Next-Gen ART: Long-Acting ART and Improved Outcomes:
Prospects of LA-ART for Children and Adolescents in LMICs

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Photo source: UNICEF

Potential Conflicts of Interest

- Research funding awarded to my institution by ViiV Healthcare on the topic of pediatric and adolescent HIV service delivery in Nigeria

The Angle and Focus

- Angle: Improving antiretroviral treatment (not prevention) outcomes among children and adolescents living with HIV
- Focus on highly affected low-and-middle income countries
- My experience in pediatric and adolescent HIV program implementation in Nigeria

Photo source: UNICEF

Considerations for long-acting ART

	Advantages	Disadvantages
Adherence	Eliminates daily pills; improves consistency	Requires strict clinic attendance
Stigma/Privacy	Reduces disclosure risk	Clinic visits still needed
Clinical Outcomes	Non-inferior viral suppression	Resistance risk if injections missed
Patient experience	High satisfaction; sense of freedom	Injection pain; needle anxiety
Implementation	Predictable follow-up	Requires cold chain, staffing, logistics
Children & youth	Strongest evidence for older adolescents	Major gaps for children <15 years

Landmark LA-ART Studies

Study / Trial	Years Conducted/ Published	Countries	Population & Age	Dosing Schedule	Main Effectiveness Findings
FLAIR	Enrollment 2017–2018; results 2019–2021	13 countries (e.g., UK, US, Canada, Spain, Germany, France, Italy, Russia)	Adults (≥18), treatment-naïve	CAB+RPV IM every **4 weeks**	LA CAB+RPV **non-inferior** to daily oral ART at 48 and 96 weeks.
ATLAS	Enrollment 2017–2018; results 2019	13 countries (similar to FLAIR)	Adults (≥18), virologically suppressed	CAB+RPV IM every **4 weeks**	LA CAB+RPV **non-inferior** to continuing oral ART at 48 weeks.
ATLAS-2M	Enrollment 2018–2019; results 2020–2022	13 countries	Adults (≥18), virologically suppressed	**Every 8 weeks** vs **every 4 weeks**	Every-8-week dosing **non-inferior** to every-4-week dosing through 96 and 152 weeks.
LATITUDE (ACTG A5359)	Launched 2019; results 2023–2024	United States	Adults with adherence challenges; median age ~40 years	CAB+RPV IM every **4 weeks**	LA CAB+RPV **reduced virologic failure by ~50%** vs oral ART continuation.
MOCHA/IMPAACT 2017	Conducted 2017–2021; results 2022	United States, Botswana, South Africa, Uganda, Thailand	Adolescents 12–18 years	CAB+RPV IM every **4 weeks** (some 8-week PK arms)	Maintained viral suppression; PK and safety **aligned with adult data**.
LATA Trial (ongoing)	Launched 2022; ongoing through 2026	South Africa, Uganda, Zimbabwe, Kenya	Adolescents 12–19 years	CAB+RPV IM every **8 weeks**	Early signals: high acceptability and maintained suppression; full effectiveness results pending.
Children <12 years	No LA-ART effectiveness trials to date	—	Pre-adolescent children	—	Evidence gap: no effectiveness data.

LA-ARV Approvals – Western Countries

Country	Product	Year Approved	Age Group	Indication
United States	CAB+RPV (Cabenuva)	2021	Adults ≥18	Treatment
	CAB+RPV	2022	**Adolescents ≥12y, ≥35 kg**	**Treatment**
	CAB-LA (Apretude)	2021	Adults ≥18	Prevention (PrEP)
	CAB-LA	2022	**Adolescents ≥12y, ≥35 kg**	**Prevention**
European Union	CAB+RPV	2020	Adults ≥18	Treatment
	CAB+RPV	2022	**Adolescents ≥12y, ≥35 kg**	**Treatment**
	CAB-LA	2023	Adults ≥18	Prevention
United Kingdom	CAB+RPV	2021	Adults	Treatment
Canada	CAB-LA	2022	Adults	Prevention
	CAB+RPV	2020	Adults	Treatment
	CAB-LA	2022	Adults	Prevention
Australia	CAB+RPV	2021	Adults	Treatment
	CAB-LA	2022	Adults	Prevention

****Note: Does not include data on lenacapavir LA-ARV, which is solely for prevention*

LA-ARV Approvals – African countries

Country	Product	Year Approved	Age Group	Indication
South Africa	CAB-LA	2022	Adults	Prevention
	CAB+RPV	*Not yet approved nationally*	—	Treatment
Botswana	CAB-LA	2022	Adults	Prevention
Zimbabwe	CAB-LA	2022	Adults	Prevention
Uganda	CAB-LA	2023	Adults	Prevention
	CAB+RPV	Not approved	—	Treatment
Kenya	CAB-LA	2023	Adults	Prevention
Rwanda	CAB-LA	2023	Adults	Prevention
Nigeria	CAB-LA	Under review	Adults	Prevention
Ghana	CAB-LA	Under review	Adults	Prevention (pending)
Tanzania	CAB-LA	Under review	Adults	Prevention (pending)
Ethiopia	CAB-LA	Under review	Adults	Prevention (pending)
African countries	CAB+RPV	Not approved	—	Treatment

LA-ARV Approvals – other countries

Region	Country	Product	Year Approved	Age Group	Indication
Latin America & Caribbean	**Brazil**	CAB-LA	2023	Adults	Prevention (PrEP)
		CAB+RPV	*Not approved*	—	Treatment
	Argentina	CAB-LA	2023	Adults	Prevention
	Mexico	CAB-LA	2023	Adults	Prevention
	Peru	CAB-LA	2023	Adults	Prevention
	Colombia	CAB-LA	2023	Adults	Prevention
	Dominican Republic	CAB-LA	2023	Adults	Prevention
Asia (South & Southeast Asia)	**India**	CAB-LA	*Under review*	Adults	Prevention (pending)
		CAB+RPV	*Not approved*	—	Treatment
	Thailand	CAB-LA	2023	Adults	Prevention
	Vietnam	CAB-LA	2023	Adults	Prevention
	Philippines	CAB-LA	2023	Adults	Prevention
	Indonesia	CAB-LA	*Under review*	Adults	Prevention (pending)
Central Asia	**Kazakhstan**	CAB-LA	2023	Adults	Prevention
	Kyrgyzstan	CAB-LA	2023	Adults	Prevention
Middle East	**Lebanon**	CAB-LA	2023	Adults	Prevention
	Jordan	CAB-LA	*Under review*	Adults	Prevention (pending)
Pacific Islands	**Papua New Guinea**	CAB-LA	2023	Adults	Prevention
Non-African LMICs	—	CAB+RPV	*Not approved*	—	Treatment

What do adolescents think about LA-ARVs?

Study / Authors	Year Published	Country / Region	Population	Method	Key Acceptability Findings
Sam-Agudu et al., Pan African Medical Journal	**2023**	Global, mostly African countries	Adolescents & young adults with and without HIV	Consensus building nominal groups	Strong interest in LA-ART due to pill burden, stigma, and desire for privacy; concerns about injection pain and clinic logistics; youth emphasized need for respectful, youth-friendly services.
Toska et al., AIDS & Behavior	**2023**	South Africa	953 adolescents & young people with HIV	Large-scale survey	12% preferred LA-ART overall; preference rose to ~66% among youth with pill burden, stigma, stock-outs, or recent ART changes.
HPTN 084-01 Adolescent Cohort	**2022**	South Africa, Uganda, Zimbabwe	Adolescent girls <18 at risk of HIV	Mixed methods (trial acceptability + interviews)	High acceptability of CAB-LA PrEP; strong preference over daily oral PrEP; familiarity with injectable contraception increased comfort.
IMPAACT 2017 / MOCHA	**2022**	South Africa, Botswana, Thailand	Adolescents 12–17 with HIV	Patient reported outcomes + in-depth interviews	Majority rated injection pain as “no hurt” or “hurts a little bit”; high acceptability; strong interest in continuing LA-ART.
KuwaFree! / LiveFree!	**2021**	Kenya	Adolescents & young adults living with HIV	Qualitative interviews	Youth saw LA-ART as a solution to stigma, pill burden, and disclosure risk; concerns about injection pain and clinic visit frequency.
Venter et al., South Africa (CAB-LA PrEP)	**2022**	South Africa	Adolescents & young adults at risk	Acceptability survey	High willingness to use CAB-LA PrEP; preference linked to privacy and reduced daily adherence burden.
Youth Perspectives on LA PrEP, Thailand	**2021**	Thailand	Adolescents at risk of HIV	Qualitative interviews	Strong interest in LA PrEP; youth valued convenience and privacy; concerns about injection pain and cost.
Adolescent PrEP Acceptability Study, Brazil	**2022**	Brazil	Adolescents at risk of HIV	Mixed methods	High acceptability of LA PrEP; youth preferred injections over daily pills; concerns about stigma at clinics.

What is current landscape for LA-ART?

- Adults are the main evidence base for LA-ART
- Real-world implementation among adults in routine care-largely in HICs-show:
  - High rates of continued viral suppression;
  - Failures in people with baseline resistance, high BMI, or missed injections.
- For adolescent treatment:
  - MOCHA/IMPAACT shows LA-ART safe and effective in adolescents
  - Ongoing LATA trial will provide further evidence on the efficacy, safety and acceptability of two monthly CAB/RPV vs. daily oral therapy with TLD (tenofovir, lamivudine, dolutegravir) among adolescents 12-19 yrs in high burden African countries.
  - West and Central Africa is glaringly absent from LA-ARV trials and evidence generation
- Qualitative studies and surveys (mostly pre-implementation) show high acceptability and preference for LA-ARVs, especially among adolescents struggling on daily oral ART
- Approvals and routine LA-ART use for adolescents currently limited to Western HICs
- Approvals and routine use of LA-ARVs in LMICs are largely for adult prevention

Recommendations for Next Steps

- Highly affected LMICs with large populations, incidence and/or prevalence re: adolescents with HIV need to accelerate LA-ART availability, approvals, and access
- Adolescent HIV activists and advocacy groups, implementers and researchers need to lobby decision-makers for policies to support or improve adolescent access
- We are still in the LA-ART pre-implementation period in many LMICs, so…
- We need to go beyond acceptability studies–need qualitative and quantitative data on:
  - Health system barriers and facilitators to implementation
  - High impact implementation strategies for different settings
  - Infrastructure and readiness to deliver LA-ART per protocol
  - Health provider knowledge and self-efficacy to deliver LA-ART, and do so for adolescents
  - Cost and sustainability
  - Independent/parent supported access by minor adolescents
- On the researcher side, we need to generate evidence on LA-ART safety and efficacy for younger children and adolescents (<12 years)

References and Resources

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