Zvandiri—Bringing a Differentiated Service Delivery Program to Scale for Children, Adolescents, and Young People in Zimbabwe

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Abstract: Since 2004, there has been a dramatic shift in the HIV response for children, adolescents, and young people in low resource settings. Previous programs and services were largely orientated to adults. This is now changing, but there is limited evidence on how to take services for children, adolescents, and young people living with HIV (CAYPLHIV) to scale. Zvandiri is a theoretically grounded, multicomponent-differentiated service delivery model for children, adolescents, and young people in Zimbabwe that integrates peer-led, community interventions within government health services. Africaid analyzed routine program and other data from November 2004 to October 2017 to document Zvandiri scale-up, framed by the World Health Organization framework for scaling up interventions. Since 2004, Zvandiri has evolved from one support group in Harare into a comprehensive model, combining community- and clinic-based health services and psychosocial support for CAYPLHIV. Zvandiri was scaled up across Zimbabwe through phased expansion into 51 of 63 districts, reaching 40,213 CAYPLHIV. Evidence indicates that this approach improved uptake of HIV testing services, adherence, and retention in care. The environment and strategic choices were critical when taking the model to scale, particularly nesting the program within existing services, and capacity strengthening of service providers working jointly with trained, mentored CAYPLHIV. The results provide a firm foundation for programming and from which to build evidence of sustainable impact. Formal impact evaluation is needed and underway. These program data contribute to the essential evidence base on strategic approaches to assist in planning services for this relatively neglected group.

Key Words: HIV, pediatric, adolescent, scale-up, ACT initiative

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INTRODUCTION

Since 2004, there has been a dramatic shift in the HIV response for children, adolescents, and young people in low resource settings. With the roll out of antiretroviral therapy (ART), children born with HIV have survived beyond infancy and into adolescence. Together with the growing number of new infections among young people, children, adolescents, and young people now significantly shape the HIV epidemic. Yet programs and services have been largely orientated to adults, with limited commitment to the specific needs of children, adolescents, and young people living with HIV (CAYPLHIV).

Despite gains made in numbers on treatment, CAYPLHIV experience late diagnosis and disclosure, higher rates of loss to follow-up, poor adherence, and less viral suppression than adults.[1–3] A systematic review in resource-limited settings found that, in children 0–10 years initiated on ART, 5%–29% were either lost to follow-up or dead within 12 months.[4] From 2005 to 2012, AIDS-related deaths in adolescents 10–19 years rose 50% while AIDS-related deaths among adults fell by 30%.[5] In addition to opportunistic infections, those born with HIV commonly face growth and developmental delay and other chronic conditions,[6,7] complex psychosocial stressors and poor mental health.[8–10] These challenges and their influence on HIV outcomes highlight the need for comprehensive, age, and developmentally appropriate HIV services.

Increased global awareness has led to a surge of global- and national-level guidance to strengthen service delivery for CAYPLHIV.[11,12] These inputs have been accompanied by funding initiatives such as the Accelerating Children's HIV/AIDS Treatment Initiative, which aimed to close the HIV

treatment gap for children and adolescents in 9 countries. Global guidance on differentiated service delivery (DSD) recognizes the need to adapt services for children and adolescents.[13] Despite the emerging guidance, insufficient evidence exists on how to take these services to scale.[14]

From 2004, Zimbabwe has scaled up pediatric and adolescent HIV services, culminating in approximately 80% of the estimated 72,887 children and 63,176 adolescents with HIV on ART by December 2017.[15] This scale-up included adoption of the Zvandiri program of Africaid, a local, nongovernment organization (NGO) in Zimbabwe. Zvandiri is a theoretically grounded, multicomponent DSD model for CAYPLHIV that integrates peer-led, community interventions within national service delivery. Here, we describe the Zvandiri scale-up process and results from November 2004 to October 2017.

METHODS

Africaid analyzed routine programme data to document the process of Zvandiri scale-up, its outputs and outcomes. The World Health Organization (WHO) framework for scaling-up interventions was used systematically to guide the analysis[16] (Fig. 1).

We documented Zvandiri programmatic data to show the timing and scale-up of the various components of the Zvandiri model, as well as number reached of primary beneficiaries (CAYPLHIV aged 0–24 years) and secondary beneficiaries (service providers and families). Data were analyzed to provide evidence of the role of Zvandiri in HIV Testing Service (HTS) uptake, adherence, retention, viral suppression and psychosocial well-being, as well as its influence on the engagement of CAYPLHIV across the HIV cascade, children's agency, health care systems, family support, and stigma reduction. Data came from Africaid's internal and external reports and the Zvandiri database, an electronic medical record of each CAYPLHIV registered. All data were anonymized to protect individual confidentiality, facilitating research approval by the Medical Research Council of Zimbabwe without ethical review.

We also reviewed all Zvandiri in-house and published materials, including independent documentation by external partners, funders and evaluators, conference abstracts, and published papers. National and international documents on pediatric and adolescent HIV were also reviewed regarding the wider context for Zvandiri scale-up.

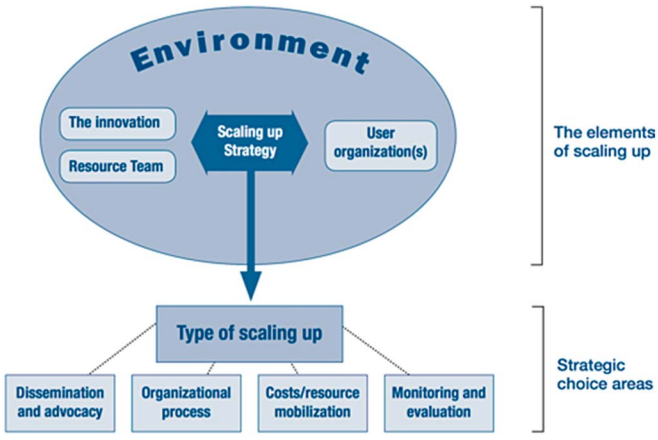

FIGURE 1. The ExpandNet/WHO framework for scaling-up.

RESULTS

Elements of Scaling-up

Innovation—The Zvandiri Programme

The goal of Zvandiri (meaning "As I am") is that CAYPLHIV, 0–24, have physical, social, and mental well-being. Zvandiri aims to directly improve young people's experience across the HIV cascade—HIV diagnosis, disclosure, linkages, adherence, retention—and to provide ongoing support for their mental health, social protection, and sexual and reproductive health. Since 2004, Zvandiri has evolved from one support group in Harare into a comprehensive model, combining community- and clinic-based health services and psychosocial support for CAYPLHIV. At the forefront of service delivery are adolescents and young people living with HIV, 18–24 years old, who are trained and mentored by Ministry of Health and Child Care (MoHCC) and Africaid as peer counselors known as community adolescent treatment supporters, or "CATS." Their role is to support CAYPLHIV across the HIV cascade through a variety of complementary services integrated within government and private sector clinical care packages, and social protection services.

CATS are attached to health facilities within their own communities and supervised by MoHCC staff, with technical support from district-based Zvandiri mentors employed by Africaid. CATS identify and refer undiagnosed children, adolescents, and young people through index case finding and support pre- and post-test HIV counseling and disclosure. They support the linkage of HIV-negative clients to HIV prevention services while those confirmed as HIV-positive are registered with Zvandiri. CATS manage a caseload of up to 60 CAYPLHIV whom they support through home visits, support groups, clinic visits, and MHealth (Fig. 2).

Zvandiri has been scaled up across Zimbabwe through phased expansion, with replication of the model from Harare in 2004, to 6 districts in 2010, and to 3 provinces in 2011. In 2014, the MoHCC adopted Zvandiri as a key component of its national accelerated action plan for pediatric and adolescent HIV treatment, whereas the Department of Social Welfare rolled out Zvandiri within its national case management system to strengthen identification of and response to child protection violations against CALHIV. At the end of 2017, Zvandiri was established in 51 of 63 districts (81%) across all 10 Zimbabwe provinces.

The support provided by Zvandiri is differentiated according to the clinical and psychosocial circumstances of individual clients (Table 1).

Zvandiri's first support group in 2004 served 8 adolescents; by the end of 2017, 40,213 CAYPLHIV were actively engaged in Zvandiri services (5312 aged 0–4 years; 5830 aged 5–9 years; 7976 aged 10–14 years; 11,245 aged 15–19 years; and 9850 aged 20–24 years). In partnership with

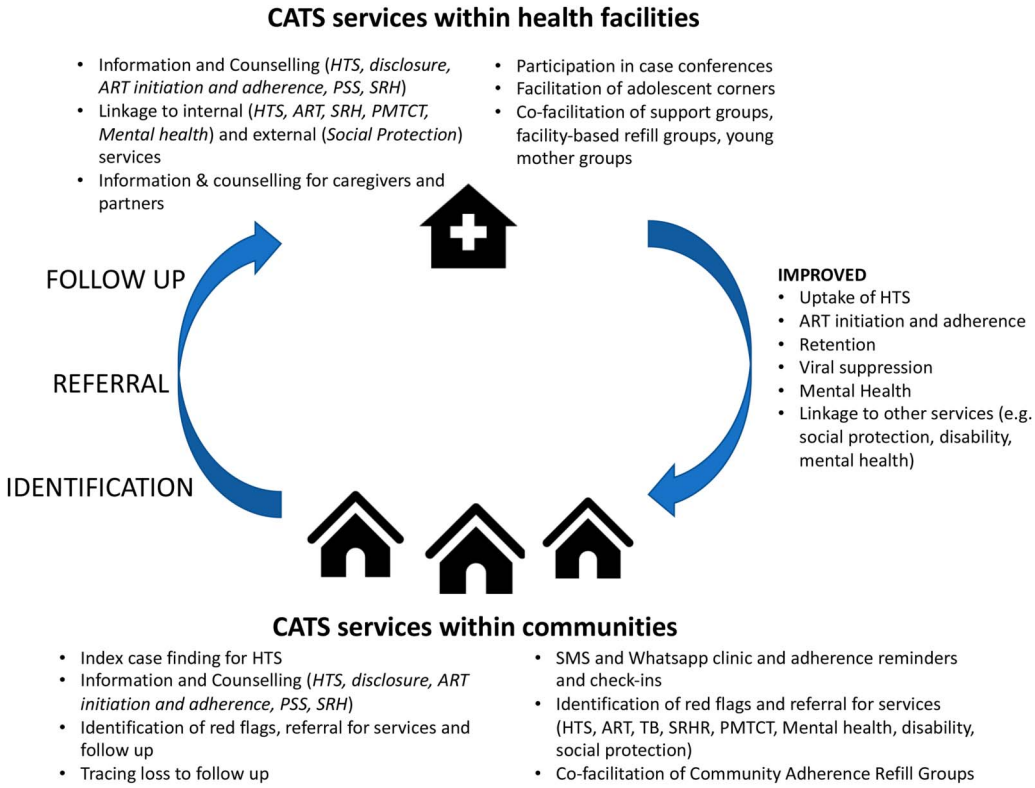

FIGURE 2. The Zvandiri program.

health and child protection services, 1167 CATS are integrated within 613 of 1490 clinics (41%), cofacilitate 421 support groups and provide monthly information, counseling, monitoring, and support for their respective caseloads (Fig. 3).

Cascade data from 161 sites in 2017 revealed that of 5868 children, adolescents, and young people mobilized by CATS through index case finding, 976 (17%) were diagnosed with HIV; 947 of 976 (94%) were initiated on ART; 909 (96%) were retained at 6 months; and 928 (98%) at 12 months. Programmatic data from 148 PEPFAR-supported Zvandiri sites over 15 months suggest improved linkages in these sites with 73 percent (6893/9487) newly diagnosed adolescent girls and young women initiated on ART compared with 69% (2520/3638) in non-Zvandiri sites.[17] The impact of Zvandiri on virologic suppression is currently being investigated in 2 randomized control trials.[18,19] Institutional and family-level outcomes are presented in Table 2.

Operations research in a rural Zimbabwe district found improved self-reported adherence from 44.2% at baseline to 71.8% at 12 months (P value = 0.008) among adolescents receiving Zvandiri services. They were 3.9 more times likely to adhere to treatment (self-report) compared with the control group receiving standard care (odds ratio 3.934).[20] Additional studies by Zvandiri, the MoHCC, and research institutions have explored the experiences and service delivery needs of different subpopulations of CAYPLHIV, including those with virological failure,[18] disability,[21] mental health conditions,[22] and those who are pregnant or breastfeeding.[23] The findings from these studies led to further differentiation of the Zvandiri model as shown.

User Organizations

The multifaceted Zvandiri approach to CAYPLHIV complemented MoHCC goals to improve HIV treatment outcomes among this population. Since 2008, Africaid has supported the MoHCC and National AIDS Council (NAC) in training 2364 health care workers in HIV testing, treatment, and care, which is responsive to the needs of CAYPLHIV and integrates Zvandiri. This training later expanded to include social workers, teachers, and rehabilitation officers, forming a multisectoral response to promoting better HIV outcomes as well as social and mental well-being for CAYPLHIV. Working jointly, the MoHCC, Ministry of Public Services, Labor and Social Welfare (MoPSLW), and the Ministry of Primary and Secondary Education (MoPSE) have progressively integrated Zvandiri interventions within national systems across Zimbabwe, achieving multisectoral scale-up. The Zvandiri roll out was planned at national level—in partnership with provincial and district level teams and CATS—and then implementation was cascaded to the clinic and community level. At the end of 2017, Zvandiri mentors were integrated by MoHCC within its national clinical mentorship programme.

Environment

Zvandiri scale-up has both coincided with and contributed directly to changes in the policy environment (globally

TABLE 1. Zvandiri Levels of Support

Level of Support	Standard Support	Enhanced Support
Eligibility criteria	Viral load <1000 copies/mL in last 6 mo (or reported adherence if viral load not available)	Commencing ART in last 3 mo
	Attending all scheduled clinic visits in last 3 mo	Opportunistic infection
	Psychologically stable	Viral load >1000 copies/mL in last 6 mo (or reported nonadherence if viral load not available)
	Safe	Failure to attend ≥1 scheduled clinic visit(s) in last 3 mo
		Psychological distress
		Neglect or abuse
		Pregnancy
Services	MoHCC treatment and care clinic review and refill visits	MoHCC treatment and care clinic review and refill visits
	<2 yrs: monthly	Weekly—monthly, depending on the clinical and psychosocial circumstances
	>2 yrs and on pediatric doses: 3 monthly	Monthly support group (if disclosed)
	On adult doses and fully disclosed: 6 monthly with 3 monthly ART refills	Biweekly home visits
	Monthly support group (if disclosed)	Joint home visits with community nurses, social welfare, village health workers, and case care workers
	Monthly home visits	Daily SMS reminder
	Weekly SMS reminder	Weekly phone calls
	Clinic counseling	Clinic counseling
	Caregiver workshop	Referral and linkages

and within Zimbabwe) resulting in more comprehensive service delivery supported by a more favorable funding environment for pediatric and adolescent HIV. Since adopting the 2016 WHO recommendations for innovative ART delivery models,[24] Zimbabwe has dramatically scaled up ART provisions nationwide, including for children and adolescents of whom around 80 percent are now enrolled in treatment.[15] This required development of national guidelines for pediatric and adolescent HTS, treatment and care, and training and mentorship of health care workers.[25] The MoHCC, Zvandiri, and young people living with HIV (CATS) also jointly developed the CATS training curricula, service delivery guidelines, job aides, counseling tools, and mentorship guidelines, thus promoting standardized, integrated training and service delivery nationwide.

Zvandiri developed through the active engagement, training, and leadership of the CATS, so that youth-identified needs, values, and perceptions were always at the forefront in planning and implementation. The MoHCC recognition of CATS' core role in the clinic-community care continuum and at policy and strategic levels was critical in generating an enabling environment at all levels.

Resource Team

The MoHCC and MoPSLSW led and coordinated Zvandiri service scale-up at all levels, with technical assistance (TA) from Africaid and directly informed by CAYPLHIV and their families. CAYPLHIV continually assist program implementation by sharing their needs and experiences, and serving as trained, mentored CATS, as well as expert trainers, researchers, and advocates. The role of Africaid staff has evolved from direct implementation to providing TA to government health, social protection, and education cadres. Research partners are also a critical part of the resource team, producing quantitative and qualitative data that inform Zvandiri development and outcome monitoring. An impact evaluation to determine effectiveness and cost effectiveness is currently underway.[18] Likewise, donor technical support for documentation, monitoring, and evaluation has added value throughout.

Scaling-up Strategy

Dissemination and Advocacy

A combination of methods was used to promote and communicate the importance of DSD scale-up for children and adolescents. Vertical approaches included the participation of Africaid staff and young Zvandiri advocates in influencing not just national but global policy and strategy, including development of the WHO ART guidelines, with adolescent-specific guidelines.[24] Young people have been at the forefront of local, national, and international advocacy through creative and impassioned adolescent-led awareness and advocacy activities using a range of media, targeting policy makers, governments, service providers, communities, religious leaders, and families. The model has also been disseminated through external documentation recommending Zvandiri as a best practice model for national and regional scale-up.[26–28]

Organizational Processes

Zvandiri evolved from an NGO-led model with strong community-clinic linkages into a government-led, decentralized approach with technical and implementational support from the NGO. Zvandiri services were initially facilitated by Africaid staff. Now, planning and implementation of Zvandiri services has been adopted by the MoHCC nationally, with provincial and district cadres coordinating services through their respective clinics, assisted technically by Zvandiri district mentors. These include 24 graduated CATS now employed by Africaid. The model has been cascaded through national plans and existing structures and layered onto the national HIV program and health delivery system, and integrated into the national case management system. A strategic choice was made to scale the model through MoHCC alone, rather than through other implementing partners, and to ensure strong linkages with those partners for layering of CAYPLHIV services.

Zvandiri scale-up required that Africaid expand its organizational capacity as lead technical partner to the Government of Zimbabwe and to manage multiple, large grants. Funding partners, who invested in Africaid's

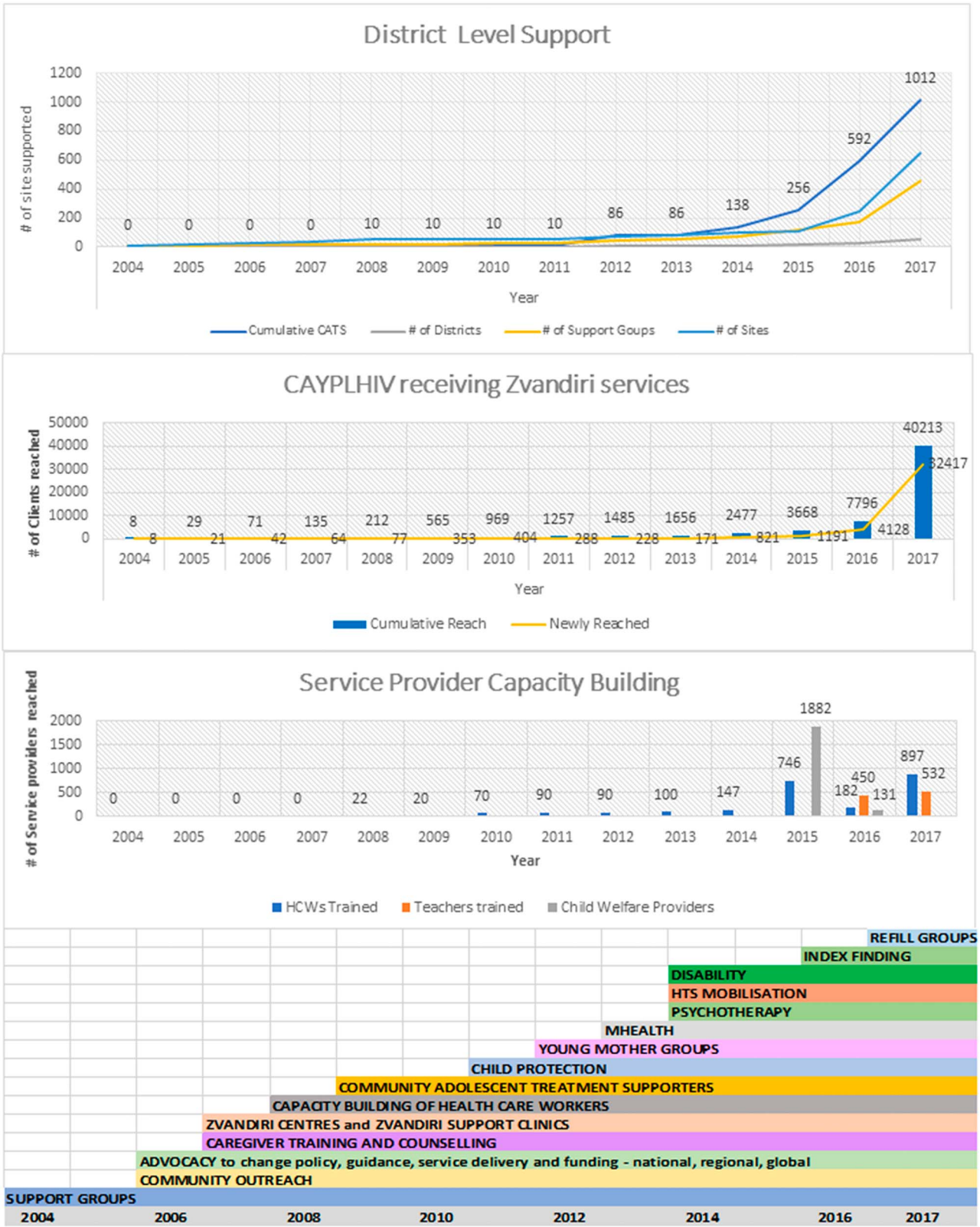

FIGURE 3. Scale-up of the Zvandiri program components and resulting outputs between 2004 and 2017.

TABLE 2. Evidence of Outcomes of the Zvandiri Program

Outcomes	Quotes
Improved engagement in the continuum of care and psychological well-being	KI 12 (HCW): "Support groups have been very important in getting kids back into clinic care and medication adherence."
	FGD 1 (CATS): "When attending the support groups, seeing peers like me was a motivation to take my medication."
	C: "Thank you so much (Zvandiri) for accompanying me to clinic for counseling and collecting my medication. I had already given up on this… thought I was going to die."
	KI 7 (health care provider): "CATS are an effective means of changing mind sets because they are building a positive attitude to life in the youngsters, and positive values…. Nurses see the change in better adherence, less fear."
	KI 10 (pastor): "The Zvandiri model is a very good approach, it increases confidence and adolescents are helped… (particularly) with disclosure, adherence."
	KI 1 (ALHIV): "I want to have children, I want to take care of children who are HIV-positive, I don't want them to feel like I did. I grew up an orphan and it was tough."
	KI 2 (CATS): "Zvandiri gave me the knowledge of how to live positively, how to disclose to partners when the right time comes; it also helped me to realize that I am not alone."
	FGD 7 (MoSPLSW, UNICEF): "The model is part of a wider approach to child protection in general…. The Ministry… (wants) national systems and scalable models… seven thematic areas that include HIV, but the strength and resilience needed for HIV are the same because all children need to survive."
Improved children's agency	FGD 7 (MoPSLSW and UNICEF): "Zvandiri has inadvertently become an intervention that tackles some of the structural drivers of HIV…. The kids who have HIV have no power and they are getting it back through (Zvandiri), and that power is going to help them throughout all aspects of their life."
	C: "Because of my status I didn't have hope in my life and I thought that I couldn't achieve anything big. These thoughts have gone now because of my experiences with the VST (Vocational Skills Training) Program."
	A: "I used to be so shy and intimidated by talking to other people, but now I can talk to anyone without fear."
	KI 13 (CATS) "I am a motivator for other people's lives…. Being a CATS is helping them to see that there is life and there is hope. I am an example…. (being a CATS) helps me cope with my own status and makes me realize that I have something greater in me that I can share with my peers. I still have hope and dreams that need to be fulfilled. Being a CATS is a platform for me to understand myself better. It has empowered me a lot… I have gained a lot of confidence and I know there is more to life. I can speak about my status to anyone."
Improved health care systems	KI 9 (HCW): "(We) keep a defaulter register … and refer to CATS to do home visits – there seems to be good success in getting adolescents back on track."
	Quarterly Monitoring Visit 1 (nurse) "The establishment of a support group here at Maboleni Clinic has really improved the health outcomes of children living with HIV as we are having less children failing to come for reviews… the support from caregivers has also improved significantly."
	FGD 7 (MoPSLSW, UNICEF): "Zvandiri brings in a change of attitudes among service providers…. In some hospitals… the doctors allow CATS to visit their peers in hospital—professionals are seeing the value of peer participation."
	KI 7 (HCW): "CATS provide counseling and community linkages that the clinic staff do not have time to do…. We need many more CATS and shelters (Zvandiri centers)."
	Quarterly Monitoring Visit (sister-in-charge): "Zvandiri plays a huge role in complementing the work we do in this hospital with children living with HIV…. we get a lot of children and adolescents that need the services of the program and I strongly feel you came (to partner with us) just at the right time."
	KI 12 (health care provider): "Most important is the role of CATS in (the) National Advanced Training Course at Newlands. Their eyes open—"I never realized that's what children think, I never realized that my manner was so important when treating children."
	KI 11 (health care provider): "Positive attitudes have been developed (through Zvandiri training)…. Nurses and primary counselors are more youth friendly now."
	FGD 1 (CATS): "Often nurses just ask how many drugs are left there, not even probe whether (we are) taking them regularly, sometimes not even taking weight or height, let alone CD4—you have to ask for this…. If you don't worry about your health, the nurse will not…. There is no individual care, not asking how you are doing on ART, how you are feeling … (but) there are exceptional nurses who do the right things…. One sister-in-charge (after training) said, "I am so thankful to have come to the workshop—these adolescents need our love and care."
Reduced stigma	KI 10 (pastor): "Stigma is decreasing"
	FGD 1 (CATS): "At one school after a presentation, a group of students went to the home of a boy living with HIV who they had ostracized as they suspected his status, and they apologized to him and welcomed him back to class."
	WAD School Campaign 1 (teacher): "As teachers, I feel we are also the perpetrators of stigma and discrimination… through these information sharing sessions and advocacy efforts, I am beginning to appreciate how I have contributed to stigma in my school… let's continue working together and bury this stigma for good!"
	Multisectoral National AIDS Council Technical Working Group on Young People: "Teacher training is currently being planned, and it will be important that Zvandiri is part of this training for teachers."

TABLE 2. (*Continued*) Evidence of Outcomes of the Zvandiri Program

Outcomes	Quotes
Improved family support, communications/ parenting	KI 11 (HCW): "After the training we received, children's review days were introduced in 3 of our opportunistic infection (OI)–initiating clinics. Africaid played a very crucial role in mobilizing the children and parents…. And motivated other partners to join clinics during review days."
	Training and Counseling Session 1 (caregivers): "It is really amazing what you do to these children, they have grown to be responsible and are now able to attend clinic alone … even… to visit relatives in the rural areas…. I know they will continue taking their medication…. I have … learned how important the support from home is."
	FGD 2 (caregivers): Caregivers commented that the CATS provided information, encouragement, love and respect to them as caregivers, motivation to their charges, and that they greatly appreciated both support groups and home visits
	Caregiver: (Having watched her child's own film documenting her experiences) "I am so ashamed of how we as a family have been treating her. I had no idea this is what she feels. I am going home now to change the way we are as a family"
	KI 11 (health care provider): "(Through our link with Zvandiri) a platform has been formed for parents and guardians to interact… (and) share ideas on disclosure to the children and dealing with stigma."

organizational capacity, not merely supporting programs, have been key.

Costs and Resource Mobilization

In 2004, few resources for CAYPLHIV were available, mainly individual donations and small, short-term grants. With increasing evidence of children living with HIV surviving into adulthood and of their poor outcomes,[29,30] resource mobilization improved and was essential for Zvandiri scale-up. Young Zvandiri advocates actively assisted the Global Fund replenishment process and mobilization of domestic resources. The model was costed,[26] which informed scale-up funding from President's Emergency Plan for AIDS Relief. Other donors also became involved, funding various components in different geographic areas. Key costs included CATS training, monthly stipends, bicycles, and mobile phones, district level CATS coordination meetings, and supervision by Zvandiri mentors.

Monitoring and Evaluation

Zvandiri scale-up necessitated the evolution of Africaid's monitoring and evaluation systems from simple, paper-based tools for monitoring support group attendance to a complex, electronic medical record system capable of tracking services received by 40,213 individual registered CAYPLHIV. The Zvandiri Mobile Database App was developed for CATS and Africaid staff to capture real-time data in each district. Scale-up involved a shift from traditional process and output indicators, to tracking outcome indicators including HTS uptake and yield, treatment initiation and retention, viral suppression, and psychosocial well-being. In partnership with government ministries and funding partners, national, donor-specific and Africaid-customized indicators are used to track quantitative and qualitative data, and to describe process, outcome and, to a limited extent, programme impact to inform continued programming and scale-up. Africaid adopted key MoHCC M&E tools for use by Africaid staff and CATS and ensured M&E training and site supervision visits to monitor quality and fidelity to the Zvandiri model in partnership with MoHCC.

KEY LESSONS LEARNED

Key lessons included the following:

- Government leadership and coordination were critical in driving scale-up of an integrated, sustainable, differentiated service for CAYPLHIV
- Packaging Zvandiri as a defined model of care, including joint development of guidance, training curricula, and implementation tools, promoted standardized uptake and implementation of services in line with national plans and systems
- Integration of training, supervision, and mentorship within national systems with TA from an NGO at national, provincial, and district level has been essential for government ownership and support for CATS
- Beneficiary involvement in all aspects of program design and delivery, monitoring, evaluation, and research has been critical, acceptable, and sustainable
- Development of pediatric and adolescent indicators to reflect DSD, as well as the clinical and psychosocial outcomes for this population, has promoted awareness of the need and impact for differentiated services
- Use of programmatic data, together with partnerships with research institutions, has produced robust evidence for informing policy, service delivery, and scale-up, as well as resource mobilization
- Strengthened and scaled-up objective markers, including routine viral load testing and refined measures of mental health, are needed to demonstrate sustained impact
- Basic cost effectiveness and cost-benefit data can strengthen evidence for good practice and sustainable impact.

LIMITATIONS

There are 3 main limitations to this review of Zvandiri program scale-up, all of which are currently being addressed. First is the need to strengthen impact monitoring to include use of additional objective measures, notably routine viral load testing and improved, standardized mental health measures. Second, the analysis does not cover basic cost

effectiveness, and cost-benefit data needed to confirm and improve the efficiency of various program components. Third, the analysis does not include direct quality assurance measures required to safeguard against the risk of decline in quality and intensity of service provision, a core concern in program scale-up.

DISCUSSION

Rigorous evidence on how to bring DSD models to scale for CALHIV is required. Here, we described the process of taking one model to scale, its outcomes and lessons learned, and presented enabling factors that contributed to its success. Zvandiri is arguably the largest, national DSD model for CAYPLHIV in sub-Saharan Africa. Programmatic and research evidence indicate that this approach has improved uptake of HTS adherence, and retention in care, outcomes likely to link with improved survival, health, and psychosocial well-being among CAYPLHIV in Zimbabwe. Further impact evaluation is needed and is underway.

A review of innovative strategies in 12 countries noted how rarely routine monitoring was used to inform scale-up.[31] In Zvandiri, monitoring and evaluation has gradually been strengthened to demonstrate results and must be developed further to assure quality and intensity of service provision, and to measure sustained impacts. The WHO framework for scale-up proved to be a useful tool for analyzing the scale-up process, particularly in relation to the environment and strategic choices involved. Key enablers for scale-up included all elements within the overarching WHO framework.[16]

Zvandiri scale-up was limited for many years by lack of international recognition of the escalating numbers and needs of CAYPLHIV. Gradually, attention focused on the CAYPLHIV care gap, creating an opportunity to expand services for this neglected cohort. Funding increased, and global and national policies and guidelines were developed to which Zvandiri actively contributed, including substantive input from primary beneficiaries themselves. With its years of experience and evidence of improved uptake of HIV diagnosis and care among CAYPLHIV, active involvement of trained CATS, and a multifaceted approach, Zvandiri tapped into increased awareness and support and rapidly expanded the program both vertically and horizontally. Diverse stakeholders were brought on board early and played key and complementary roles, ensuring that the resource base was comprehensive and sufficiently robust to support growth. Implementation materials and guiding documents were jointly developed by Zvandiri and MoHCC, contributing to national commitment and ownership. The importance of engaging and training end users, the CATS, in the scale-up has been highlighted, and also the extent of community involvement.

Other crucial enablers included strong leadership, a clearly defined model that could be integrated within existing structures, and the long-term vision of sustainability through strengthening national, provincial, district and local capacity to take effective programme ownership and leadership. Africaid's role has primarily shifted from direct implementer to TA provider conducting dissemination and advocacy both within and beyond Zimbabwe. The process for expansion was iterative, incorporating programmatic and research evidence to facilitate flexibility as the environment changed and new needs arose.

The number of children and adolescents on ART will continue to increase because of the successful response to ambitious HTS and ART initiation targets. Evidence to date suggests that this response should be supported by investments in services that respond to the social, developmental, and mental health needs of this population, to promote virological suppression, retention in care, and mental health. Yet, there remains limited literature on the effectiveness of interventions for this age group and limited understanding of how to take these interventions to scale. This dearth was confirmed in the recent WHO and International AIDS Society global research agenda for adolescents living with HIV.[32] The Zvandiri model bridges this knowledge gap and supports particularly vulnerable CAYPLHIV generating increased equity in its services.

We suggest that Zimbabwe's experience of scale-up provides important lessons to inform policy and programming for CAYPLHIV. Africaid, with support from MoHCC and its funding partners, has now established the Zvandiri technical support team to guide countries wishing to adopt Zvandiri services. This team has already supported Mozambique, Tanzania, and Swaziland, now home to 170 CATS.[33] The same principles of government leadership, technical partnerships with local NGOs, meaningful engagement of young people, and the adoption of a clearly defined, packaged model have also been critical in these countries.

CONCLUSIONS

The Zvandiri model brings to scale holistic support of CAYPLHIV that is responsive to their medical, developmental, and psychosocial needs. Model development required various complementary factors that created a window of opportunity for scale-up and continued support. In particular, to assure sustainability, the program was nested within existing services with capacity strengthening of national, regional, and local service providers and trained, mentored CATS supporting their peers, families, and communities. Emphasis now needs to be on ensuring program sustainability at scale with quality and intensity of service provision to achieve impact.

We have combined programmatic and evaluation data to demonstrate the substantial gains that the programme has achieved and provided information on programmatic and evaluation gaps. The results highlight the importance of the environment and strategic choices when taking a model to scale. The results also provide a firm foundation to support programming from which to build in terms of gathering longer term, sustainable impact. Although impact analysis is not yet available, the current and future data should contribute to the essential evidence base on strategic approaches to assist this relatively neglected cohort even in high HIV prevalence, low resource settings.

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