

COMMENTARY

Injecting Change and Convenience: Pioneering The Future of HIV/AIDS Care in Africa with Long-Acting Antiretrovirals

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Dear Editor,

We write to bring to attention, a critical matter in public health and infectious diseases research - the advent, implementation, and utilization of Long-Acting Antiretroviral Therapy (LA-ART) injectables, specifically Cabotegravir–Rilpivirine (CAB/RPV), in the context of Africa and the developing regions of the world by extension.

HIV/AIDS remains a significant public health challenge in Africa, with an estimated 20.7 million people living with HIV in sub-Saharan Africa alone.¹

The epidemiology reflects diverse contexts, from high prevalence in southern Africa to concentrated epidemics in other regions. Traditional antiretroviral therapy (ART) adherence poses

challenges, prompting the exploration of innovative solutions like Long-Acting Antiretroviral Therapy (LA-ART) injectables.

The advent of HIV injectables, such as CAB/RPV, marks a significant advancement in HIV treatment modalities, offering a more convenient and accessible option for patients. Pilot programs in South Africa and Kenya have demonstrated the potential for improving retention in care(2,3). However, cost-effectiveness remains a critical factor, with studies suggesting that these therapies must cost less than \$131 per dose to be viable in African settings.(2) Innovative public-private partnerships, such as the Medicines Patent Pool, could play a transformative role in reducing costs and ensuring broader access.²

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The management of human immunodeficiency virus (HIV) has greatly advanced over the decades from complex regimens with high toxicities, multiple daily dosing, and incomplete viral suppression to more simplified, highly effective, daily oral regimens. Although these advancements have improved access and tolerability for HIV treatment and established therapies for HIV prevention, the need for daily medications is not ideal for many individuals.²

The first long-acting, complete ART regimen includes injectable formulations of Cabotegravir and Rilpivirine.³

Lenacapavir, a novel, potent, and long-acting HIV-1 capsid inhibitor that was granted a breakthrough therapy designation for HIV treatment, was subsequently approved, in combination with other antiretroviral agents, for the treatment of multidrug-resistant HIV.⁴

Cabotegravir is an integrase strand transfer inhibitor and Rilpivirine is a non-nucleoside reverse transcriptase inhibitor.⁵ Lenacapavir disrupts the functioning of HIV capsid protein across multiple steps in the viral life cycle.⁶

Adverse effects encompass hematological, psychiatric, nervous system, gastrointestinal, hepatobiliary, skin, and musculoskeletal disorders. Examples include increased coagulation, depression, headache, nausea, acute hepatic failure, pruritus, and arthralgia.^{6,7}

Africa remains the continent most severely affected by HIV/AIDS in terms of infection rates, morbidity, and mortality. However, the successful integration of these injectables in Africa faces formidable challenges. Despite progress in combating the epidemic, socio-economic factors such as poverty, a lack of political will, dwindling foreign aid, and a low Human Development Index (HDI) present substantial obstacles to the effective distribution and utilization of LA-ART injectables. Country-specific examples illustrate these barriers.

Long-Acting Injectable Antiretroviral Therapy, holds promise for managing HIV/AIDS in Africa but faces challenges. Financial constraints are significant, with costs spanning production, distribution, and administration straining healthcare budgets. Infrastructure issues, including the lack of reliable refrigeration, compromise drug stability during transport and storage. A shortage of skilled healthcare professionals hampers LAART integration. Cultural stigma and misconceptions about injectables deter adoption, requiring targeted awareness campaigns. Regulatory hurdles, with varied approval processes, lead to implementation delays. Streamlining frameworks and fostering collaboration between health agencies could expedite LAART introduction. In Nigeria, unreliable power supply compromises refrigeration, while in Uganda, the shortage of trained healthcare workers in rural areas hinders LA-ART rollout. In summary, LAART adoption in Africa encounters challenges in finance, infrastructure, culture, and regulation. A comprehensive approach involving governments, international organizations, pharmaceutical companies, and local communities is crucial to realizing LAART's potential benefits, offering a more convenient and effective HIV/AIDS treatment strategy for those in need.

Equity in access to LA-ART is critical. Women, who bear a disproportionate burden of HIV in sub-Saharan Africa, often face additional barriers, such as limited autonomy in healthcare decision-making and stigma linked to injectable contraceptives. Gender-sensitive approaches, including community engagement and targeted education campaigns, are necessary to address these disparities.

Studies have suggested that future demand for an injectable PrEP may be greater in African than US settings, where the risk of HIV is highest.⁸ Therefore, community involvement and education are crucial to dispelling misconceptions and building trust in LA-ART injectables. Collaboration with international organizations, pharmaceutical companies, and NGOs can alleviate the crushing

financial burdens as it will have to cost less than 131 USD for the injectables to be cost-effective in Africa.⁹ Subsidizing this will resultantly facilitate the distribution process. Advocating for policy changes at both national and international levels is essential to create an enabling environment for the successful integration of LA-ART injectables.

Injectable long-acting antiretroviral therapy (ART) distribution faces hurdles in resource-constrained settings. Strategic solutions include educating patients and healthcare providers to enhance awareness and adherence, thereby minimizing dropouts. Strategic patient selection based on medical history and motivation can optimize resource use. Information and communication technology (ICT)-enhanced solutions, like mobile health apps and telemedicine, improve access, but may be hindered by limited infrastructure.

Equity in access to LA-ART is likewise critical. Women, who bear a disproportionate burden of HIV in sub-Saharan Africa, often face additional barriers, such as limited autonomy in healthcare decision-making and stigma linked to injectable contraceptives. Gender-sensitive approaches, including community engagement and targeted education campaigns, are necessary to address these disparities.

Healthcare restructuring, through decentralization and community-based models such as mobile clinics and telehealth, enhances accessibility. Economic incentives, though effective, raise ethical concerns. Social protection interventions, such as cash transfers and food assistance, can aid marginalized communities in accessing ART. Coordinated implementation of these strategies may surmount challenges, promoting widespread access to life-saving treatment, irrespective of location or financial status in resource-limited settings.

In conclusion, while the promise of LA-ART injectables is immense, their successful implementation in Africa, a continent with the poorest populace, requires a concerted effort to overcome economic, political, and social barriers.

By addressing these challenges through collaborative strategies and a renewed commitment to the fight against HIV/AIDS, we can strive towards a future where innovative treatments are accessible to all, irrespective of their socio-economic circumstances.

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