

Differentiated service delivery for chronic conditions

A supplement to A Decision Framework for antiretroviral therapy delivery



DSD for chronic conditions: A supplement to *A Decision Framework for antiretroviral therapy delivery*

This supplement to *A Decision Framework for antiretroviral therapy delivery* [1] outlines how the principles of differentiated service delivery (DSD) for HIV treatment for clients established on treatment can be applied to benefit people living with any chronic condition.

The aim is to provide:

- **An overview of why DSD is needed beyond HIV**
- **The key enablers for DSD for chronic conditions**
- **Examples of how the building blocks of DSD can be used for chronic conditions**
- **Examples of how service delivery for chronic conditions may be integrated**

This supplement is intended for managers of national and district chronic care programmes, non-communicable disease (NCD) and HIV programme managers, implementing partners, community partners and donors.

What is differentiated service delivery?

DSD is a person-centred approach that simplifies and adapts HIV services across the cascade in ways that both serve the needs of people living with HIV and reduces unnecessary burdens on the health system [1]. For clients on antiretroviral therapy (ART), ministries of health have scaled less intensive DSD models for HIV treatment for people established on ART.



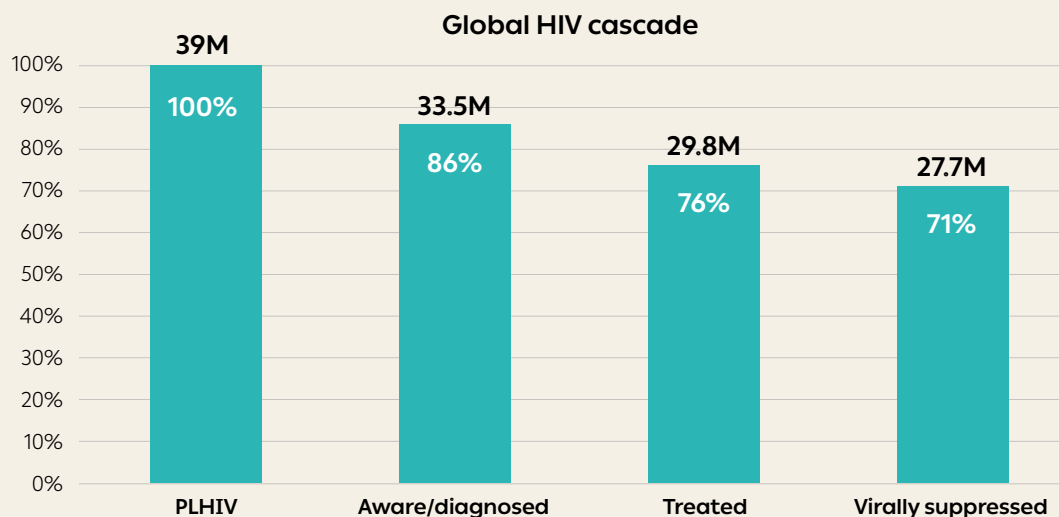
Why is DSD needed for chronic conditions beyond HIV?

Globally, 39 million people are living with HIV, 537 million with diabetes (DM) and 1.4 billion with hypertension (HTN) [2–4]. Many others require lifelong medication for other chronic conditions. Alongside these chronic disease syndemics, the population of people living with HIV is ageing. Today, half of people on ART are over the age of 40, with 22% of people living with HIV in PEPFAR-supported programmes older than 50 years of age [5].

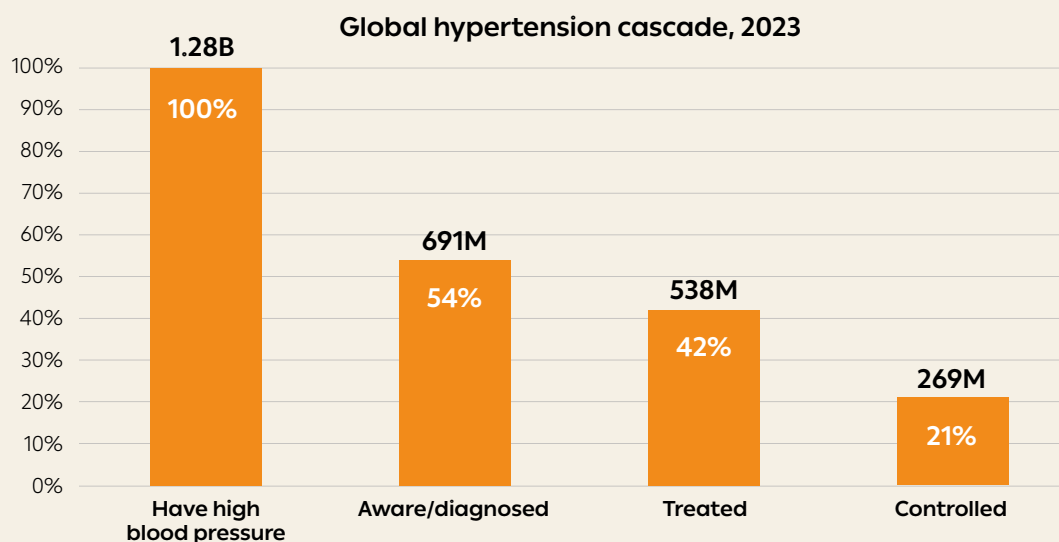
The prevalence of HTN and DM among people living with HIV in high HIV-prevalence settings on the African continent has been

estimated at 27.5% and 13.4%, respectively [6]. Recent data suggests significant increases in the prevalence of HTN for people on a dolutegravir-based ART regimen. The global responses to these chronic conditions are, however, at very different levels of maturity (Fig 1). While the HIV response has been united behind the global 95-95-95 targets, there is a lack of clear global targets and concerted action to meet similar cascade goals for other chronic conditions. Global targets for DM were set only in 2022, and those for hypertension are awaited.

Figure 1. Global HIV cascade compared with global hypertension cascade



<https://www.unaids.org/en/resources/fact-sheet>



<https://www.who.int/news-room/fact-sheets/detail/hypertension>

DSD for HIV treatment emerged as a response to the increasing number of people living with HIV receiving ART. DSD was a response to the global HIV guidance from the World Health Organization (WHO) recommending "Treat-All" and that all people living with HIV should be on ART

regardless of CD4 cell count [7]. The number of people requiring HTN and DM treatment is vast, and the common access challenges for clients and workload challenges for healthcare workers are similar to those experienced in the HIV response (Figure 2).

Figure 2: Challenges of accessing chronic condition care: Client and healthcare worker perspectives

Common challenges: Why it's time to deliver differently

Client perspective



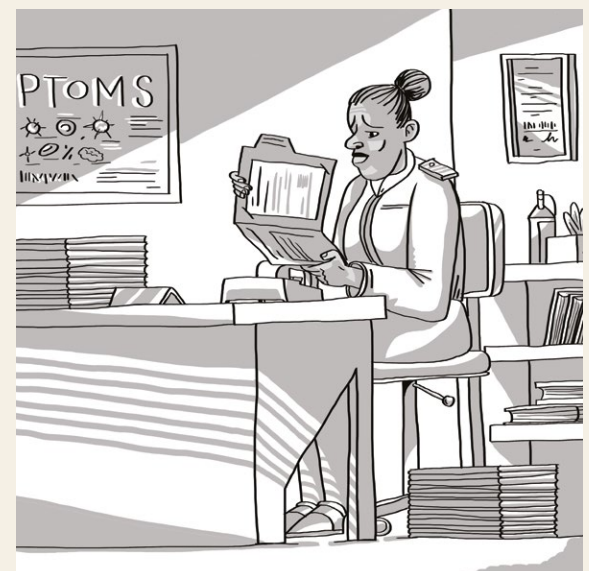
Healthcare worker perspective

Why should I keep taking treatment if I feel healthy and the clinic is full of people who are sick?

How am I going to provide quality care to 100 clients today?

Why must I queue to see a nurse and queue at the pharmacy if I'm only coming to collect my ART refill?

How can we support clients who are failing treatment if we are overwhelmed with adherent clients?



The principles of DSD, as outlined in the definition in Box 1, can be applied beyond HIV and ART delivery. Hence, we propose expanding the definition and implementation of DSD beyond HIV for other chronic conditions.

Box 1: Definition of DSD for HIV and adaptation for DSD for chronic disease

Differentiated service delivery for HIV:

is a **person-centred approach** that simplifies and **adapts HIV services across the cascade** to reflect the preferences and expectations of groups of people living with HIV while reducing unnecessary burdens on the health system.

Differentiated service delivery for chronic conditions:

is a **person-centred approach** that simplifies and **adapts chronic condition services across the cascade** to reflect the preferences and expectations of groups of people living with chronic diseases, while reducing unnecessary burdens on the health system.

DSD principles have also been applied across the cascade of care, from screening and initiation of treatment to adapting treatment to reach control and for continuation of treatment. This brief will focus on DSD for clients established on chronic condition treatment.



DSD for chronic conditions for those living with and without HIV

DSD principles can be applied to any chronic condition, including HIV. The decision on which conditions may be managed within one service will be driven by local epidemiology and how existing services have been planned and financed. Two examples of how services for chronic conditions may be brought together are described later in the section on integration.

DSD involves adapting the building blocks of service delivery – the “when” (timing

and frequency of services), “who” (the cadre providing the care), “where” (the location of services) and “what” (the package of services) – to meet the needs and expectations of the person within the context of the public healthcare system.

First, however, we will consider the enablers for DSD for chronic conditions.

Enablers for DSD for chronic conditions

A number of key enablers have supported the scale up of DSD for HIV over the past decade, at both the clinical and policy level.

Clinical enablers

Clinical factors that enabled DSD for HIV treatment and that are applicable for DSD for other chronic conditions include:

- Moving from a regimen with multiple side effects to a less toxic regimen
- Development of simplified treatment guidance, including one regimen for all populations
- Use of a fixed-dose combination that reduced pill burden for clients and simplified supply chains for health systems

- A robust clinical monitoring tool of adherence (viral load) that enabled clinician confidence in client adherence to medication, as well as strong monitoring and evaluation of programmes

Taken together, these factors have enabled guideline developers globally and nationally, national programmes and implementing partners to feel comfortable about reducing the frequency of clinical visits and extending treatment refill durations for clients established on treatment.

Analysis of enabling factors should be considered in the development of public health-driven clinical guidance for other chronic conditions. Examples of key clinical enablers for HIV and hypertension are shown in Table 1.





Table 1: Clinical enablers for DSD for chronic disease: HIV and HTN examples

Enablers	HIV	HTN
Non-toxic regimen with minimal monitoring needed	TDF 3TC DTG	Amlodipine and telmisartan
Simplified clinical guidance	One regimen across populations	Step-wise algorithms with named agents doses and defined time between titration steps [4]
Use of fixed-dose combinations (reducing pill burden and simplifying supply chain)	Triple FDC available	Dual FDC available
Clinical monitoring tool to determine when established on treatment	Viral load	Measurement of blood pressure

Policy enablers

To define the building blocks for DSD for chronic conditions, it is necessary to conduct an analysis of relevant global and national policies. Policy considerations that should be considered when designing a DSD model for any chronic condition are outlined in Table 2.

Table 2: Building block policy considerations for chronic conditions

Policy considerations	
 WHEN	What is the recommendation for the frequency of visits prior to the client reaching control on treatment? What is the recommendation for the frequency of both clinic and medication refill visits once the client is established on treatment?
 WHERE	At what level of the health system can the management of the chronic disease be delivered (considering diagnosis, initiation, titration of treatment and maintenance)? At what level of the health system are the different classes of medicine needed for each chronic disease permitted?
 WHO	Which cadres of health worker can manage the chronic disease (considering diagnosis, initiation, titration of treatment and maintenance)?
 WHAT	What is the package of services that should be provided according to global and national guidance? What monitoring and evaluation is needed to demonstrate outcomes?

Defining eligibility for DSD

To reduce the burden of visits for clients and reduce workload for the health system, less-intensive DSD models for HIV treatment have been designed for clients who meet the criteria for being established on treatment for HIV. Although WHO has not yet provided definitions for other chronic conditions, similar criteria (namely, time on treatment, adherence and/or evidence of treatment success) can be used for other chronic conditions. Some African countries, including Nigeria, South Africa and Zimbabwe, have defined established on treatment for hypertension and diabetes to enable DSD for these chronic conditions [8–11]. Table 3 proposes definitions of established on treatment for HIV, HTN and diabetes.

Table 3: Examples of definitions of established on treatment

	HIV	Hypertension	Type II diabetes
Time on treatment regimen	Receiving ART for at least six months	At least three months on current regimen	At least three months on current regimen
Other conditions	No other concurrent illness, which does not include well-controlled chronic health conditions	No other concurrent uncontrolled co-morbidities	No other concurrent uncontrolled co-morbidities
Adherence	Good understanding of lifelong adherence	Good understanding of lifelong adherence	Good understanding of lifelong adherence
Evidence of treatment success	At least one suppressed viral load result within the past six months (if viral load is not available: CD4 count >200 cells/mm ³ or CD4 count >350 for children 3-5 years or weight gain, absence of symptoms and concurrent infections)	<140/90 measured on two occasions at least one month apart	HbA1C <7% (or defined in national guidelines) measured in the past three months

The purpose of defining a client as established on chronic condition treatment is to then reduce the frequency of clinical visits and enable the provision of multi-month refills (see the “when” building block on page 10). By separating clinical visits from refill-only visits, refills can be provided through adapted DSD models for clients established on chronic condition treatment (described on page 11-12).

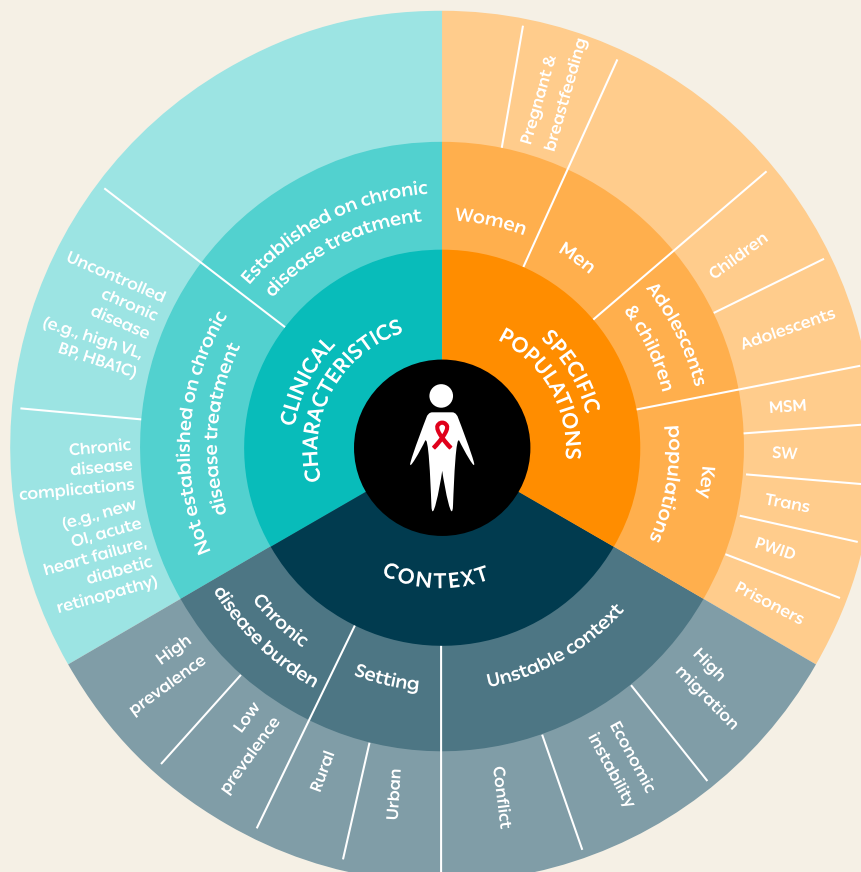
The elements of DSD for chronic disease

DSD models are developed for specific populations, considering their shared characteristics or elements. These elements can be categorized into:

- The clinical characteristics, for example:
 - Client established or not established on chronic disease treatment
 - Single disease or multi-morbidity
- The specific population, for example:
 - Child, adolescent or adult
 - Pregnant or breastfeeding
 - Other sub-group, such as key population
- The context in which the client is receiving services, for example:
 - Urban or rural
 - Stable or conflict

The elements that should be considered when designing a DSD model for chronic conditions for people established on chronic condition treatment are depicted in Figure 3.

Figure 3: The elements of differentiated service delivery



The building blocks of DSD for chronic conditions

The four building blocks for designing a DSD model for chronic conditions are:

- **WHEN:** The frequency of visits (which needs to be defined for both clinical and refill visits) and the time of day that services are received
- **WHERE:** The location of the services
- **WHO:** The cadre of healthcare or lay worker providing the services
- **WHAT:** The package of services to be delivered, according to the national guidelines

Table 4 provides an example of how these building blocks may be applied across the cascade of chronic care, using hypertension as an example. The “what” building block is not defined in this example as this will vary according to national guidelines.

Table 4: Example of use of DSD building blocks across the hypertension care cascade

	Diagnosis	Initiation	Titration	Continuation for those established on treatment
WHEN	For people living with HIV at initiation, entry into DSD or at each annual clinical visit General population according to risk criteria (e.g., age, body mass index)	For people living with HIV at initiation, entry into DSD or at each annual clinical visit General population at time diagnosis is made	Monthly visits until blood pressure is controlled	Six-monthly clinical visits Three-monthly refills
WHERE	Outpatient department (OPD) at hospital Primary care Community	OPD at hospital Primary care For people living with HIV, same clinic as ART	OPD at hospital Primary care For people living with HIV, same clinic as ART	OPD at hospital Primary care For people living with HIV, same clinic as ART
WHO	Doctor, nurse, community health worker (CHW)	Doctor, nurse For people living with HIV, same healthcare worker (HCW) who provides ART	Doctor, nurse For people living with HIV, same HCW who provides ART	Doctor, nurse (clinical visit and refill visits); CHW, peers (refill visits) For people living with HIV, same HCW who provides ART



For people living with HIV who are established on treatment, WHO has recommendations related to the “when”, “where” and “who” building blocks (Table 5). In addition, WHO recently made recommendations for the “when” and “where” building blocks for hypertension. Additional guidance on the building blocks for diabetes and other chronic conditions, where the client is established on treatment, can be provided by national governments and should be developed by global normative agencies.

Table 5: WHO recommendations for the differentiated service delivery building blocks for HIV and hypertension

	HIV [12]	Hypertension [4]
WHEN	<p>“People established on ART should be offered clinical visits every 3-6 months, preferably every six months if feasible” (Strong recommendation, moderate-certainty evidence)</p> <p>“People established on ART should be offered refills of ART last 3-6 months, preferably six months if feasible” (Strong recommendation, moderate- to low-certainty evidence)</p>	<p>“Monthly follow up after initiation or change in antihypertensive medications until patients reach target” (Conditional recommendation, low-certainty evidence)</p> <p>“Follow up every 3-6 months for patients whose blood pressure is under control” (Conditional recommendation, low-certainty evidence)</p>
WHERE	<p>“Initiating ART in hospitals, with maintenance of ART in peripheral health facilities” (Strong recommendation, low-certainty evidence)</p> <p>“Initiating and maintaining ART in peripheral health facilities” (Strong recommendation, low-certainty evidence)</p> <p>“Initiating ART at peripheral health facilities, with maintenance at the community level” (Strong recommendation, moderate-certainty evidence)</p>	<p>No graded recommendation, but provision of hypertension care at primary care supported</p>
WHO	<p>“Trained non-physician clinicians, midwives and nurses can initiate first-line ART” (Strong recommendation, moderate-certainty evidence)</p> <p>“Trained and supervised lay providers can distribute ART” (Strong recommendation, low-certainty evidence)</p>	<p>“Pharmacological treatment of hypertension can be provided by non-physician professionals such as pharmacists and nurses as long as the following conditions are met: proper training, prescribing authority, specific management protocols and physician oversight.” (Conditional recommendation, low-certainty evidence)</p>

What if the duration of chronic medication refills is limited by supply chain and cost?

Over the past decade, many national HIV programmes have moved from providing ART refills of one or two months to routinely providing three- to six-month refills. For other chronic conditions, including hypertension and diabetes, extending refills can be challenging due to supply chain constraints in the public sector and often the need for out-of-pocket payments by clients to purchase medications through the private sector.

Despite these challenges, which in themselves come with a cost to both the health system and client, ensuring there is a system **for multi-month prescribing** can support improving services. With multi-month prescribing, the client can collect the first part of the script during their clinical visit. Subsequent refills from the same script can be collected from a DSD model, through the refill-only system without the client queuing to see a clinician.

The inability to provide multi-month refills for chronic condition medication should not prevent multi-month prescribing and the use of DSD models for clients established on treatment as a means to collect refills.

Four models of DSD for clients established on chronic condition treatment

All four DSD models for HIV described by WHO can be used to support medication refills for other chronic diseases. For each model, refills are scripted at clinical visits. If the refill duration is less than the frequency of the clinical visit, one of the four refill models may be used to facilitate medication refills that are more efficient for the client and the health system.

The DSD models for clients established on treatment are classified as:

- **Individual models based at facilities** (for example, fast-track, quick pick-up) – Individuals collect their chronic disease medication refill directly from the clinic pharmacy without having to queue to see the clinician. To see how this model works, [watch this video](#).
- **Individual models not based at facilities** (for example, community pick-up points, community pharmacies, private pharmacies, mobile services, home delivery) – Individuals collect their medication refill from a location outside the clinic. Many examples of this model exist, including mobile clinics that visit a specified location on specific dates, community pharmacies linked to the facility and home delivery. To see how this model works, [watch this video](#).
- **Group models managed by healthcare workers** (for example, adherence clubs, teen clubs) – Groups of 10-15 people meet at a set time in an agreed location that can be in or out of the health facility. The group is led by a nurse, counsellor, CHW or peer. There is time for peer support, and medication is pre-packed for quick collection. To see how this model works, [watch this video](#).
- **Group models managed by clients** (for example, community medication groups, community adherence groups) – Groups of four to 10 people, who live near each other, meet in an agreed community location to collect their refill from a group member. The group nominates a group leader and, for each refill, selects one member to collect medication refills for the whole group. To see how this model works, [watch this video](#).

Examples of standard operating procedures (SOPs) for each of these models can be found in [Integrating Hypertension and HIV Management. A practical Differentiated Service Delivery toolkit, developed by Resolve to Save Lives](#).



Options for integration of chronic condition services

In some contexts, DSD models for different chronic conditions should be integrated and offer support across common conditions. The following factors should be considered when determining the model of integration of chronic disease services:

- Differences in the prevalence of the common conditions (for example, HIV, hypertension, diabetes)
- Level of the health system where the conditions are supported – existing high-volume vertical disease clinics at hospital level versus a one-stop service at primary care where fewer staff members are available
- Healthcare workers' knowledge and capacity

There are two examples of integration of HIV and other chronic condition services that are increasingly being adopted and implemented. The integrated ART clinic model expands services to include other chronic conditions for people living with HIV, while the chronic care clinic provides care for people living with HIV and those with other chronic conditions. An overview of each model is described below, along with a case study of each.



Model 1. The integrated ART clinic

In this example, typically in high HIV-prevalence settings, chronic condition services are integrated within the existing HIV/ART clinic. Ideally, this is a one-stop shop where care for HIV and other chronic conditions (for example, hypertension and diabetes) are provided on the same day, in the same clinic room and by the same clinician.

Where it is not immediately possible to align all building blocks, the priority should be to provide care on the same day so that the client does not have to make multiple visits to the clinic.

Case study 1

Integration of hypertension care in an HIV clinic in Kampala, Uganda: An individual model based at the facility [14, 15]

The prevalence of hypertension in people living with HIV in Uganda is estimated to be 20-29%. Clients at the ART clinic have their blood pressure checked at each clinical visit. HCWs providing ART, including nurses, are trained to diagnose hypertension and initiate, titrate and maintain hypertension treatment. A treatment algorithm, based on the WHO 2021 hypertension guideline, was implemented with named less toxic agents with defined doses and defined intervals for titration.




A definition of established on treatment for both ART and hypertension was provided to define eligibility for the integrated DSD model (Table 6).

Table 6: Criteria for established on HIV and hypertension in Kampala, Uganda: Integrated DSD model

Criteria for established on treatment	HIV	Hypertension
Duration on treatment	On ART for at least six months	On HTN treatment for least three months
Health status	No current illness	Clinically well
Chronic conditions	Controlled chronic conditions	Controlled chronic conditions
Adherence	Good adherence	Good adherence
Treatment success	Viral load <200 copies/mL	BP <140/90mm Hg
Drug toxicity	No ART limited toxicity	No HTN medicine toxicity

People living with HIV and hypertension, once established on ART and hypertension treatment, may enrol in an individual model based at the facility. In this model, there is a clinical visit every six months and clients are provided with three-month refills for both ART and hypertension directly from the pharmacy (Table 7).

Table 7: Building blocks for individual facility-based integrated model for HIV and hypertension in Kampala, Uganda: Integrated DSD model

Building blocks	Clinical visits		Refill-only visits	
	HIV	Hypertension	HIV	Hypertension
 WHEN	Annually	Every six months	Three-six monthly	Three monthly
 WHERE	Facility, HIV clinic		Facility pharmacy	
 WHO	Doctor or nurse		Pharmacist	

Using an enabling algorithm, more than 90% of clients achieved control of their blood pressure (<140/90mm Hg) by four months, allowing entry into DSD models for clients established on ART and hypertension treatment [13]. Of the 1,082 clients enrolled, 96.4% were retained at 12 months. This programme highlights that an individual, integrated model of HIV and hypertension care for those established on ART can support sustained hypertension control and viral suppression.



Model 2. The chronic care clinic

In the chronic care clinic, services are offered for all chronic conditions. This clinic is inclusive of both those living with HIV and those who are HIV negative. For those with co-morbidities, care is provided as a one-stop service, ideally on the same day, in the same room and by the same clinician.

Case study 2

A chronic care clinic in Nairobi, Kenya: A group model managed by a HCW based at the facility [16, 17]




Medication adherence clubs (MACs) were for people living with HIV and/or hypertension and diabetes mellitus. People living with HIV and/or a non-communicable disease were informed about the option of joining a MAC through daily health talks in waiting bays, client empowerment meetings and posters in the clinic. Clients were screened by clinicians during routine follow-up, and if they met the inclusion criteria for being established on treatment for their chronic conditions (Table 8), they were offered the option of joining a MAC.

Table 8: Definition of established on treatment in MACs

Criteria for established on treatment	HIV	Hypertension	Type II diabetes
Duration of treatment	On ART for at least six months	On HTN treatment with controlled BP for three months	On diabetes treatment with controlled HbA1C for three months
Health status	Clinically well		
Adherence	Evidence good adherence (attending appointments on time)		
Treatment success	VL <1000 cop-ies/ml	BP <140/90 on two visits a month apart	HbA1C <8% of two measurements three months apart

MACs were nurse- or community health worker-facilitated groups of 20–25 people established on treatment for hypertension, diabetes mellitus and/or HIV. They met quarterly to have a short health talk and receive pre-packed medication refills. A typical session lasted between 30 and 60 minutes. Routine clinical follow-up with clinical officers occurred yearly or when a client developed complications or required more frequent follow-up (Table 9).

Table 9: Building blocks for healthcare worker-managed MACs in Nairobi, Kenya

Building blocks	Clinical visits			Refill-only visits		
	HIV	Hypertension	Diabetes	HIV	Hypertension	Diabetes
 WHEN	Annually	Annually	Every six months	Three-six monthly	Three monthly	Three monthly
 WHERE	Facility, primary care clinic (OPCC)			Group meeting room (in the PCC)		
 WHO	Doctor or nurse			Lay counsellor/CHW		

In the first year of implementation, 2,208 individual consultations were supported through MACs and retention was 96.5%. Of the more than 5,000 (n=5,028) people living with chronic conditions receiving care at the Kibera South Clinic, 44% were eligible to join a MAC (n=2,212) and 65% of those were enrolled in a MAC (n= 1,428). Clients expressed that being in a MAC with people living with HIV and other chronic conditions was acceptable:

“It’s a good thing to mix them up because the idea is that we all have chronic diseases that are lifelong. [T]he medication is lifelong...whether you have HIV or diabetes or hypertension. And we can keep supporting each other. For me, it’s a good thing”. [17]

Integration of hypertension and diabetes care into an existing HIV clinic, with established and strong systems for chronic condition management (for example, appointment systems, follow-up and tracing, monitoring and evaluation systems), can be a stepping stone towards the chronic condition clinic example of integration and the ability to scale up DSD for all clients established on a chronic disease treatment.



Conclusion

DSD for HIV was a response to the need to scale up supportive ART services to all people living with HIV. DSD for HIV acknowledges the different needs and expectations of people living with HIV and the benefits of separating clinical visits from medication-only refill visits.

With an increasing number of people living and ageing with chronic conditions, there are clear opportunities for other chronic conditions to build on the success of DSD for HIV treatment. In particular, reducing the frequency of clinical visits for those established on treatment and using multi-month refill models can support people living with chronic conditions and the health system.

For further resources on DSD for chronic diseases, please visit the following [link](#).



References

1. International AIDS Society. *Differentiated care for HIV: A decision framework for antiretroviral therapy delivery*. Durban, South Africa, 2016.
2. UNAIDS. *The path that ends AIDS: UNAIDS Global AIDS Update 2023*. Geneva: Joint United Nations Programme on HIV/AIDS; 2023.
3. Magliano DJ, Boyko EJ, Committee IDF Diabetes Atlas. 2021.
4. World Health Organization. *Guideline for the pharmacological treatment of hypertension in adults*. 2021.
5. Godfrey C, Vallabhaneni S, Shah MP, Grimsrud A. *Providing differentiated service delivery to the ageing population of people living with HIV*. *J Int AIDS Soc*. 2022;25 Suppl 4(Suppl 4):e26002. doi: 10.1002/jia2.26002. PubMed PMID: 36176025; PubMed Central PMCID: PMC9522630.
6. Chang D, Esber A, Dear N, Iroezindu M, Bahemana E, Kibuuka H, et al. *Non-communicable diseases in older people living with HIV in four African countries: a cohort study*. *Lancet HIV*. 2022;9 Suppl 1:S5. doi: 10.1016/S2352-3018(22)00070-4. PubMed PMID: 35304847.
7. World Health Organization. *Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection*. Geneva, Switzerland: WHO, 2016.
8. Zimbabwe MoHaCC. *Operational and Service Delivery Manual for the Prevention, Care and Treatment of HIV in Zimbabwe*. <https://www.differentiatedservicedelivery.org/wp-content/uploads/MSF-Zim-OSDM-Nov2022-WEB2.pdf>. 2022.
9. South Africa. National Department of Health. *2023 ART Clinical Guidelines for the Management of HIV in Adults, Pregnancy and Breastfeeding, Adolescents, Children, Infants and Neonates*. 2023.
10. South Africa. National Department of Health. *Differentiated models of care standard operating procedures. Minimum differentiated models of care package to support linkage to care, adherence and retention in care. Adherence guidelines for HIV, TB and NCDs*. Updated April 2023. 2023.
11. Nigeria FMoH. *Guidelines for Prevention and Management of Hypertension in Nigeria 2023-2028*. https://www.differentiatedservicedelivery.org/wp-content/uploads/HTN-GUIDELINES-2023_2028_21AUG_OK_131023.pdf. 2023.
12. World Health Organization. *Consolidated guidelines on HIV prevention, testing, treatment, service delivery and monitoring: recommendations for a public health approach*. <https://www.who.int/publications/i/item/9789240031593>. 2021. p. 594.
13. Amutuhaire W, Semitala FC, Kimera ID, Namugenyi C, Mulindwa F, Ssenyonjo R, et al. *Time to blood pressure control and predictors among patients receiving integrated treatment for hypertension and HIV based on an adapted WHO HEARTS implementation strategy at a large urban HIV clinic in Uganda*. *J Hum Hypertens*. 2024;38(5):452-9. Epub 20240201. doi: 10.1038/s41371-024-00897-3. PubMed PMID: 38302611; PubMed Central PMCID: PMC911076202.
14. Muddu M, Semitala FC, Kimera I, Mbuliro M, Ssenyonjo R, Kigozi SP, Katwesigye R, Ayebare F, Namugenyi C, Mugabe F, Mutungi G, Longenecker CT, Katahoire AR, Ssinabulya I, Schwartz JI. *Improved hypertension control at six months using an adapted WHO HEARTS-based implementation strategy at a large urban HIV clinic in Uganda*. *BMC Health Serv Res*. 2022 May 25;22(1):699. doi: 10.1186/s12913-022-08045-8. PMID: 35610717; PMCID: PMC9131679.
15. Kimera ID, Namugenyi C, Schwartz JI, Musimbaggo DJ, Ssenyonjo R, Atukunda P, Mutungi G, Mugabe F, Ambangira F, Mbuliro M, Katwesigye R, Neupane D, Ssinabulya I, Semitala FC, Delles C, Muddu M. *Integrated multi-month dispensing of antihypertensive and antiretroviral therapy to sustain hypertension and HIV control*. *J Hum Hypertens*. 2023 Mar;37(3):213-219. doi: 10.1038/s41371-022-00655-3. Epub 2022 Mar 4. PMID: 35246602; PMCID: PMC8896410.
16. Khabala KB, Edwards JK, Baruani B, Sirengo M, Musembi P, Kosgei RJ, et al. *Medication Adherence Clubs: a potential solution to managing large numbers of stable patients with multiple chronic diseases in informal settlements*. *Trop Med Int Health*. 2015;20(10):1265-70. Epub 2015/06/15. doi: 10.1111/tmi.12539. PubMed PMID: 25962952; PubMed Central PMCID: PMC4744994.
17. Venables E, Edwards JK, Baert S, Etienne W, Khabala K, Bygrave H. *"They just come, pick and go." The Acceptability of Integrated Medication Adherence Clubs for HIV and Non Communicable Disease (NCD) Patients in Kibera, Kenya*. *PLoS One*. 2016;11(10):e0164634. Epub 2016/10/20. doi: 10.1371/journal.pone.0164634. PubMed PMID: 27764128; PubMed Central PMCID: PMC5072644.

Suggested citation: IAS - the International AIDS Society. DSD for chronic conditions. A supplement to *A Decision Framework for antiretroviral therapy delivery*. 2024. www.differentiatedservicedelivery.org

Cover photo: © Peter Casaer/MSF

Other photos: © Isabel Corthier/MSF