Australia Awards

Impact, adaptability, and scalability of a community-based antiretroviral therapy delivery model for people living with HIV in Cambodia: A post-intervention qualitative study

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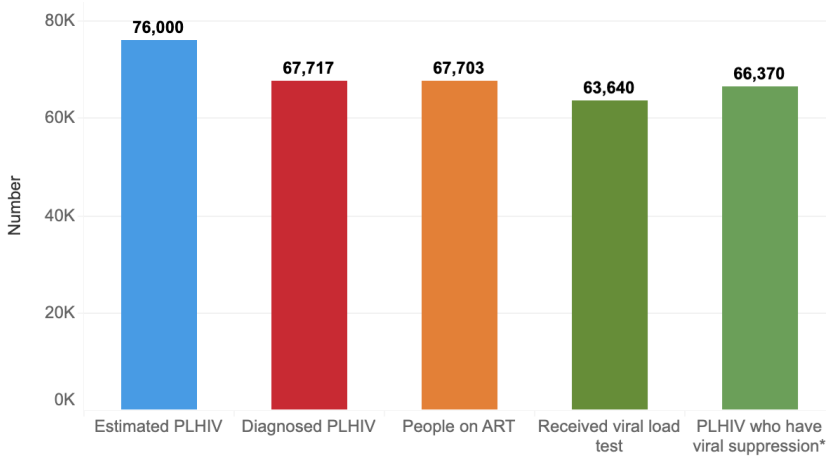
Contents

HIV Epidemic in Cambodia

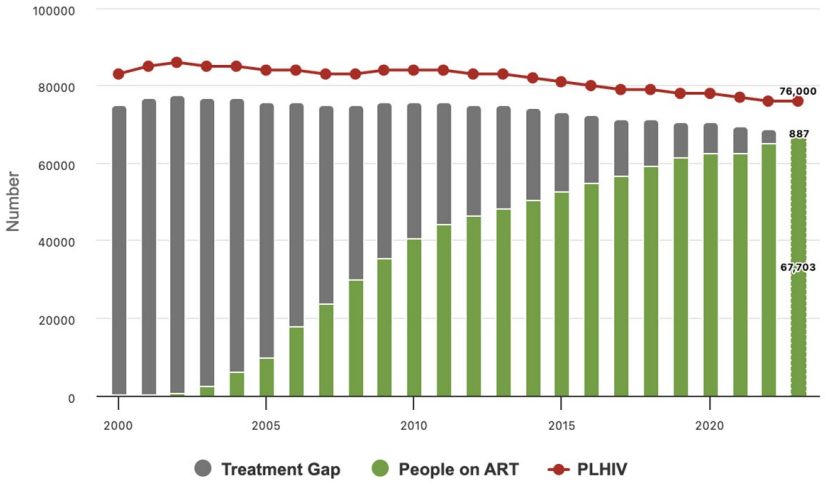
- Cambodia has made substantial progress in ending the HIV epidemic, and is currently on track to meet the 95-95-95 Global AIDS Strategy Targets
- **As of 2023, an estimated 89% aware of status, 98% of people living with HIV (PLHIV) were receiving antiretroviral therapy (ART) and 98 % were reached viral load suppression**
- Despite these achievements, suboptimal engagement of PLHIV in the HIV continuum of care remains a critical challenge, primarily due to the demands of maintaining regular clinic visits for antiretroviral (ARV) refills

Cumulative cross-sectional cascade for HIV treatment and care, Cambodia, 2023

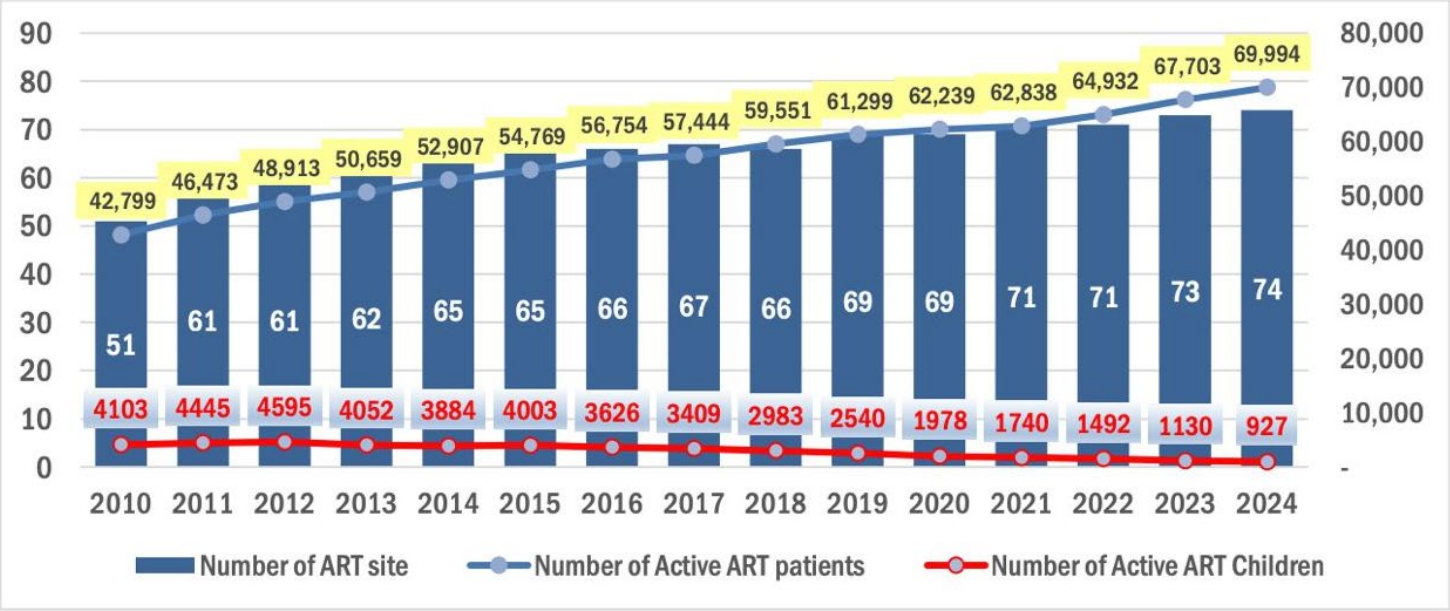


* Estimated number of PLHIV on ART who achieved VL of <1000 copies/ml

People living with HIV, people on ART and treatment gap, 2000-2023



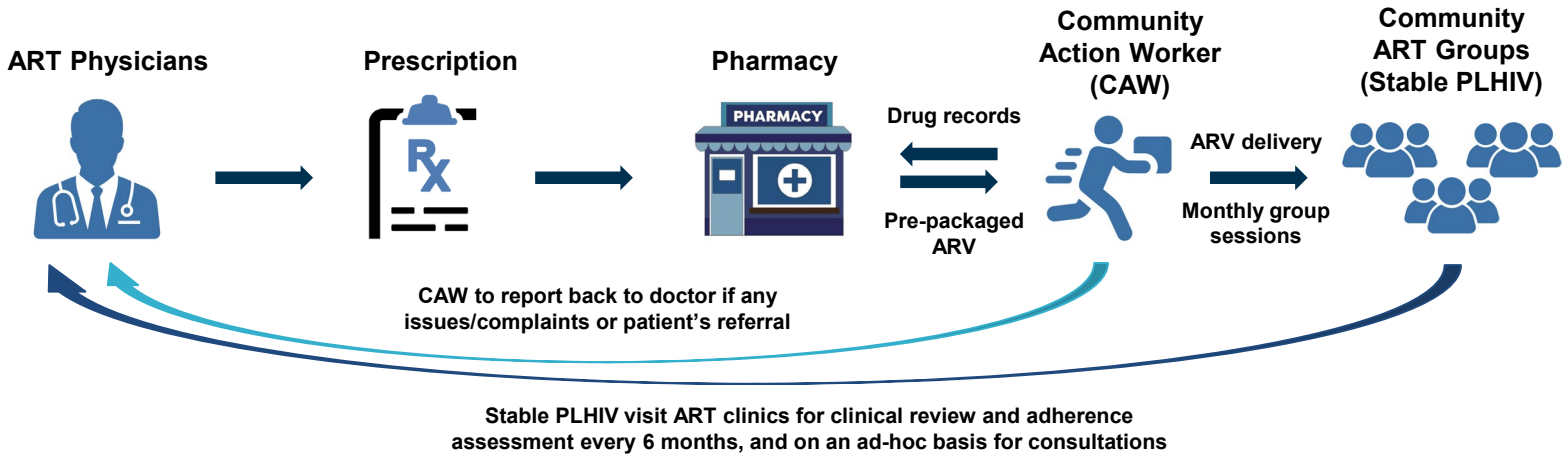
State of ART Care in Cambodia



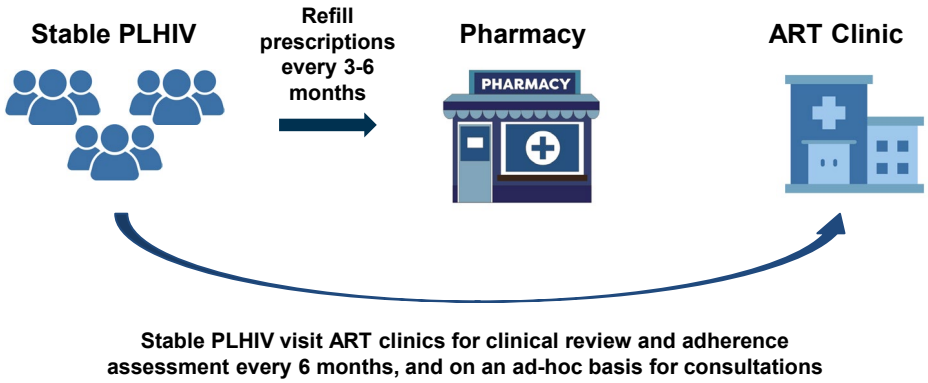
- At the end of 2024, there were 74 ART clinics across 25 provinces and the capital
- The number of ART clinics has increased steadily from 2010 to 2024; however, this growth has not kept pace with the increase in ART patients over the same period → significant workload on health facilities and service providers to meet rising demands

Differentiated Care Models

Community-Based Antiretroviral Therapy Delivery (CAD) Model



Multi-Month Dispensing (MMD) Model

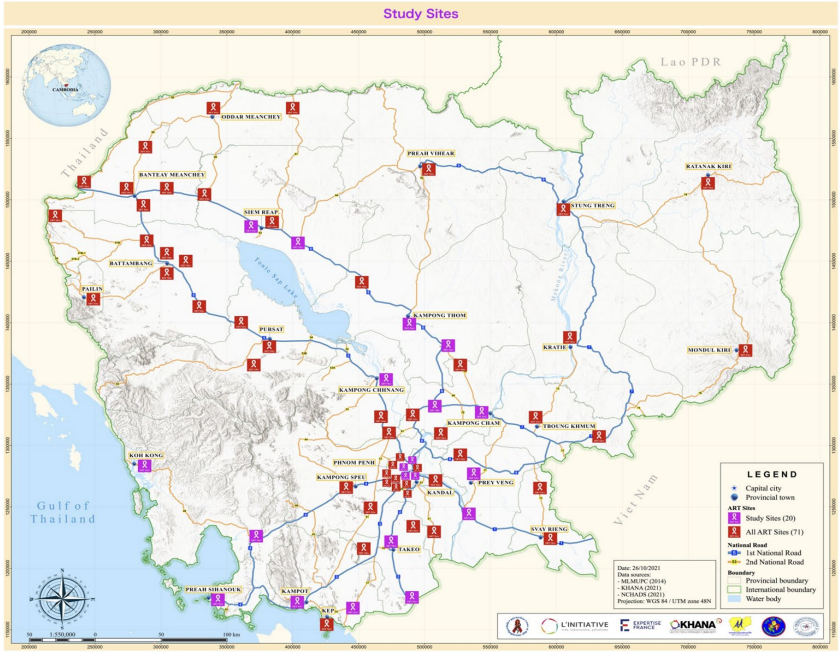


CAD Parent Study

- From May 2021 to April 2023, a quasi-experimental study was conducted to evaluate the effectiveness of the **CAD model (intervention)** versus the **MMD model (control)** in Cambodia
- Baseline and endline surveys conducted in April 2021 and May 2023, respectively
- Qualitative evaluation was conducted at midline, but not at endline due to significant project delays and budget limitations caused by the COVID-19 pandemic → **further exploration needed** to address knowledge gaps about contextual factors underlying the quantitative endline results

Intervention sites			Control sites		
Province	**ART clinic**	**Setting**	**Province**	**ART clinic**	**Setting**
Kampot	Kampot Hospital	Urban	Kampong Cham	Kampong Cham Hospital	Urban
Kampot	Kampong Trach Hospital	Rural	Kampong Cham	Cheung Prey Hospital	Rural
Koh Kong	Smach Meanchey Hospital	Urban	Pailin	Pailin Hospital	Urban
Koh Kong	Sre Ambil Hospital	Rural	Preah Sihanouk	Preach Sihanouk Hospital	Urban
Phnom Penh	Mean Chey Hospital	Urban	Phnom Penh	Chhouk Sar I Clinic	Urban
Phnom Penh	Pochintong Hospital	Urban	Phnom Penh	Sam Dach Ov Hospital	Urban
Kampong Thom	Kampong Thom Hospital	Urban	Siem Reap	Siem Reap Hospital	Urban
Kampong Thom	Baray Santok Hospital	Rural	Siem Reap	Soth Nikum Hospital	Rural
Takeo	Takeo Hospital	Urban	Prey Veng	Prey Veng Hospital	Urban
Takeo	Kirivong Hospital	Rural	Prey Veng	Neak Loeung Hospital	Rural

ART antiretroviral therapy, *CAD* community ART delivery



Research Objectives

Objective 1: To understand the contextual factors influencing the results observed in the quantitative endline evaluation

- ➔ Primary outcomes: ART adherence, care retention, viral load suppression
- ➔ Secondary outcomes: mental health, physical health, quality of life, stigma and discrimination, healthcare provider workload

Objective 2: To understand the current status of the CAD model one-year post-intervention completion, and how it has changed over time

Objective 3: To explore beneficiaries' and stakeholders' perspectives on the continuation, adaptability, and scalability of the CAD model

Methods

- Qualitative study conducted from October 2024 to January 2025
- Nearly 80 in-depth interviews (IDIs) and focus group discussions (FGDs) conducted with those involved in the parent CAD study
- Participants purposively sampled from 10 ART clinics that used the CAD model, located in Phnom Penh, Kampong Thom, Kampot, Koh Kong, and Takeo
- **IDIs and FGDs recorded, transcribed, and translated from Khmer to English**
- Study team coded transcripts in NVivo 15 and conducted reflexive thematic analysis through an inductive and iterative process
- **Approval letter no. 313 NECHR, dated Sept 27, 2024**

Study Population	IDI	FGD	KII
People living with HIV	21	10*	
Healthcare workers		10**	
Community action workers			20
Key Stakeholders			
NGO field staff			11
Subnational stakeholders			5
National stakeholders			4
International stakeholders			2
Total	**21**	**20**	**42**

*FGDs with people living with HIV consist of 5-8 participants
**FGDs with healthcare workers consist of 2-6 participants

Primary Outcomes

ART Adherence

➔ **Medication delivery promoted timely and consistent medication access for PLHIV who experience financial constraints, travel challenges, and work obligations**

"We did not miss the medicine, because when we did not have a team leader, we delayed the appointment to the hospital because we did not have money to travel." (FGD58, PLHIV)

"They [CAWs] deliver the medicine to our homes so easily. When we work, we don't have time to come and get the medicine by ourselves. Our factory rules are very strict, we can't ask permission." (FGD30, PLHIV)

➔ **Regular monitoring and reinforcements (i.e., counting remaining medication, reminding PLHIV to take doses on time, and setting up alarms) encouraged adherence**

"[PLHIV take medication] more regularly because we go to educate them, remind them to set the right time to take their medicine, and we often call them, because we are afraid that they will give up. Set an alarm clock for when to take their medicine." (KII44, CAW)

➔ **Education from CAWs about consistent medication intake and medication management skills enhanced self-efficacy of PLHIV to adhere to medication regimens**

"They [CAW] let me know how to check the expiration date of the medicine when they give it to me, and thirdly, they let me know how to count the pills." (IDI26, PLHIV)

➔ **Social support from group meetings and encouragement from CAWs reinforced positive health behaviors**

"They [CAWs] see that we are more diligent compared to before; they encourage us to work harder. I personally notice that when I attend meetings, I take my medication on time—like at 6 in the morning." (IDI64, PLHIV)

Primary Outcomes

Retention in Care

➔ **CAWs facilitated consistent and personalized follow-up with PLHIV**

"Not much [treatment] abandonment because, as they said, there is a team leader. When we have a team leader, one team leader looks after their team of 20 people. Then, when it comes to time, if we didn't have them, we would have to personally look after 800 people […] We are not very close to the patients because we don't meet often, but we get a lot of feedback, a lot of information from the team leader. They rely on the team leader to follow up." (FGD59, HCW)

➔ **Improved patient tracking—when PLHIV missed scheduled appointments, CAWs were able to provide updates about their whereabouts and status**

"So, the advantage is that they [CAWs] visit or inform us about where the patient is. Usually, we are here, and if the patient doesn't show up, we don't know where they've gone […] The CAD person knows and can give us specific information." (FGD47, HCW)

➔ **Challenges with attrition persisted for some**

"It remains a problem—even when we implement the CAD model, loss to follow-up cases persist, and when we implement the MMD model, we still face similar loss to follow-up issues. That is why this loss to follow-up issue is a problem; we must actively engage our patients to bring them back into our service." (KII19, Stakeholder)

Primary Outcomes

Viral Load Suppression

➔ **Improvements in viral load suppression due to enhanced ART adherence**

"Yeah, it helps improve because we check the results with their viral load. They are good as a result of taking the medicine regularly." (KII22, CAW)

➔ **Education about the significance of CD4 counts and viral load tests reinforced the importance of adhering to scheduled blood tests, supporting regular monitoring**

"They did not know about CD4 and viral load. We told them again and again. I asked them why we need to check CD4, they said they did not know, then I told them we check because we want to know the immunity in our body and viral load to check the virus in our blood." (KII23, CAW)

➔ **Some PLHIV continued to skip blood tests as they felt healthier**

"They started skipping blood tests because they felt healthy. When we scheduled appointments to monitor their health, particularly to test their viral load, some didn't show up. When this happened, we contacted the team leader, who then tried to encourage them to come in. However, some still refused." (FGD59, HCW)

➔ **Measures implemented to return unstable PLHIV to stable status**

"When the virus recurs, we chat in the group and ask if the patient has the virus again. We tell the team leader to educate the patient and bring them in for a DCT [diagnostic counseling and testing]." (FGD47, HCW)

"When CAD patients have a detectable viral load, doctors require them to undergo enhanced adherence counseling. Patients must visit the doctor monthly for three months and have their viral load tested. If their viral load is below 40 copies, meaning undetectable, they can continue with long-term medication." (KII19, Stakeholder)

Secondary Outcomes

Mental Health

➔ **Structured medication delivery system helped reduce stress related to medication access**

"Normally, when patients receive their medication this way, they feel happier compared to when they have to collect it themselves. If things are made easier for them, there's nothing for them to worry about or struggle with. So, they are happy to participate in this program." (KII19, Stakeholder)

➔ **Group meetings and workshops as well as individual check-ins and encouragement from CAWs alleviated feelings of isolation and shame**

"Yes, in general, it [CAD] has helped a lot, psychologically, as I said, they [PLHIV] are brave in expressing their feelings to their target group, meaning that they are carriers, they express their feelings to each other. So, they understand each other's feelings, not like us. We are not sick people and we do not know what they are going through." (KII18, Stakeholder)

Physical Health

➔ **Enhanced ART adherence contributed to fewer complications/symptoms**

"However, issues like dizziness, back pain, or body aches aren't as bad as before. There's no longer severe fever or chills like before." (IDI24, PLHIV)

➔ **CAWs monitored physical health of PLHIV, educated them about healthy lifestyle choices, and encouraged them to avoid delaying necessary health care**

"For example, if a team member needs to get medicine for five people, we go to all five people's homes and check their blood pressure and temperature." (KII34, CAW)

"We know what to do when we get sick and where we can go. Before, when we had a headache or vertigo, we did not treat it and it became worse, then after we have been educated or recommended, we can take care of our health better." (IDI39, PLHIV)

Secondary Outcomes

Quality of Life

➔ **PLHIV able to focus on work, childcare, and other responsibilities without the burden of frequent clinic visits.**

"First, I save time, second, money. As I said, I don't spend time here from day and night. So, I only have to wait for my team leader in the afternoon […] I work in all kinds of ways to fulfill my role as a mother and earn money for my children to go to school. In a day, if I go to the farm, I earn 20 kilos, I earn 40,000. And if I come to bring medicine, then I lose 40,000 in a day." (IDI26, PLHIV)

➔ **Reduced burden on family members by improving the health and increasing the available time of PLHIV**

"My husband has more time to do his job instead of helping me much. Moreover, I know how to take the medicines regularly and properly. I think my family's condition is getting better." (IDI28, PLHIV)

Stigma and Discrimination

➔ **Reduced stigma/discrimination as CAWs helped dispel fear and misconceptions about the disease through community education.**

"They [CAWs] also shared this knowledge as well. They said the disease will not occur when eating together or holding each other's hands. It is only transmitted when the spouse is living together." (IDI25, PLHIV)"

➔ **Confidentiality measures—such as discreet medicine pickup locations— accommodated lingering fears of discrimination**

"There are some PL who cannot be delivered to their homes. They ask for appointments at various places so that they can come and receive their medicine. Because they go to their homes, the discrimination from their neighbors is still there." (KII46, CAW)

Secondary Outcomes

Healthcare Provider Workload

➔ **Helped streamline patient appointments and medication distribution, reducing congestion in health facilities**

"For healthcare providers, the project has helped reduce the daily workload by streamlining appointments and reducing the number of patients who need in-person consultations." (FGD14, HCW)

➔ **CAWs served as a key liaison between PLHIV and HCWs, streamlining the process of addressing patient concerns**

"Generally, the patients in his community do not usually mention issues at the hospital or the place where they receive services. They are afraid to bring it up and get into conflict. So, he raises the issue with his team leader – that is indeed a good benefit. When the team leader raises the issue, it is then brought to the ART side. Then, we resolve the issue with him; he recognizes the problem, and we accommodate it, and it becomes effective, and he accepts it on both sides." (KII42, Stakeholder)

➔ **CAWs helped bring PLHIV who required testing to the health center and assisted with paperwork and medication preparation at the request of the health center staff**

"Even though we have not been working together for a while, at the health center, for example, the teacher at the health center, when they need testing, they contacted me […] 'Now, [CAW's name], you help take them to the hospital and take another test to see if they are having this virus or not […] you help register them and make a book for them, help prepare the medicine for them.'" (KII45, CAW)

Current Status

➔ **Many CAD groups have become inactive, primarily due to absence of funding and other logistical challenges**

"The team leader has not brought the medicines for me as before for about one year now. My team leader does not receive any salary and needs to spend on transportation as well. He/she looks after almost 20 patients, and their homes are far from each other." (IDI28, PLHIV)

➔ **CAD groups have generally reduced in size**

"Now there are only 7 or 8 people left, the elderly. They are struggling because they are far away." (KII34, CAW)

➔ **Some CAWs continue activities (medication delivery, home visits, and/or reminders) on a voluntary basis**

"Some activities do continue. There are still people who work in the vicinity of their homes – they still deliver medication and perform routine tasks." (FGD15, HCW)

"Before they had a meeting at the hospital, but now, we separate. They only visit us individually at home." (IDI54, PLHIV)

➔ **Other CAWs have completely stopped providing services, taking on other jobs due to financial need**

"Some CAWs need money, so they find other jobs to work […] I have a part-time job." (KII05, CAW)

Changes Since Study Period Completion

➔ **PLHIV now must pick up their medication in person due to IDPoor/Equity card fingerprinting requirements**

"The system requires patients to come in person and verify their identity with a fingerprint scan. The system mandates that the patient must be physically present to receive services, so CAWs cannot collect their documents and submit them on their behalf." (KII19, Stakeholder)

➔ **Role of CAWs has shifted from proactive support to a more reactive one, where PLHIV now reach out when they need help rather than receiving routine assistance**

"When the project is finished, I don't come to visit frequently. Until a patient calls me and asks me to help, I respond to him." (KII67, CAW)

➔ **Absence of CAD's home delivery service has made it harder for many PLHIV, particularly those facing financial or mobility constraints, to access their medicine**

"They [CAWs] helped us so that when they took the medicine home, it was a bit easier. When they stopped bringing it for us, we had problems going to the hospital to get the medicine." (IDI61, PLHIV)

➔ **Lack of consistent meetings and CAW check-ins after CAD ended has led to increased feelings of isolation among PLHIV**

"It makes me feel like, we are very lonely, thinking about it deeply […] Last time, at least once or twice per month, they used to come." (IDI24, PLHIV)

Perspectives on Continuation

➔ **PLHIV and CAW strongly support the continuation of the CAD model**

"Yes, for the project, I continue to participate and support forever. Because as I always say, I do it for my life. I want to live to see my children. So, I will take care of my health until the end to help PLHIV. It's not just me, there are many in my village. Let the project move forward." (IDI26, PLHIV)

"I want the project to continue, and there will be funding for me. I am grateful for the project." (KII45, CAW)

➔ **Some HCWs and stakeholders expressed reluctance about continuation, primarily due to the IDPoor/Equity card fingerprinting requirement**

"How can we process if the project comes back? Because our hospital will lose income, and it needs the patients to come for their thumbprint." (FGD60, HCW)

➔ **Other HCWs and stakeholders strongly advocated for the continuation of CAD**

"I have no objections. I support it because it helps our patients who live in remote areas and lack the ability to access necessary services. I don't want them to spend too much money, like $10 to $20, which could be a burden, so I support it […] I support it because it encourages the patients to stay committed, reduces abandonment, and ensures they take their medicines regularly. We can reduce the risks." (KII56, Stakeholder)

Perspectives on Adaptability and Scalability

Expansion of CAD to other groups

➔ **Participants supported expanding CAD to serve other vulnerable populations, including those experiencing financial hardship, distance/transportation challenges, and/or mobility issues arising from disability, illness, or old age**

"I think poor people cannot afford their 3 meals properly, while people with disabilities cannot do anything to earn. They are likely to depend on their families. I think it will be good if they receive any support from your organization. So, they can be alive like others." (IDI27, PLHIV)

➔ **Participants advocated for increased engagement with key populations (KP), such as men who have sex with men (MSM), transgender individuals (TG), and people who inject drugs (PWID)**

"Yes, vulnerable groups like KP, especially MSM, are the most challenging […] MSM, TG groups, and if there are PWID groups, those who use drugs, they are even more challenging." (KII19, Stakeholder)

➔ **Participants also suggested expanding to individuals with other health conditions, like diabetes and tuberculosis, as well as unstable PLHIV**

"Besides PL patients, there should be diabetes patients because they also need to take the medicines for the rest of their lives […] yes, and also tuberculosis patients because they also need to take medicines." (IDI27, PLHIV)

"If out of 100 high-viral-load patients, we can reduce that number to just 10, the project will be a success. That's the way I see it—we should not focus on stable patients but on those with high viral loads." (KII19, Stakeholder)

Perspectives on Adaptability and Scalability

Barriers to Adaptability and Scalability

➔ **Lack of funding the most significant obstacle**

"If there's no budget, there's no team to continue. How can sustainability exist under those conditions? Who would provide medications to the patients? Who would cover their fuel costs? That's the main factor. So, once it ended, it ended completely. They still need funding. To put it simply, it all depends on the budget." (FGD29, HCW)

➔ **Inadequate cooperation between HCWs and CAWs**

"Sometimes we want to take medicine for five people, but the doctor does not allow us, people have different appointments. Some doctors understood us, but other doctors blamed us." (KII33, CAW)

➔ **Misalignment with national social protection scheme**

"In this location, it's so strict! No one can affix on behalf of another. Even if three people arrive together, only one fingerprint is accepted. For example, if a whole family gets ill together—father, mother, and child—only one person can come to affix the fingerprint, the other two won't be able to claim the medications." (FGD29, HCW)

➔ **Geographic challenges (e.g., long travel distances, difficult terrain)**

"In these mountainous areas, sometimes there are few patients, and the villages are far apart. It is difficult to call them in for meetings, or to bring medicine from the hospital to distribute in the community, because the distance is a major obstacle." (KII42, Stakeholder)

Perspectives on Adaptability and Scalability

Facilitators to Adaptability and Scalability

➔ **Robust funding and long-term financial planning**

"To ensure long-term sustainability, we need to have planned expenditures […] Yes, ensuring it aligns with the current situation and collecting accurate data on their needs across all teams." (KII56, Stakeholder)

➔ **Capable workforce, with increased opportunities for training/capacity-building**

"We should focus on ensuring that they [CAWs] record the vital signs more accurately – for instance, making sure that the weight is measured correctly. Sometimes, their records are not very precise, and that is the problem. But we continuously work to address it; it is not a monthly issue. Once we fix it, they do it properly the next time." (FGD14, HCW)

➔ **Multilevel collaboration and clear communication between partner organizations, HCWs, local authorities, and the national government**

"Collaboration among all stakeholders is key. Strengthening partnerships with local authorities and community organizations could help improve the continuity of care." (FGD15, HCW)

➔ **Alignment with national strategies/goals**

"If you look at the health issues, we want to say that the AIDS program at all levels is already there, so we should include CAD into the scope of each program to work with the activities of each AIDS program, from the ministry level to NCHADS to NDA to all levels of the AIDS program, CAD must be settled to all of them in order for all of that to be sustainable in the long run, and we respond in a community manner to the current Royal Government." (KII01, Stakeholder)

Conclusions

Qualitative insights from beneficiaries and stakeholders demonstrate the CAD model's strong potential to improve HIV-related outcomes by decentralizing services and leveraging community-based support. Its success in improving ART adherence, enhancing quality of life, and easing burdens on both PLHIV and the health system, among many other benefits, underscores the value of differentiated care approaches.

However, the CAD model's scale down following the completion of the study period highlights the fragility of interventions that lack long-term funding and system integration. Sustainability, adaptability, and scalability require embedding such models into national health strategies, securing ample resources, and addressing other key logistical, policy, and geographic barriers.

Recommendations

- **Integrate appointment adherence mechanisms:** Future CAD iterations should implement mechanisms to mitigate missed appointments for viral load testing and other health monitoring, such as appointment tracking and proactive patient follow-up by CAWs.
- **Decrease barriers to health facility visits:** Some CAWs reported coordinating group appointments for blood draws and renting transportation for patients, however, this was not a consistent practice across all CAD groups. Similar support should be systematically integrated into the CAD model to reduce barriers to health facility visits.
- **Improve coordination between HCWs and CAWs:** Strengthen communication channels, hold regular meetings, and implement feedback and grievance mechanisms to ensure conflicts/issues are resolved promptly.
- **Ensure alignment with social protection schemes:** Collaborate with national stakeholders to find alternative verification methods or exceptions to the ID Poor/Equity card fingerprinting requirement to enable CAWs to pick up medication for PLHIV.

Recommendations cont.

- **Enhance CAW training/capacity building:** Provide comprehensive onboarding training and ongoing refresher training for CAWs to ensure they are well equipped to effectively and empathetically serve PLHIV while adhering to established procedures. Continuous education should incorporate competency assessments and updates on evolving best practices to enhance service quality.
- **Develop a stepwise scale-up plan:** Create a phased scale-up plan by identifying priority sites for the introduction of the CAD model in each stage.
- **Engage in long-term financial planning:** Create a comprehensive financial plan to ensure long-term sustainability. This plan should outline funding needs, potential sources, and strategies for maintaining financial stability over time.
- **Collaborate with relevant stakeholders:** Strengthen partnerships and knowledge-sharing among government agencies, NGOs, healthcare facilities, etc., to support effective integration of the CAD model into the public health system and adoption into the national and provincial HIV/AIDS strategy.

Limitations

- Study data may be subject to **information bias**, as it relies on respondents' recall and self-reported experiences, which can be influenced by memory limitations, social desirability, and personal perceptions.
- As a qualitative study, the analysis is inherently **subject to researchers' perspectives and potential biases**, which may shape how data is coded, categorized, and interpreted
- The study's design, sample size, and sampling approach **restrict the generalizability** of findings beyond the specific CAD project sites → insights gained are **context-specific** and should not be assumed to represent broader populations or different settings.

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Questions?

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