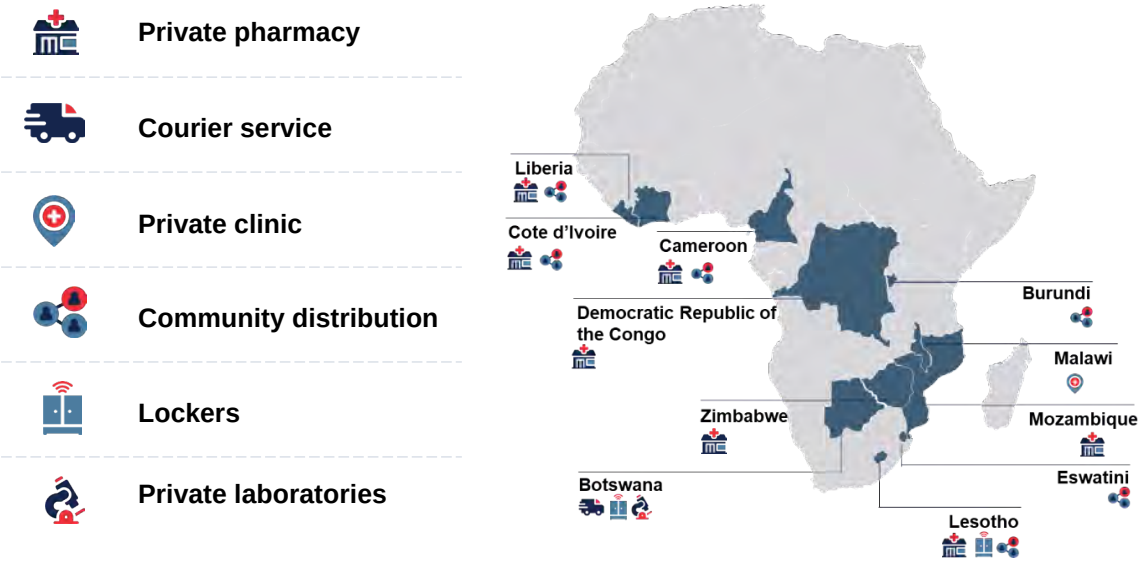


Table 2. DSD models under the DDD approach for ART delivery

Model	Private pharmacy model	Private clinic model	PODI and other community-based models	Courier service	Automated eLockers
When	3 to 6-monthly	3 to 6-monthly	3 to 6-monthly	3 to 6-monthly	3 to 6-monthly
Where	Private pharmacy	Private clinic	PODI leader's home or other community structure e.g., drop-in center (DIC)	Home Convenient location of choice	e-Lockers Pharmacies
Who	Private pharmacist	Private clinician	Expert client/peer worker/health care workers (HCWs)	Private courier services	Contactless; toll-free number available
What	ART refill, pre-exposure prophylaxis (PrEP), HIV self-testing (HIVST), HIV testing and counselling (HTC), viral load (VL) sample collection, blood pressure/weight measurement, adherence counselling		ARV refills, adherence counseling, VL test reminders, discussions on income-generating activities	ART refills, TPT, PrEP	ART refills, PrEP
Opportunity	Family planning (FP) service/commodity, non-communicable disease drugs (NCD), NCD screening, tuberculosis preventive treatment (TPT), Cotrimoxazole (CTX)		PrEP, FP service/commodity, HIVST, NCD drugs, NCD screening, TPT, CTX	FP commodity, NCD drugs, HIVST, self-dried blood spot sample collection, CTX	FP commodity, NCD drugs, HIVST, TPT, CTX

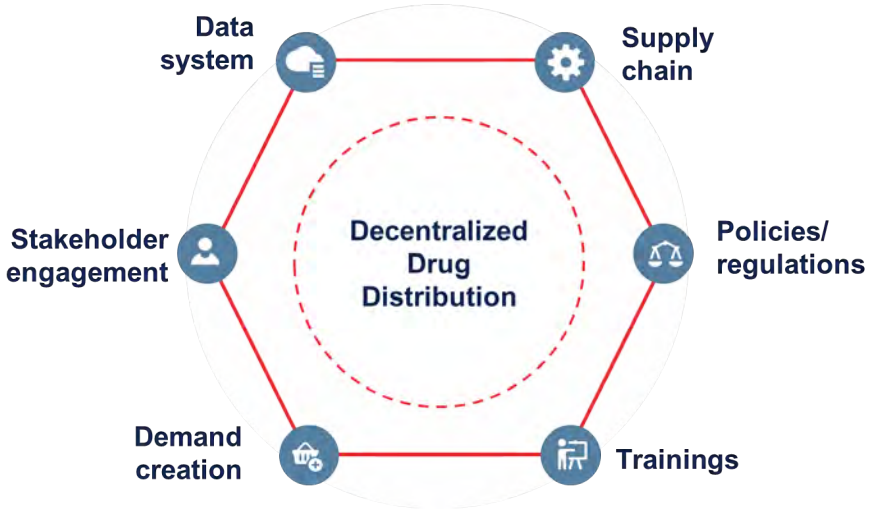
EpiC developed tools and resources (Table 3) and provided technical assistance for countries to conduct landscape assessments, engage stakeholders, develop a business case for private sector engagement, and build capacity among providers to identify, implement, and scale-up the DDD approach. Reports on country achievements were disseminated in various ways (Table 3).

Table 3. Resources and achievement reports

Technical resources for implementation	Country successes disseminated through various platforms
3 Technical Guides ▪ DDD Scale-up Guide (FR/PT) ▪ Adaptation of DSD models to COVID-19 Guide (FR/PT) ▪ DDD Mobile Application Architecture Guide **4** DDD Assessment Tools **9** Modules of DDD Providers' Training Curriculum	**3** Blog posts (Liberia, Malawi, Botswana) **10** Final DDD activity reports (Botswana, Burundi, Cameroon, Cote d'Ivoire, Democratic Republic of the Congo, Eswatini, Lesotho, Liberia, Malawi, Mozambique) **2** PEPFAR Solutions site: How Home Delivery of Antiretroviral Drugs Ensured Uninterrupted HIV Treatment during COVID-19 and can be Optimized to Address Unique Client Needs and Other Emergencies **7** Abstracts accepted for INTEREST conferences **4** Abstracts accepted for AIDS conferences

For each country supported, EpiC used six critical interconnected steps to facilitate scale-up (Figure 2). Each step was integral for success. This final report describes the process and introduction of DDD approaches including preparation, trainings, and demand creation, then provides a brief snapshot of achievements for each of the 11 countries.

Figure 2. Key components that facilitate DDD



Landscape assessments

Prior to implementation, a landscape assessment of DDD readiness among stakeholders was conducted in each country with clients on ART, public health facility staff, and the private sector (i.e., private pharmacies, private clinics). EpiC developed a compendium of DDD assessment tools including surveys and interview guides that could be adapted for particular contexts to determine needed inputs and support and to understand stakeholder priorities and concerns. Overall, 1,590 pharmacies and clinics across eight countries, and 541 clients from five countries were assessed. These assessments highlighted interest among both private pharmacists and clients. They also identified areas for strengthening.

Table 4. Selected results from private pharmacy and clinic surveys

Country	# of private pharmacies/ clinics surveyed	% willing to dispense ARVs	% open after 5 P.M.	% open on Saturday and Sunday	% with private counselling space
Botswana	43	100%	100%	100%; 88%	100%
Cameroon	82	86%	–	98%; 23%	64%
Cote d'Ivoire	104	74%			100%
DRC	957	100%	85%	98%, 77%	83%
Eswatini	24	54%	67%	80%; 60%	83%
Liberia	198	97%	75%	95%, 35%	60%
Malawi	28	100%	100%	25%; 80%	96%
Mozambique	176	91%	95%	97%; 35%	78%

Table 5. Selected results from client surveys

Country	# of clients on ART interviewed/ surveyed	% interested in accessing ARVs at private pharmacy/clinic	% who spent over 1 hour travelling to pick up ARVs	% who spent over 1 hour waiting at the facility for ARVs
Botswana	61	61%	15%	37%
Eswatini	325	72%	14%	17%
Liberia	58	78%	59%	92%
Malawi	82	72%	60%	73%
Mozambique	15	73%	33%	53%

Complementing the landscape assessments, public and private health facilities were mapped in Mozambique, Cameroon, Democratic Republic of the Congo, Eswatini, and Liberia, and travel distances were modeled to inform strategic locations for decentralized ARV pickup points. Potential pickup locations were identified within sublocations with close proximity to where many people living with HIV resided.

Figure 3 shows two maps illustrating how the models could be used to locate DDD pickup points (PUPs) to minimize travel distances and travel. In the Democratic Republic of Congo, registration data for ART was used to select private pharmacies that could serve high PLHIV density suburbs (Figure 4). These maps, along with other selection criteria, were used to determine locations for decentralized pickup points.

Figure 3. Maps of health facility and private pharmacy location and travel times in Monrovia, Liberia

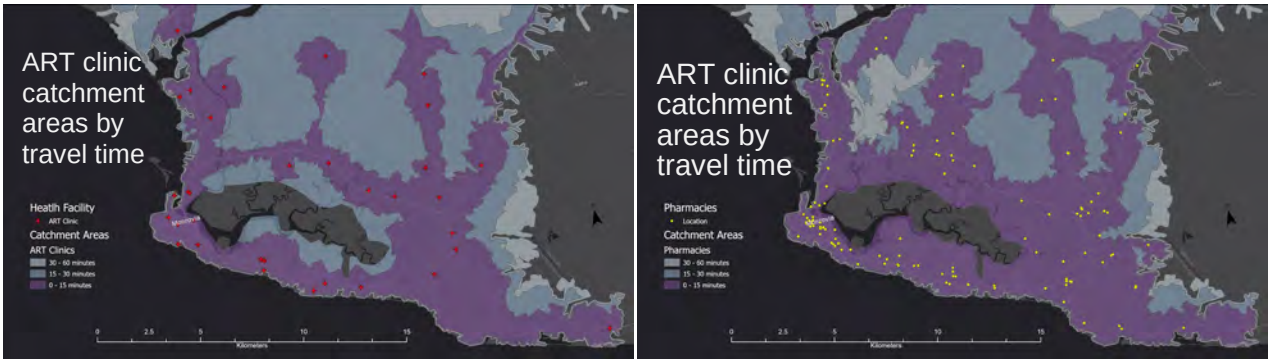
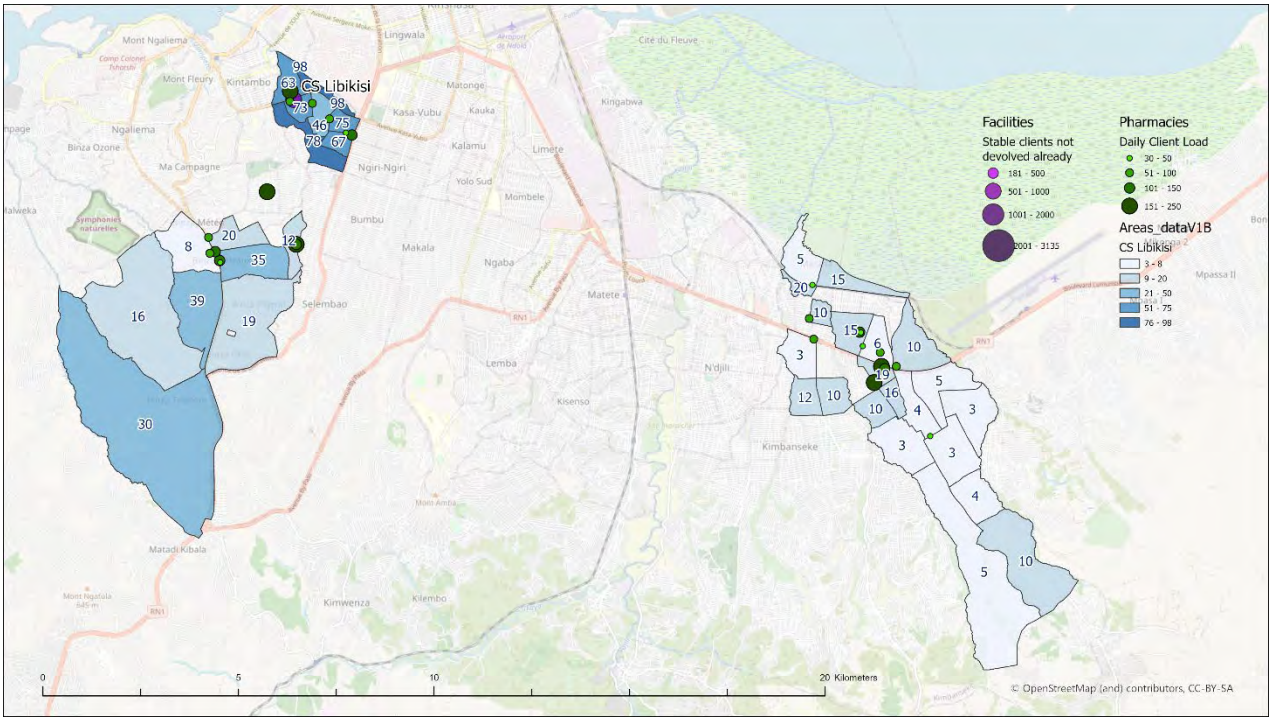


Figure 4. Map of PLHIV volume by health area and location of private pharmacies in Kinshasa, DRC



Cost estimation analysis

Cost estimation modeling conducted by Palladium, an EpiC partner using data from Zimbabwe, showed that DDD through the private sector would be associated with cost savings. EpiC supported further costing analyses using implementation data to determine the actual cost savings under different contexts to provide information to key stakeholders for informed decision-making.

In Eswatini, EpiC conducted an activity-based costing exercise to determine the resources required for service delivery through community distribution points from a provider, donor, and client perspective. The analysis found that, while financial and opportunity costs were incurred for the program during start-up and scale-up, there were cost savings for the client (Table 6).

Table 6. Financial and opportunity costs of DDD per month per refill for stakeholders

	Donor Resources		Ministry of Health Resources		Client Resources	
	Per month	**Per refill***	**Per month**	**Per refill***	**Per month**	**Per refill***
Financial	$27,261	$33.25	0	-	-$1,972	-$2.40
Opportunity	$9,085	$11.08	$11,282	$13.75	-$39,250	-$47.87
Total	**$36,346**	**$44.32**	**$11,282**	**$13.75**	**-$41,222**	**-$50.27**

* Based upon ~820 refills dispensed per month (17.7% of all ART refills)

A Botswana modeling exercise, with applicable assumptions, showed that the Botswana Government would save $0.47million in year one if 41,298 patients were devolved to an applicable DSD model. These savings would be largely from less staff time and reduced facility overhead. Similarly, using both private and public health laboratories (PPP-VL) for viral load testing could lead to cost savings and help close the viral load testing coverage gaps.

Learning collaborative webinars

The DDD Learning Collaborative Webinar series was initiated as a platform for knowledge exchange and cross-learning among implementers, both EpiC and external, of the various models of the DDD approach. The latest evidence and lessons learned from the decentralized delivery of ART were shared, and discussions on challenges, solutions, and opportunities were held to catalyze more widespread implementation of promising models.

This series enabled the sharing of experiences with introducing and scaling up DSD models among stakeholders directly involved in implementing or supporting such models, including representatives from local implementing partners, ministries of health, and funding agencies, as well as anyone interested in DDD.

The 19 webinars reached an average of 117 attendees per session, representing 65 countries.

Sample slides from the webinar presentations

Policy support, advocacy, and engaging stakeholders

Government policies and regulations that govern the delivery of ART outside health facilities is one of the most critical components for establishing DDD including through private sector facilities. The leadership and guidance of national government and the integration of DDD into existing national health systems are necessary for successful introduction, scale-up, and sustainability. Policy support included:

- Integrating DDD into existing national guidance for decentralized or community-based delivery of ARVs (policies adapted in five countries as a result of EpiC support)

- Advocating for private sector participation in HIV service delivery through modeling that showed cost savings for donors and clients, and potentially a decrease in those lost to follow-up, which has implications for reducing new HIV infections and AIDS-related deaths (see DDD Strategic Guide for Scale-up, page 59)
- Advocating for allocation of government-/donor-procured ARVs and opportunistic infection medications in private sector clinics and pharmacies by developing secure systems for distribution, reporting, and tracking that ensure accountability for the commodities
- Advocating to allow sharing client information between public and accredited private facilities to ensure accurate reporting
- Integrating DDD national trainings, technical working group proceedings, and quality assurance (QA)/quality improvement (QI) cycles

Various approvals of implementation from national and subnational government entities

Additionally, EpiC advocated for:

- Private sector involvement in ARV delivery through continuous engagement of stakeholders by establishing DDD technical working groups in Botswana, Cameroon, Mozambique, Lesotho, and Zimbabwe
- Use of automated lockers for ARV dispensation in Lesotho and Botswana
- Authorization to dispense ARVs in community ART groups in Burundi
- Setting frameworks for reporting DDD and integrating DDD into national systems, including:
  - Inclusion of the private pharmacy model into national differentiated service delivery and community distribution of ARV guidelines in Cameroon and Liberia
  - Inclusion of private clinics into the Malawi Department of HIV/AIDS supply chain system
- Adoption of DHIS2 under the Lesotho BonoloMeds model central dispensing unit for streamlined reporting and requesting health commodities

Provider training curriculum

A providers training curriculum was developed to ensure health care workers were sufficiently skilled in the provision of appropriate care and support to ART clients outside of public sector health facilities. The curriculum consists of nine modules, each with slides, handouts, and quizzes. It has been adapted and adopted for use in Cameroon, Cote d'Ivoire, DRC, Liberia, Mozambique, and Zimbabwe.

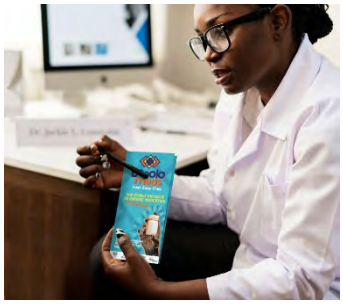
Nine modules

1. Decentralized Drug Distribution of Antiretroviral Therapy in the Private Sector: Introduction to the Models
2. Introduction to HIV Testing, Care, and Treatment Services (ministry of health training)
3. Pharmacovigilance, Dispensing, and Adherence
4. Inventory Management
5. Patient Referrals and Coordination of Care
6. Demand Creation and Client Enrollment
7. Recording and Reporting Service Delivery Data
8. Electronic Tools to Facilitate DDD (DDD App, ORA, and DHIS2)
9. Ethics and Client Privacy Protection

Excerpts from the training curriculum: training guide (left) and training slide (right)

Demand creation

Demand creation materials were developed and awareness-raising activities were conducted across EpiC-supported DDD countries. The materials were reviewed and approved by technical working groups for rollout at public health facilities. The following are examples of demand-creation strategies used:

 Provider offering DDD in Lesotho	 EpiC staff introducing DDD during a health talk in DRC	 EpiC staff appear on a local TV station to talk about DDD in Malawi
Flyers and posters, including information about DSD models and ARV pickup locations, were developed to support health facility staff offer and enroll clients into preferred models.	DSD models presented during health talks by health care providers and outreach workers using DDD posters.	TV and radio talks

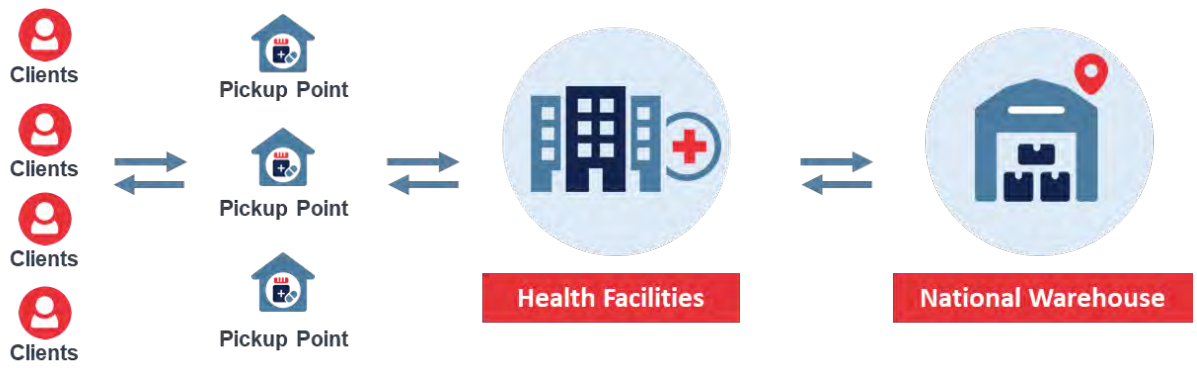
Data systems: The DDD app

Sharing data between health facilities and PUPs, including private pharmacies, private clinics, and other community distribution points, is important for seamless implementation of out-of-facility DSD models and to ensure refill completion, track missed appointments in real time, and facilitate reporting by the parent health facility. Typically, private health facilities do not have access to government health information systems. To close this gap, EpiC advocated for allowing the private sector limited access to basic information to enable them to provide refills.

Some countries adapted pre-existing government systems into the private sector. In Cameroon, private pharmacies were allowed access to their national electronic medical records system, DAMA. In Mozambique, pharmacies used two separate pre-established electronic applications for patient and supply data. In Burundi, an analog mobile phone-based system was developed for electronic data reporting from the field. Other countries adapted the DHIS2 tracker or developed systems.

In Cote d'Ivoire, Liberia, and Zimbabwe, the EpiC-developed DDD app was adapted. The DDD app is an online and offline platform that can be used on a smartphone, tablet, or laptop. The app enables interactive bi-directional communication between health facilities and the ARV refill points, secure sharing of client information with capacity for automated reminders, report dashboards, inventory management, and tracking of commodities. It can serve as the electronic medical record (EMR) in contexts without an electronic system, or it can be linked to the existing EMR to allow refill points to communicate directly to the electronic systems used in health facilities.

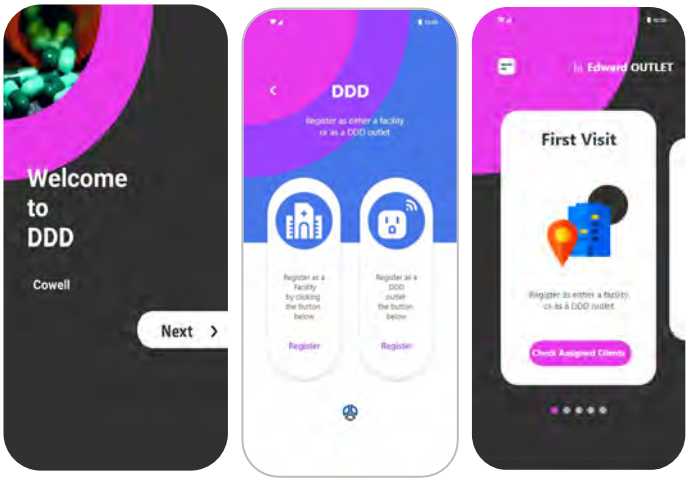
Figure 5. Necessary exchanges of patient and supply data for smooth operation of DDD



In Zimbabwe, the DDD app has been adapted to include biometric scanning capabilities to confirm the clients' identity and a barcode scanning function for commodity tracking.

Key DDD app features

- Platform for **real-time communication** and **data sharing** between service delivery points allows for **transparent stock management** at pharmacies and patient management at both service delivery points
- Easily adaptable: language, data collection, clinical symptom screenings, reports, and other features can easily be incorporated
- Existing EMRs can easily be linked with the app so all data reporting will be streamlined



Images of the DDD app

Country accomplishment

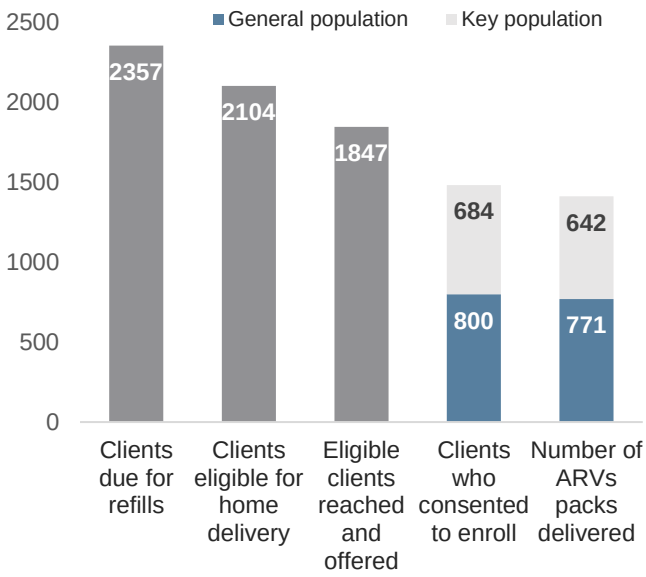
BOTSWANA

Courier service home delivery Services: ARV, TPT, PrEP	
5	Districts (Gaborone, Kweneng East, Francistown, Maun, Palapye)
16	Health facility staff trained
5	Health facilities devolving clients
1,484	Clients enrolled
1,413	ARVs delivered

Automated eLockers Services: ARV, TPT, PrEP	
2	Lockers procured

Viral load testing via private sector laboratories Services: VL testing	
1	District (Boteti)
5,123	VL samples tested
24	Hours for turnaround time of results

Cascade of home deliveries
Sept 2020 - May 2022



Courier service picking up parcels of ARVs

Ministry of Health representative on a learning trip to test an automated locker system piloted in one hospital by an implementing partner

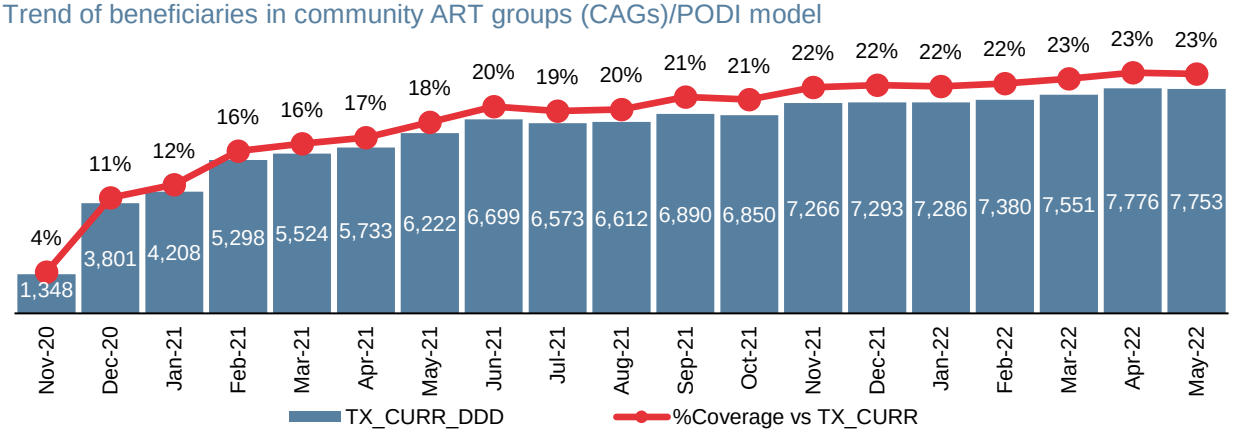
BURUNDI

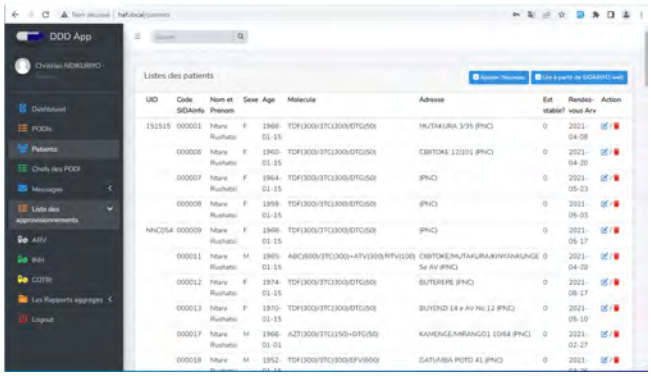
PODI model

Services: ARV, counseling, isoniazid, co-trimoxazole, adherence counseling, VL testing reminders, discussions on income-generating activities

10	Provinces (Bubanza, Bujumbura, Bujumbura Mairie, Bururi, Cibitoke, Makamba, Muramvya, Mwaro, Rumonge, Rutana)
247	Health facility staff trained
826	PODI leaders trained
744	PODIs established
1	Data management system (HAFI App) to use analog mobile phone to record pickup status updates electronically to the EMR from the community
194	Health facilities devolving clients
7,566	Clients enrolled

Trend of beneficiaries in community ART groups (CAGs)/PODI model





Desktop dashboard of the analog mobile phone-based data collection app (HAFI App)

PODI leader offering the PODI model to clients on ART

CAMEROON

Community ARV distribution evaluation	
10	Regions evaluated
394	Health facility providers interviewed
932	PLHIV interviewed
103	CBO staff interviewed
82	Pharmacies assessed
1	Evaluation report developed

Private pharmacy model pilot	
2	Cities (Douala and Yaoundé)
16	Health facilities selected
20	Private pharmacies selected
5	Training modules adapted by Ministry of Health

Main evaluation findings

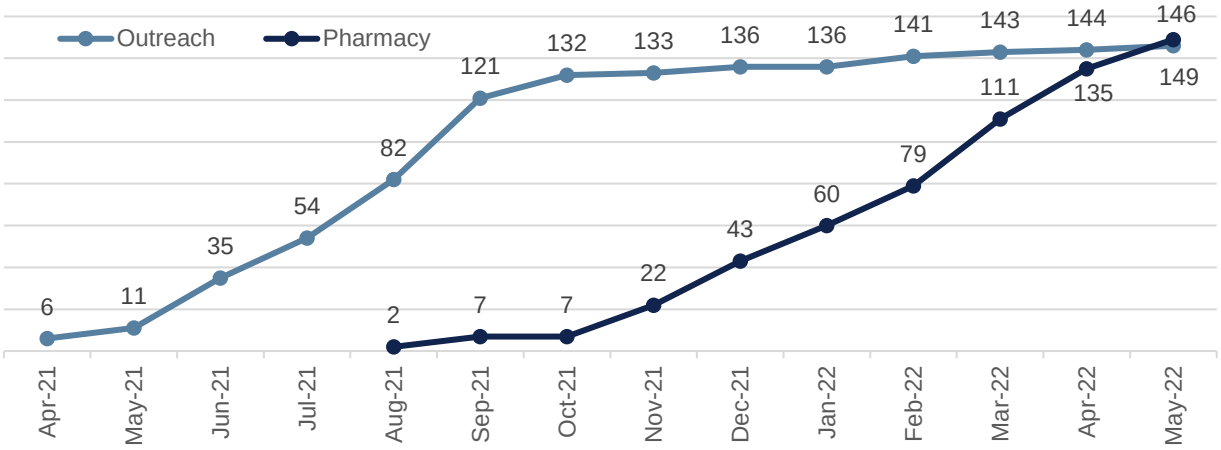
CBO distribution of ARVs not only improved wait time and clinical outcomes among clients accessing care at CBOs, but also for those who continued to receive care at health facilities that offer the CBO model, compared to those receiving care at health facilities that did not offer the CBO model.

COTE D'IVOIRE

Community outreach model Services: ARVs, isoniazid, condoms	
1	City (Abidjan)
5	Health facilities devolving clients
198	Clients received ARVs
167	ARVs picked up

Private pharmacy model Services: ARV, co-trimoxazole, condoms, TPT	
1	City (Abidjan)
15	Health facility providers and implementers trained
21	Private pharmacies dispensing ARVs
6	Health facilities/sites devolving clients

Number of clients who accessed ART by DDD model, April 2021 to May 2022



Clients lining up at the pharmacy for medication pickup in Cote d'Ivoire

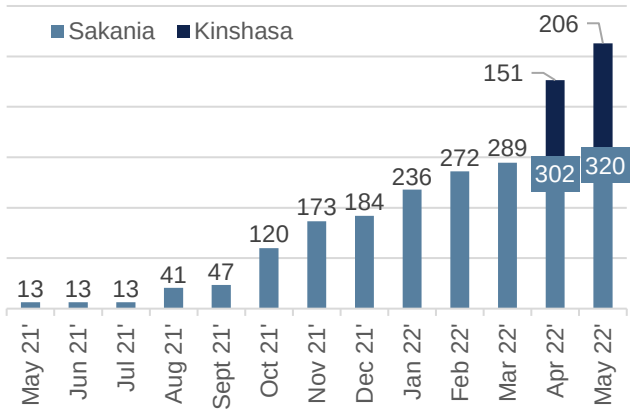
DEMOCRATIC REPUBLIC OF THE CONGO

Private pharmacy model

Services: ARVs, HIVST kits

6	Health zones (Sakania in Haut-Katanga; Kikimi, Binza Meteo, Bandulungwa, Kingasani, Masina II in Kinshasa)
119	Providers and implementers trained on DDD
19	Health facilities devolved clients to DDD
18	Private pharmacies dispensing ARVs
526	Clients enrolled in private pharmacy model
221	Clients picked up ARVs

Number of clients enrolled in private pharmacy model in Sakania and Kinshasa, DRC



ESWATINI*

Community Health Commodity Distribution (CHCD)

Services: ARVs, HIV test, PrEP, condoms, VL sample collection, TB/STI/COVID screenings, TPT, TB treatment, NCD drugs, family planning products

2	Regions (Hhohho and Shiselweni)
3	Nurses recruited to support ARV distribution
29	Health facilities devolved clients
303	Community distribution points
2,522	Clients received ARV refills
8,189	Packs of ARVs distributed

Community distribution points included churches, closed schools, drug shops, and neighborhood care points

*As of March 2021

ART nurse collecting VL sample at Mhlambanyatsi pickup point

LESOTHO

1	District (Maseru)
1	Central dispensing unit installed
8	Health facilities devolved clients
109	Health facility staff trained

BonoloMeds private pharmacy model

Services: ARV, PrEP

23	Private pharmacies dispensing ARVs
4,133	Clients enrolled

BonoloMeds automated eLockers

Services: ARV, PrEP

5	Lockers installed
1,641	Clients enrolled

BonoloMeds health posts

Services: ARV, PrEP

2	Health posts
36	Clients enrolled

Central dispensing unit in Lesotho where all prescriptions are processed and from which supplies are distributed to pickup points

Client in Lesotho picks up ARVs from an automated locker

LIBERIA

1	City (Monrovia)
104	Providers and implementers trained
3	Health facilities devolved clients

Private pharmacy model

Services: ARVs, adherence counseling, TB screening, ADR screening

21	Private pharmacies dispensing ARVs
174	Clients enrolled
92	Clients picked up ARVs

Community-based organization model

Services: ARVs, adherence counseling, TB screening, ADR screening

3	CBOs dispensing ARVs
87	Clients enrolled
52	Clients picked up ARVs

Client in Liberia picking up ARV refills

One of the pharmacies in Liberia participating in the program

MALAWI

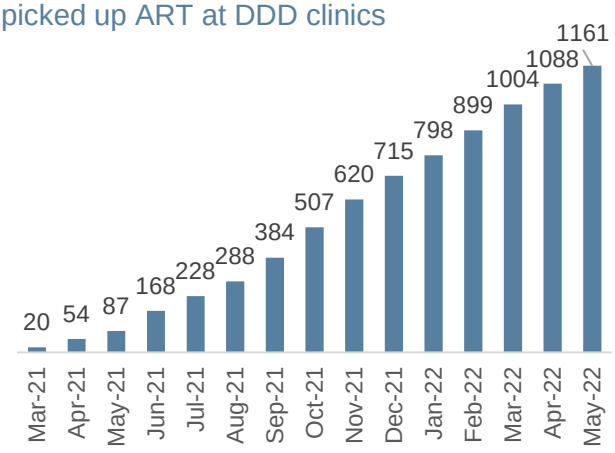
Private clinic model

Services: ARVs, PrEP, VL testing, adherence counseling

4	Districts (Kasungu, Mangochi, Machinga, Mulanje)
17	Health facilities devolved clients to DDD
11	Private clinics dispensing ARVs
14	Providers and implementers trained*
1,161	Clients enrolled

*Additional providers trained in other Ministry of Health trainings

Cumulative trend of ART clients ever picked up ART at DDD clinics



MOZAMBIQUE

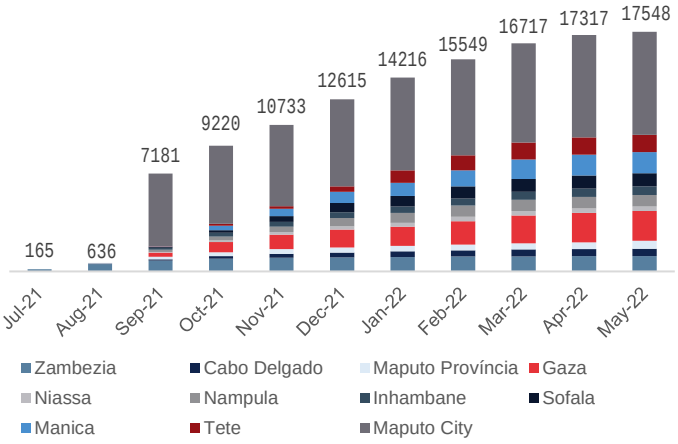
Private pharmacy model

Services: ARVs

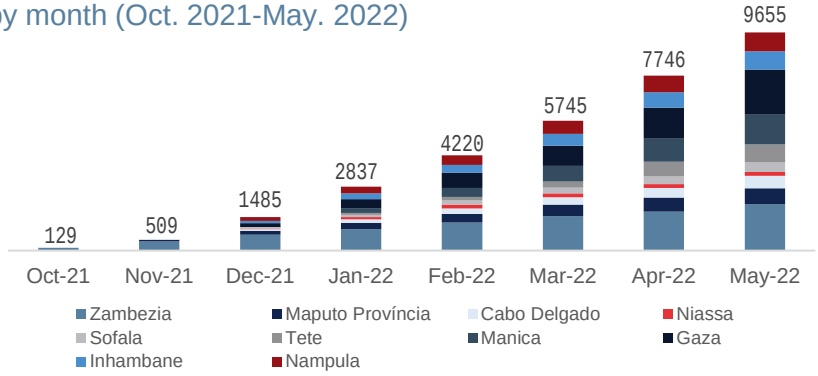
11	Provinces*
36	Health facilities devolved clients to DDD
67	Private pharmacies dispensing ARVs
470	Providers and implementers trained
17,548	Clients enrolled
9,655	ARVs picked up

*Provinces: Cabo Delgado, Gaza, Inhambane, Manica, Maputo Provincia, Maputo Cidade, Nampula, Niassa, Sofala, Tete, Zambezia

Number of clients devolved cumulatively by month (Jul. 2021-May. 2022)



Number of ARV pick-ups cumulatively by month (Oct. 2021-May. 2022)

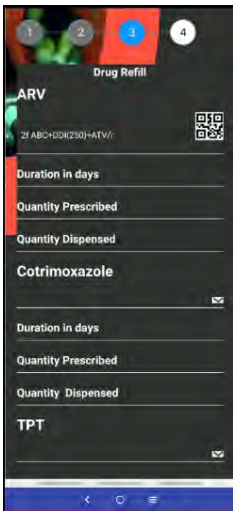


ZIMBABWE

Private pharmacy model

1 City (Bulawayo)

The DDD mobile app was adapted to include barcode scanning to support commodity tracking and a biometric scanner to verify clients upon pickup. The app was adapted as the “Impilo App” locally.



Considerations for scale-up

Introduction of out-of-facility DSD models and their incorporation into national DSD frameworks, has increased options for person-centered ART delivery services. However, more efforts are needed for scale-up and sustainability.

Scaling up and ensuring sustainability of DDD could be enhanced by adding other services. For example, adding non-HIV services such as family planning, refills for noncommunicable disease medication, and COVID-19 services (vaccines, testing, treatment, etc.) could address stigma associated with HIV services, and make pickup points more acceptable to PLHIV.

In addition, offering PrEP, condoms, and HIV self-test kits could increase the range of HIV services at community pickup points and help de-medicalize them.

To optimize the benefits of DDD and its economic and epidemiological impact, enrollment into applicable models needs to be done at scale, ensuring equity for PLHIV in both rural and urban settings. The number and types of pickup points, as well as participating public facilities, must be increased so that out-of-facility DSD models can be offered to all eligible clients.

Models that meet the needs of key and priority populations are also needed. Additional stakeholder engagement will help match pickup points to key population hotspots or key-population-friendly facilities.

To achieve Ministry of Health buy-in and sustainability, continuous advocacy is needed for adoption and inclusion of all out-of-facility DSD models as part of the national DSD strategy, and DDD indicators must be improved to show the extent of scale-up and increase the quality of reporting. Analysis of quality of care for devolved clients, client clinical outcomes, and cost effectiveness of the different models can inform expansion and adaptation.

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