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Journal of Adolescent Health 73 (2023) S58–S66

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JOURNAL OF ADOLESCENT HEALTH

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Original article

Implementing Differentiated and Integrated HIV Prevention Services for Adolescent Girls and Young Women: Experiences From Oral PrEP Rollout in Primary Care Services in South Africa

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Article history: Received December 21, 2022; Accepted September 12, 2023
Keywords: PrEP implementation; AGYW; South Africa; PrEP delivery; Oral PrEP; Differentiated service delivery

A B S T R A C T

Purpose: In South Africa, adolescent girls and young women (AGYW, aged 15–24 years) are disproportionately affected by human immunodeficiency viruses (HIV). Oral pre-exposure prophylaxis (PrEP) has been available in South Africa since 2016; however, there is limited evidence on oral PrEP implementation and integration in real-world settings, particularly among AGYW. Project PrEP is an implementation science project that sought to inform the introduction and integration of oral PrEP as part of combination HIV prevention and sexual and reproductive health services (SRH) in South Africa. The project focused on AGYW, as a priority population in need of HIV prevention. This paper presents strategies Project PrEP employed to increase oral PrEP and SRH service access and utilization.

Methods: We present strategies employed to increase oral PrEP and SRH services uptake. Using routine monitoring data, facility assessments, stakeholder engagement, training and progress reports, and observations, we share implementation lessons learned and describe how strategies can be adapted by HIV prevention programs in different contexts.

Results: Approximately 22, 000 people initiated on oral PrEP (December 2018–December 2021) across eight facilities and four mobile clinics. Two-thirds (67%) of initiated clients were AGYW.

Discussion: Lessons are to be learned from the introduction of oral PrEP as implementers prepare for the introduction of new PrEP methods. Stakeholders must be continuously engaged to ensure buy-in, and social mobilization and demand creation should be contextual, focused, and innovative. Continuous staff training is needed to reinforce knowledge, and AGYW service delivery models must be local context relevant.

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IMPLICATIONS AND CONTRIBUTION

A service delivery model incorporating decentralized service provision and integration of sexual, reproductive health services closes the gap of siloed approaches. Considerations for the introduction of new PrEP modalities should include (1) stakeholder engagement, (2) demand creation, (3) capacity building, and (4) flexibility when providing services to AGYW.

Conflict of interest: The authors have no conflicts of interest to declare.
Disclaimer: This article was published as part of a supplement supported by Unitaid. Unitaid had no influence or involvement over the review or approval of any content. The opinions or views expressed in this supplement are those of the authors and do not necessarily represent the official position of the funder.

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Globally, there are an estimated 39.0 million people living with human immunodeficiency viruses (HIV) (2022) [1–3]: 7.5 million of these live in South Africa (2021), with approximately 210,000 people newly infected last year [4]. HIV prevalence among those aged 15–49 years is estimated at 18.3%; higher among females (24.5%) than among males (12.1%) [4]. Adolescent

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https://doi.org/10.1016/j.jadohealth.2023.09.003

girls and young women (AGYW, aged 15–24 years) in South Africa are disproportionately affected, having a high HIV incidence (1.5%) and prevalence (10.9%) [5]. Young women in their early 20s have a three-fold burden of HIV compared to their male peers [5]. HIV transmission vulnerability and dynamics vary by context, age, and sex, which calls for nuanced, differentiated approaches to HIV prevention and treatment responsive to individual needs [6].

Tenofovir/emtricitabine–based oral pre-exposure prophylaxis (PrEP) has been available in South Africa since 2016 [7]. The national roll out of oral PrEP took a phased approach, with an initial focus on men who have sex with men and sex workers [8,9], and expanding to include AGYW toward the end of 2017 at designated project sites, supported by donor-funded partners [7]. In South Africa at the time, there were other initiatives seeking to improve the lives of AGYW, such as the She Conquers campaign [10] and the Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe women (DREAMS) initiative [11]. The national She Conquers campaign sought to reduce new AGYW HIV infections, incidence of teenage pregnancies, and AGYW experiences of sexual and gender-based violence and increase retention of girls in school and improve their economic opportunities. She Conquers functioned as a coordinating mechanism, fostering collaboration between programs and organizations whose work reached AGYW [10]. The PEPFAR (*U.S. President's Emergency Plan for AIDS Relief)-funded Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe women (DREAMS) initiative works with partner governments to deliver a core package of interventions, combining evidence-based approaches that address the structural drivers of girls' HIV risk [11].

Since 2019, the Department of Health (DoH) has scaled up oral PrEP to 3,034 primary healthcare public health facilities, with 658,885 individuals initiated on oral PrEP as of July 2022 [12]. While oral PrEP has been shown to be highly effective in the prevention of HIV [9,13], there is limited literature on oral PrEP implementation and integration among AGYW in real-world settings, not only on the African continent but globally [14,15].

Project PrEP, funded by Unitaid and implemented by the Wits RHI, is an implementation science project seeking to inform the introduction and integration of oral PrEP as part of combination HIV prevention and sexual and reproductive health (SRH) services in South Africa. The project focused specifically on AGYW as a priority population in greatest need of HIV prevention. The project aimed to strengthen demand, uptake, and continuation through an integrated, comprehensive package of HIV prevention and SRH services, with a focus on oral PrEP access in specifically selected implementation sites that were near and serviced adolescent populations such as high-volume secondary schools, Technical and Vocational Education and Training centers, and universities.

In this paper, we present the project's service delivery model to increase oral PrEP and SRH service access and utilization, implemented as oral PrEP was being introduced within routine primary care health services. Key lessons and recommendations are shared to inform and guide future implementation, including the introduction of new HIV prevention products.

Methods

We describe the processes undertaken in the development and implementation of the Project PrEP oral PrEP service delivery model and document the lessons learned in implementing this model, drawing on multiple data sources. Data sources, collected between December 1, 2018 and December 30, 2021, included routine program monitoring data, facility assessment reports, demand creation and social mobilization reports and meeting minutes, training and mentoring reports, stakeholder engagement reports, and site visit observations. Data sources are further outlined in Table 1, describing the purpose, cadre collecting the data, frequency of data collection, and how it was analysed.

Development and implementation of the differentiated service delivery model

Project PrEP was conceptualized and implemented in close collaboration with the South African National Department of Health (NDoH), beginning in December 2018 in four clusters in three South African provinces (Gauteng, Eastern Cape, and KwaZulu-Natal). The four project clusters each represented different contexts and population characteristics, providing the opportunity to test and adapt implementation strategies across diverse contexts. These clusters were selected based on their high HIV prevalence and high rates of teenage pregnancy, sexually transmitted infections (STIs), and gender-based violence (GBV). They were also well placed to reach AGYW due to the number of high-volume secondary schools, Technical and Vocational Education and Training centers, and universities in proximity to fixed facilities. Each cluster consisted of two fixed primary healthcare facilities, typically a larger anchor facility linked with a smaller nearby facility within the same geographical area and a roving mobile clinic (Figure 1).

The three main objectives of Project PrEP were to (1) increase accessibility of oral PrEP for eligible AGYW (aged 15–24 years) in project implementation areas, (2) demonstrate effective delivery models and appropriate use of oral PrEP among AGYW, and (3) generate and disseminate evidence on the use of oral PrEP in real-world settings. The project aimed to strengthen demand, uptake, and continuation through an integrated, comprehensive package of HIV prevention and SRH services, with a focus on oral PrEP access.

The Project PrEP delivery model was built on four key prongs: (1) stakeholder engagement, (2) demand creation, (3) capacity building, and (4) service delivery through fixed facilities and mobile clinics, underpinned by enhanced monitoring and evaluation. Each of these intervention areas will be described in turn.

Stakeholder engagement

As oral PrEP was still new in South Africa when Project PrEP began, it was anticipated that it may be met with scepticism and some fear and misconceptions [16], particularly by young people, parents, caregivers, community leaders, but also by some government officials. In the absence of evidence on how PrEP access could be implemented for young people, there were doubts about how oral PrEP could be effectively delivered to AGYW particularly considering the many barriers to service access that young people face. In line with existing literature on misconceptions, many feared that oral PrEP would encourage promiscuity and reduce condom use [17] and others feared the side effects [15]. The projects' early meetings and workshops with four main stakeholder groups were designed to address these

Table 1
Summary of data collection sources

Data source	Purpose	Collected by and frequency	How was it analysed?
Clinical records of clients ≥ 15 years accessing services at Project PrEP sites	Gather client clinical data	Collected by client navigators, data capturers, counsellors, and professional nurses. Collected daily.	Descriptive analysis of oral PrEP initiations and qualitative analysis: iterative review and consolidation of Project PrEP staff observations and meeting notes.
Project-specific facility assessment reports	Documents facility readiness for PrEP provision	Conducted by clinical mentors, clinicians, and training team. Facility observations, record review, observation, and interviews with facility managers. Conducted at baseline and repeated annually.	
Face-to-face demand creation and social mobilization reports (including attendance registers)	Records type of face-to-face demand creation and/or social mobilization event, location, time, duration, cost, and youth feedback	Collected by peer navigators, demand creation officers, and data capturers for face-to-face demand creation and social mobilization activities—at least once a quarter or whenever activities took place.	
Online demand creation and social mobilization reports	Records type of online demand creation and/or social mobilization event, geographic focus of online post, type of content posted time, cost, and youth feedback (engagements and responses to posts)	Online reports are automatically populated monthly and quarterly.	
Meeting minutes and stakeholder meeting reports	Documents meeting proceedings including the issues raised by those stakeholders.	Project PrEP staff facilitating the meeting—typically program managers, demand creation officers, training staff, and clinicians. Quarterly cluster meetings and district review meetings with facility and district staff, bi-annual provincial meetings. More on an adhoc basis for other stakeholder convened meetings.	
Training and mentoring reports	Documents training that has been conducted	Project PrEP clinical mentors. Collected at least once a quarter for each clinician.	
Site visit observations	Documents staff observations following site visits	Project PrEP staff—all cadres. Documented at least once a month, and as and when site visits take place.	

PrEP = pre-exposure prophylaxis.

perceptions and provide accurate HIV prevention information and the benefits of oral PrEP. Collaborations with the national and local DoH, alignment of project activities to community and health priorities, and Wits RHI's existing track record in HIV prevention research and programs enhanced credibility among stakeholders. The groups are discussed below.

Government departments

Supported by the NDoH, representatives from different tiers of government were the first to be engaged, embracing both the Health and Education departments at the national, provincial, district, municipal, and site levels. Project endorsement, forging partnerships, and getting permission to plan and implement was a critical outcome of the process.

Influential and relevant community leaders

High-level community leaders and gate keepers (political, religious, traditional, and civic leaders) were identified. Through collaborating together on community engagement activities, like dialogues, launch and celebration events, and in one site, a prayer day, they assisted in building credibility and legitimacy of the project within communities. Their insights into the social, cultural, and political contexts to guide implementation were critical.

Community structures

Dialogues with a range of community-level representatives and structures (parents, guardians, educators, school, and health committee representatives) and nongovernmental and community-based organizations (CBOs) were held. Dialogues gave HIV prevention messaging as well as discussing contextual issues and identifying opportunities to leverage resources and understand referral pathways.

Youth engagements

Meaningful youth involvement from project inception was key to implementation. At the onset, 15 HIV prevention

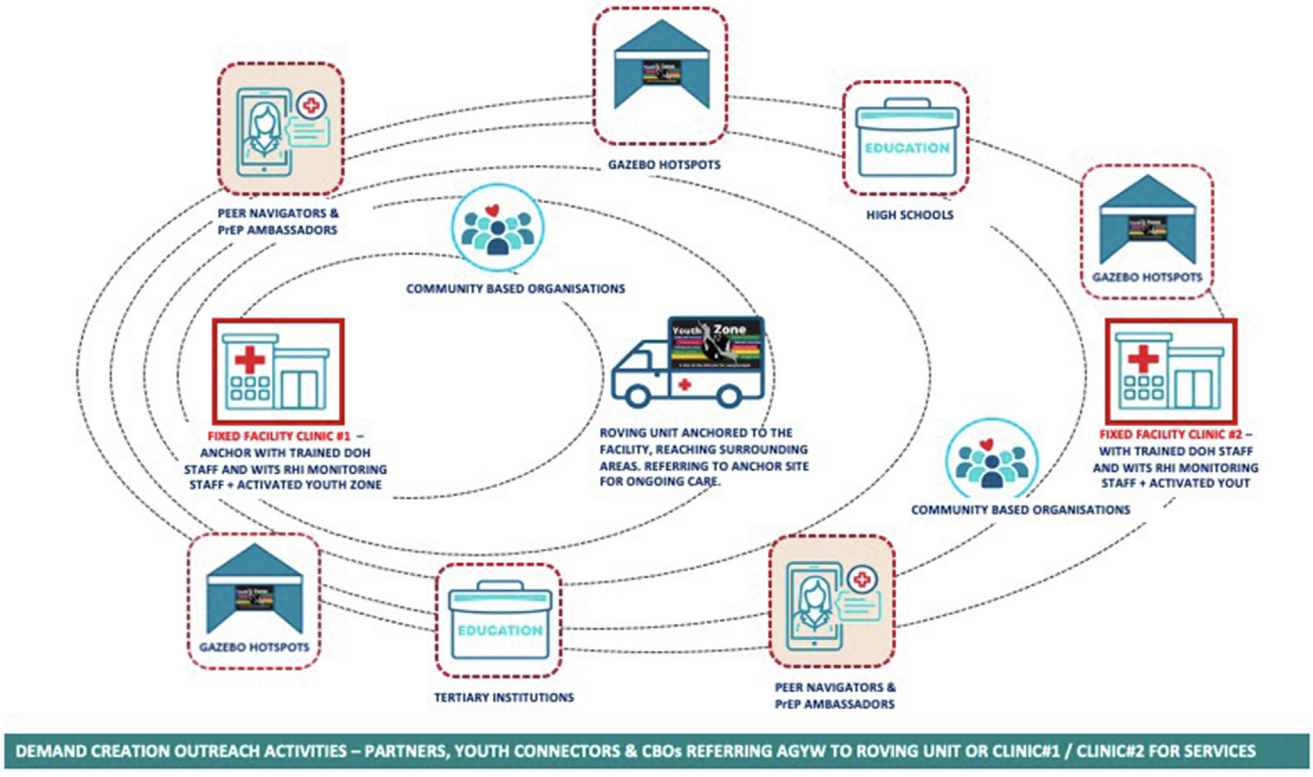


Figure 1. Project PrEP service delivery model. *This figure is intended for color reproduction on the Web and in print.

ambassadors (13 female and two male) representing each of the four project clusters were recruited to engage youth in their communities with HIV prevention information, specifically oral PrEP, and ensure youth voices, thoughts, and opinions were heard throughout project design and implementation. They named themselves *'Generation PrEP: Simunye!'* Members attended regular trainings, specifically on PrEP, media engagement, research methodology, advocacy, and activism. Lessons learned from this training contributed to the development of a standardized HIV prevention ambassador training [18], led by the USAID Optimizing Prevention Technology Introduction on Schedule (OPTIONS) consortium. Eight ambassadors have each established their own community HIV prevention groups which include about 30 youth who attend regular meetings, discussing their engagement with other youth in their communities.

Demand creation

Project PrEP approached demand creation and social mobilization in a holistic manner. The strategic approach was developed according to the newly formulated Eita! response hierarchy model (Briedenhann et al., 2023) [19] and ultimately employed a variety of tactics through numerous channels to achieve a "surround-sound effect" in relation to HIV prevention, and specifically oral PrEP, messaging. The project relied on local CBOs in implementing clusters and meaningful youth engagement through dialogues and discussions to ensure a strategic approach that promoted the uptake and continued use of combination HIV prevention. Early insights pointed to the need for a balanced approach that used both digital/online communication channels and in-person interaction on the ground, in communities. Continued targeting of AGYW through these approaches facilitated the generation and momentum of demand for oral PrEP among the target population. Briedenhann et al. (2023) [19] provide a detailed description of the demand creation and social mobilization methods employed by Project PrEP, as well as the AGYW reached by these methods.

Capacity building

In consultation with the NDoH, Project PrEP developed a capacity building strategy aiming to (1) build capacity to provide HIV prevention and SRH services, including oral PrEP; (2) strengthen service integration; (3) ensure services are youth-sensitive and responsive; and (4) ensure sustainability of interventions. The key elements of this strategy included training, mentoring, and supportive supervision. Areas of focus specific to each cluster were identified through baseline assessments conducted in each facility.

Training

Nurse-led initiation and management of clients on antiretroviral therapy (ART), including PrEP, is mandated by South African medicines control legislation [20] and requires them to be trained in Nurse Initiation and Management of ART (NIMART). At project start, most NIMART-trained nurses were embedded in the HIV treatment or chronic care streams of clinic services and not allocated to the streams of care providing SRH services. As

Table 2
Services provided by the Project PrEP team

Role	Services provided
Peer navigators and demand creation officers	• Initial point of contact for adolescents accessing services • Support client navigation through the health service • Create demand for services and provide health information and education
Lay counsellors	• Conduct HIV counselling and testing • Counsel clients to support effective use of PrEP
NIMART- trained nurses	• Provide all clinical services, including PrEP, STI screening and management, contraception, mental health, and GBV screening
Linkage officers	• Support client follow-up through phone calls and WhatsApp groups

GBV = gender-based violence; HIV = human immunodeficiency viruses; NIMART = Nurse Initiation and Management of ART; PrEP = pre-exposure prophylaxis; STI = sexually transmitted infection.

this was a potential barrier to the integration of PrEP within SRH services, the project supported training and certification of nurses in NIMART, followed by training on PrEP initiation and management. PrEP clinical training was informed by the national guidelines [21], which outlined in detail the process for enrolling and managing a client on PrEP, providing counselling, and integrating PrEP within other services. At project start, eligibility criteria for oral PrEP were no contraindication to tenofovir or emtricitabine, HIV-negative, no suspicion of acute HIV infection, and willing and able to adhere to PrEP. Adolescents aged < 15 years were eligible for initiation if Tanner stage 3 or more. Pregnant women were initially not eligible for oral PrEP, although this guidance was subsequently updated in October 2021 [7,22].

Using the lessons learnt from the face-to-face training experience, the project supported the NDoH to develop an online oral PrEP training course for the clinical management of oral PrEP [23]. This course was developed to build the capacity of oral PrEP healthcare providers and support roll out of oral PrEP across the country. The course consists of videos, slides, and interactive assessments and is divided into sections to accommodate different cadres. A range of clinical and nonclinical job aids were developed by the project for NDoH as part of a suite of national standardized tools and resources.

In addition to NIMART and PrEP clinical training, training for clinical staff covered: Post Exposure Prophylaxis; an overview ART; HIV counselling and testing; contraception; STI screening and management; demand creation; provision of youth friendly services; and counselling and communication skills, including risk reduction and motivational counselling. To improve the contraceptive method mix available to clients, nurses were trained in the provision of long-acting reversible contraceptives, specifically the subdermal implant, as capacity to provide this contraceptive method was identified as a gap.

Nonclinical DoH staff received an overview of the clinical topics and was trained on demand creation, youth-friendly service provision, and counselling and communication skills to provide information and client linkage and navigation. Additionally, there was also emphasis on strengthening referrals and monitoring and evaluation processes at facility level. All staff was trained on data collection tools, and guidelines and job aids were provided to support service delivery.

We also capacitated non-DoH stakeholders such as local CBOs who were provided with nonclinical PrEP training so that they could appropriately engage with their communities, communicate the correct information, and create demand for PrEP and HIV prevention through their community mobilization engagements.

Mentoring and supervision

Mentoring and supportive supervision are key components of capacity building, helping to reinforce and apply lessons learned during trainings, as well as assisting in the identification of gaps and embarking on joint problem-solving [24]. The approach focused on strengthening staff confidence and competence in prescribing oral PrEP, managing side effects, providing follow-up counselling, and operationalizing integration. Mentoring strategies included one-on-one mentoring with observation and constructive feedback, group coaching, case reviews, pairings of newly employed DoH staff with experienced staff, and demonstrations on the effective use of job aids. Mentoring assessment tools were developed to measure the skills and competencies of different cadres. Focal areas of supportive supervision included SRH and HIV integration, innovative service delivery approaches, Adolescent and Youth Friendly Services, and HIV counselling and testing. The use of quality improvement methodologies and NDoH tools, such as the district STI quality of care assessment [25], was also implemented to identify facility-level implementation gaps and develop improvement plans.

Service delivery through fixed facilities and mobile clinics

Within each cluster, services were provided by a dedicated team of clinicians (NIMART-trained nurses) and nonclinicians (lay counsellors, peer navigators, and demand creation officers) (Table 2). Teams worked together, ensuring integrated service delivery from client identification to the provision of health education, HIV testing and counselling, clinical service provision, and follow-up.

Services were delivered through two platforms: (1) *Fixed facility-based service provision* and (2) *Community-based service provision,* allowing clients flexibility and choice in how they accessed and received services and extending service reach and healthcare access for AGYW. Service points were purposefully designed to provide an integrated package of SRH services and to be adolescent and youth friendly.

Fixed facility-based service provision

A key step in setting up the Project PrEP fixed facility service delivery platform was the establishment of facility Youth Zones. Youth Zones were introduced within the NDoH Adolescent and Youth Friendly Services program [26] to create a single service point of delivery for HIV and SRH services. Youth Zones are created with input from young people, seeking to meet their



Figure 2. Branded youth zone container at fixed facility service points.

practical and psychosocial needs by including dedicated operating times and spaces and providing services that are private and by staff who are nonjudgmental. Project PrEP procured, furnished, and branded containers (Figure 2) in line with the NDoH She Conquers campaign [27] to be used as Youth Zones in fixed facilities. These containers provided rooms for counselling, clinical consultation, and data capturing, as well as a larger space used as a client waiting room and youth "chill out" space, where access to Wi-Fi was provided. As young people arrived at facilities, peer navigators directed them to the Youth Zones, thus avoiding long clinic queues. Within Youth Zones, an integrated package of services was provided, including HIV counselling and testing, oral PrEP, STI screening and management, contraception, and screening for GBV and mental illness. Those requiring referral were either referred to identified service providers within the facility or to a referral site. Clients were followed up according to the schedule outlined in the NDoH guidelines, at one month after PrEP initiation and thereafter three-monthly, with HIV testing at each follow-up visit. Between visits, support was provided through a follow-up phone call seven days after PrEP initiation, appointment reminders, and WhatsApp groups with other PrEP clients, depending on the client's choice.

Community-based service provision

Service delivery through mobile clinics was implemented to address barriers to health service access such as travel, cost, and distance [28]. They also provided an alternative to fixed facility services where privacy may be compromised by having to wait to receive services together with other community members [29]. Mobile clinics provided the same integrated SRH services as provided in the fixed facility Youth Zones, including oral PrEP. Their branding was also aligned to the She Conquers campaign [27]. Mobile clinic service delivery points included:

Fixed hotspots were located where large numbers of youth usually congregate (e.g., shopping malls, fuel stations, higher education campuses and hostels, community centers, community sports grounds and other recreational areas, secondary and high school premises and surrounds). They were visited on a weekly or monthly basis.

Rotational, seasonal, and pop-up hotspots were located at places where youth congregate at certain times, influenced by the time of year (e.g., some worked better in the summer as compared to the winter) or were affected by school or public holidays. For example, service points near an educational institution may be quiet during holidays or childcare social security grant collection points busy on a certain day of the month; places of employment or along pedestrian routes or transport hubs may only be busy at certain times of the day.

Adaptations during the COVID-19 pandemic

Following the emergence of the global COVID-19 pandemic in South Africa, a nation-wide lockdown restricting all but essential movement was enforced for 21 days from March 26, 2020, followed by various levels of restrictions thereafter [30,31]. Project adaptations were developed to enable SRH service provision to continue.

Remote services such as home delivery of oral PrEP were implemented, ensuring access for those unable to visit clinics. **Community pick-up points** were also established where clients could pick-up their PrEP. These included local private pharmacies, tertiary institution halls, and CBO premises. Clients expected for follow-up appointments were called to arrange a suitable pick-up place and time. **Multimonth scripting** of PrEP was provided for clients already using oral PrEP consistently. The **project's online presence was intensified** for demand creation, education, and engagement. Mobile clinic and facility opening schedules were shared through online platforms during lockdown. Mental health, GBV, and other resources were shared to keep people informed, motivated, and linked to services available in their communities. We **adapted support for PrEP use** by using telephone calls, WhatsApp groups, social media, and the chatbot on the myPrEP website [3]. These strategies helped to shape implementation, enhancing the decentralized community-based service delivery model.

Table 3
Oral PrEP initiations in Project PrEP sites by age category, December 2018–December 2021

	15–19 years N = 7,136 (32.5%)		20–24 years N = 9,254 (42.1%)		25–29 years N = 2,847 (13.0%)		≥ 30 years N = 2,746 (12.5%)		Total N = 21,983 (100%)	
Sex										
Male	537	7.5%	1,207	13.0%	751	26.4%	1,145	41.7%	3,640	16.6%
Female	6,592	92.4%	8,045	86.9%	2,094	73.6%	1,598	58.2%	18,329	83.4%
Other	7	0.1%	2	0.0%	2	0.1%	3	0.1%	14	0.1%
Province										
Eastern Cape	4,834	67.7%	4,120	44.5%	1,493	52.4%	1,349	49.1%	11,796	53.7%
KwaZulu Natal	778	10.9%	2,720	29.4%	817	28.7%	954	34.7%	5,269	24.0%
Gauteng	1,524	21.4%	2,414	26.1%	537	18.9%	443	16.1%	4,918	22.4%
Facility type										
Fixed	4,198	58.8%	5,548	60.0%	1,808	63.5%	2,264	82.4%	13,818	62.9%
Mobile	2,938	41.2%	3,706	40.0%	1,039	36.5%	482	17.6%	8,165	37.1%

Results

Between December 1, 2018 and December 30, 2021, 21,983 people aged ≥ 15 years were initiated on oral PrEP, across eight implementing facilities and four mobile clinics (Table 3), from the analysis of clinical client records. Of all oral PrEP initiations, 67% (n = 14,637) were among AGYW aged 15–24 years, 17% (n = 3,692) were among women aged > 24 years, and 17% (n = 3,640) were among males aged ≥ 15 years. The majority of oral PrEP initiations occurred in the Eastern Cape province (54%, n = 11,795) where two of the four clusters were located, followed by 24% (n = 5,269) in KwaZulu-Natal and 22% (n = 4,918) in Gauteng. The majority of clients were initiated at fixed facilities (63%, n = 13,818), although the proportion of people accessing services through mobile facilities increased with younger age, ranging from 41% in those aged 15–19 years to 18% in those aged ≥ 30 years.

Figure 3 shows the increase in total PrEP initiations and the proportion of PrEP initiations among AGYW between December 2018 and December 2021, from the analysis of clinical client records. Overall, the total number of AGYW initiated on oral PrEP increased from 6,115 in 2019 to 9,766 in 2021. The proportion of AGYW initiated on oral PrEP increased from 53% of all PrEP initiations in 2019 to 62% in 2020 and 78% in 2021. Figure 3 also highlights the seasonal variations in oral PrEP initiations among AGYW. Slight 'dips' in initiations can be attributed to school closures (June–July) and seasonal southern hemisphere summer holidays (December–January). School holidays were found to affect service delivery uptake as learners either returned home (to different provinces or other areas of the same district) or had reduced mobility and opportunity to access services. The COVID-19 pandemic caused disruption to PrEP access and service delivery, seen in the reductions in oral PrEP initiations between April and June 2020.

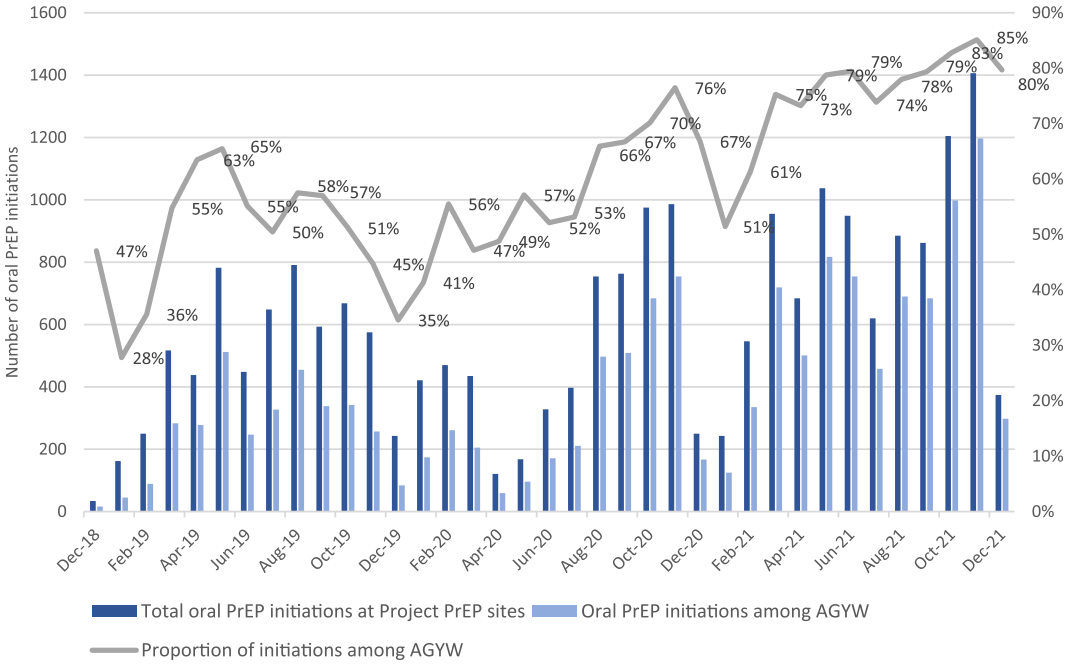


Figure 3. Oral PrEP initiations over time, and proportion of initiations among AGYW, December 2018–December 2021.

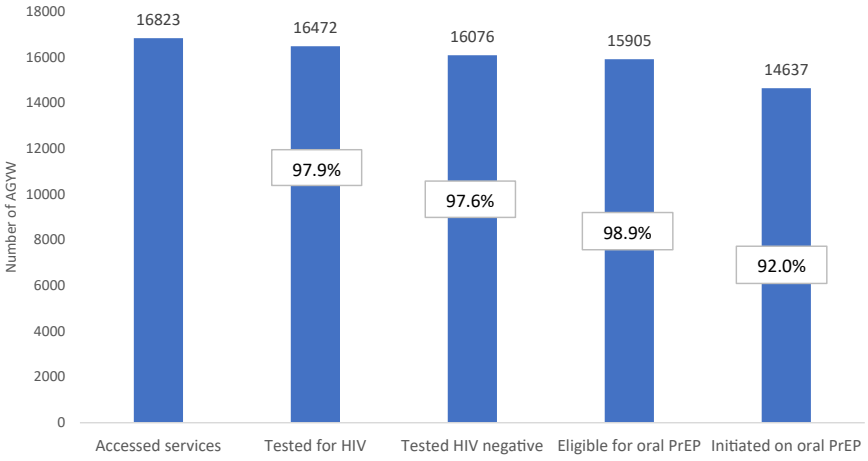


Figure 4. Oral PrEP cascade for AGYW 15–24 years accessing services at Project PrEP sites.

Using clinical client records, the project followed AGYW from presentation at a facility or mobile clinic through to PrEP initiation, known as the oral PrEP cascade (Figure 4). There were 16,823 AGYW who accessed SRH services at project sites, of whom 98% (n = 16,472) were tested for HIV. Of these, 98% (n = 16, 076) tested HIV-negative and 15,909 were eligible for PrEP initiation, of whom 92% (n = 14,637) were initiated on oral PrEP.

Lessons learned and recommendations

Project PrEP successfully introduced oral PrEP within routine primary care services across a diversity of settings in South Africa. There was high uptake of oral PrEP among AGYW accessing services and increases in the number of people initiated on PrEP over the course of the project despite the challenges of the COVID-19 pandemic. The proportion of AGYW initiated on oral PrEP increased over time as the demand creation activities targeting AGYW gained traction. Although the majority of people accessed services through fixed facilities, mobile clinics reached a higher proportion of younger people, highlighting the potential that decentralized, community-based service may have in reaching adolescents and youth.

The lessons learned through Project PrEP were collectively developed through the iterative review and consolidation of Project PrEP staff observations, project, stakeholder, demand creation and social mobilization meeting reports, and training notes. They can be outlined in four main themes.

Stakeholder engagement– a dynamic, on-going process

Stakeholder engagement is not a one-off activity at project inception, but an ongoing process, embracing a holistic, ecological approach involving a range of stakeholders. For each stakeholder, engagement needs to be intentionally selective, dynamic, and bespoke, using the Good Participatory Practice framework [32,33], as a guide. Stakeholder engagement provided the necessary entry point for service delivery and an enhanced understanding of the community context where services were provided. It also ensured that project implementation accounted for the layered and complex client journey with multifold influences and support systems—each with associated enablers and hurdles. Stakeholder analyses are required periodically, with approaches adapted to the current situation.

Social mobilization and demand creation–appropriate, focussed, innovative, and contextual

The partnership with credible CBOs active in the community was critical to assist with initial community entry and mobilization. Demand creation needs to draw on multiple channels to ensure a holistic approach and to maximize the effect. Demand creation tactics need to be locally relevant and tailored to the specific target population.

Staff support and training–reinforce, revitalize, and refresh

Oral PrEP was a new HIV prevention method and required new knowledge, attitudes, and skills. The basic skills that each staff already had were reinforced and additional capacity development sessions were added in line with evident needs including the development of job aids, continued staff support. Key lessons include the need to go beyond a focus on just oral PrEP delivery but to ensure all staff cadres are supported and trained, according to their responsibilities. Cross-cutting issues to be considered include community outreach and engagement, how to operationalize HIV and SRH integration, client communication and counselling, and sensitization in relation to sexual health and HIV prevention to ensure services are responsive and sensitive to the needs of youth.

Delivering services to adolescent girls and young women–flexibility is key

The implementation model was continuously adapted, accommodating nuances in the different contexts and responding to emerging client needs and preferences. The need for flexible, adaptive services was particularly evident in response to the COVID-19 pandemic, which also spearheaded service adaptations. Flexibility around mobile clinic location and 'widening' of the service footprint to respond to the needs of an often highly mobile population was needed as well as flexibility in the time of service provision, with the mobile clinic extending working hours to

evenings and weekends. Young people also need services to be accessible to accommodate periods of mobility, such as holiday seasons.

We found that integration of SRH services was successful and able to provide clients with contraceptive and STI services which may otherwise have been missed with a siloed approach [34,35] [REF Mullick et al. in same supplement].

Conclusion

Lessons learned from the introduction of oral PrEP are critical as projects and countries prepare for the introduction of new PrEP methods such as the dapivirine ring and long-acting injectable cabotegravir. Ensuring that stakeholder engagement continues throughout the project lifecycle is key, with project design and implementation incorporating youth, especially AGYW, and local CBOs contributions. Social mobilization and demand creation activities and AGYW service delivery models should be contextually relevant, flexible, and adaptative to changing priorities to ensure that they meet the multiple emerging needs of young people. Continuous training and support for staff is essential for them to provide integrated youth-friendly services.

Acknowledgments

The authors would like to thank the Project PrEP clients, the Department of Health facility staff at project sites, Hasina Subedar from the National Department of Health and Laura Cox and Wisani Baloyi.

Funding Sources

This work was supported by Unitaid [grant number 2017-21-Wits-PrEP].

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