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The Influence of Training and Resource Availability on the Implementation Success of Long-Acting Injectable Cabotegravir (LA-CAB) At Gitwe Hospital

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ABSTRACT: The study aimed to assess the influence of healthcare provider training and resource availability on the implementation success of long-acting injectable cabotegravir (CAB-LA) at Gitwe Hospital. Despite global efforts to roll out CAB-LA for HIV prevention, implementation in low-resource settings remains a challenge due to gaps in provider preparedness and limited access to essential materials. Through a quantitative cross-sectional survey design, a total of 149 healthcare professionals were selected using a stratified random sampling technique. Data were collected using a structured, self-administered questionnaire and analyzed using descriptive statistics, Spearman correlation, and multiple regression. The results show that the respondents had a high level of training and favorable perceptions of resource availability. Evident limitations remained in practical training and access to essential medical equipment. The study found that healthcare provider training had a moderate correlation with the implementation success of CAB-LA (rho = 0.665, p = < .001). Conversely, resource availability exhibited a strong correlation with implementation success (rho = 0.707, p = < .001), while multiple regression analysis revealed that resource availability ($\beta = 0.464$, $p < .001$) was a stronger predictor of implementation success than healthcare provider training ($\beta = 0.277$, $p = 0.002$). The findings suggest that both training and resource availability are crucial to the successful implementation of CAB-LA, with resource sufficiency playing a comparatively stronger role. Enhancing practical training sessions and addressing equipment and logistical gaps are recommended. Improving structural support and training systems will be key to optimizing CAB-LA rollout and contributing meaningfully to HIV prevention efforts.

KEYWORDS: Long-acting injectable cabotegravir (CAB-LA), Healthcare provider training, Resource availability, HIV prevention, Implementation success, Gitwe Hospital Rwanda,

INTRODUCTION AND LITERATURE REVIEW

Long-acting injectable cabotegravir (CAB-LA) is an effective, potent HIV prevention intervention, with as much as 92% effectiveness in lowering the rate of transmission when compared to oral pre-exposure prophylaxis (PrEP) (Pimenta et al., 2024). Its long-acting properties overcome adherence issues with daily oral drugs, thus making it an exciting HIV prevention solution for use across the world. Successful uptake, however, depends on solving key issues such as training healthcare providers and resource availability. These are particularly relevant in resource-limited environments such as Rwanda, where operational, logistical, and financial challenges can deter large-scale uptake.

As a global roll-out, CAB-LA has reaffirmed the need for full training of healthcare providers and resource provision. The CARISEL study showed a 56% improvement in implementation results through superior training, with face-to-face training and ongoing continuous quality improvement interventions (Van Welzen et al., 2023). Also, organizations like the Clinton Health Access Initiative (CHAI) have given top priority to strategies aimed at addressing supply chain challenges based on equitable access and market-shaping interventions (Jenkins et al., 2023). Notwithstanding, challenges like stigma, high price, and logistic barriers continue to be major setbacks, especially among low- and middle-income nations (Venkatesh et al., 2024).

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In Africa, with an adult prevalence of HIV of 6.1% aged 15–49, CAB-LA presents high leverage to lower new infections and boost adherence (Johnson et al., 2023). Yet the execution is undercut by training lapses and funding unavailability. Research indicates that training of healthcare providers is able to improve adherence by more than 50%, with logistical challenges including a shortage of refrigeration facilities and the prohibitively high cost of CAB-LA remaining major limiting factors (Moyo et al., 2022; Meyer-Rath et al., 2023). About 30–40% of health facilities in resource-constrained settings have no cold-chain equipment for storing CAB-LA (Tumwine et al., 2023). Additionally, operational challenges, including ensuring patient follow-ups and addressing stigma, further complicate implementation efforts. Rwanda has achieved notable progress in HIV prevention, including a 70% reduction in new infections over the past decade (Nkundabaza et al., 2024).

However, implementing CAB-LA at facilities like Gitwe Hospital remains a challenge. Extended education for healthcare professionals is important in guaranteeing efficient CAB-LA administration, yet gaps remain. Additionally, availability limitations reach 60% of the health facilities, which implies unequal access to the basic commodities (Assumpta & Njenga, 2024). Misinformation and stigma of injectable medicines are also the challenges that resist patient acceptability and compliance. Resolution of these challenges through targeted training, enhanced resource utilization, and patient education is critical to successfully implementing CAB-LA in Rwanda. Although CAB-LA has excellent potential, little empirical evidence exists on its implementation in Rwanda, especially at the hospital level.

Although global and African research highlights the significance of training and resources, context-specific evidence is limited. In light of HIV prevalence in Rwanda, there is an urgent need to examine the effects of training and the availability of resources on CAB-LA implementation success at Gitwe Hospital. The present research addresses this gap by providing evidence-informed insights for policy and practice that can augment the national and international push towards the end of the HIV epidemic.

Research Questions

This study aimed to determine the relationship between training, resource availability, and the implementation success of long-acting injectable cabotegravir (CAB-LA) at Gitwe Hospital. Specifically, the investigation addressed the following questions:

1. What is the level of healthcare provider training regarding CAB-LA administration among respondents at Gitwe Hospital?
2. What is the availability of resources necessary for implementing CAB-LA at Gitwe Hospital?
3. What is the extent of the success of CAB-LA implementation at Gitwe Hospital?
4. Is there a significant relationship between healthcare provider training and the success of CAB-LA implementation?
5. Is there a significant relationship between resource availability and the success of CAB-LA implementation?
6. Which of the following variables significantly predicts the success of CAB-LA implementation at Gitwe Hospital?
   a) Healthcare provider training
   b) Resource availability

Conceptual Framework

Figure 1 shows that this study explored the relationship between training, resource availability, and the implementation success of long-acting injectable cabotegravir (CAB-LA) at Gitwe Hospital.

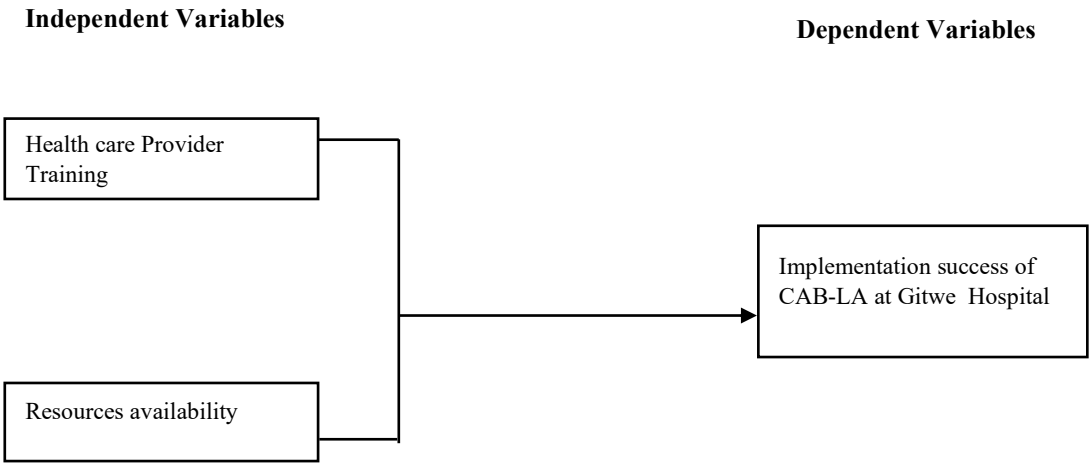


Figure 1: Research Paradigm of the Study

METHOD

This study used a quantitative descriptive-correlational research design to gather structured data from a sample of 149 healthcare professionals from Gitwe Hospital, which was selected through stratified random sampling across three key departments: Internal Medicine, Obstetrics and Gynecology, and the Outpatient Department (OPD). Data were collected using a self-structured questionnaire with 42 items covering healthcare provider training**,** resource availability, and CAB-LA implementation success. The instrument's reliability was validated in a pilot study, achieving a Cronbach's alpha above 0.75, confirming its consistency and accuracy. Both online and in-person data-gathering methods were employed, supported by ethical measures, including informed consent and confidentiality. Data analysis used descriptive statistics**,** Pearson correlation**,** and multiple regression to examine the relationships among variables and evaluate the predictive influence of training and resource availability on CAB-LA implementation success.

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RESULTS AND DISCUSSION

Respondents' Level of Healthcare Provider Training Regarding CAB-LA Administration

Table 1 presents the grand mean score of respondents' level of healthcare provider training regarding CAB-LA administration. The grand mean was *3.15* with a standard deviation of *0.8415*, indicating an overall qualitative descriptor of "Agree" and a *High* level of healthcare provider training regarding CAB-LA administration. Based on these results, it is generally observed that the respondents had a favorable perception of the adequacy and quality of training provided for CAB-LA administration.

The highest mean score was recorded for Item 13 (*Mean = 3.30, SD = 0.799*), which stated, "*Regular refresher training sessions on CAB-LA administration are available for maintaining my competency."* This high mean suggests that healthcare providers are relatively well-supported through continuous learning opportunities, reinforcing their competency and confidence in CAB-LA delivery.

Conversely, Item 3 shows the lowest mean score (*Mean = 2.98, SD = 0.893*), stating, *"The training sessions included practical demonstrations of CAB-LA injection techniques."* This lower score suggests that while healthcare providers may recognize the value of practical demonstrations, there may be a gap in the extent of hands-on training currently offered, indicating the need for enhanced practical exposure to strengthen procedural competence further.

Table 1. Respondents' Level of Healthcare Provider Training Regarding CAB-LA Administration

No.	Healthcare Provider Training	Mean	SD	Scale response	Qualitative Descriptor
1	I have received comprehensive training on the clinical guidelines for CAB-LA administration.	3.24	0.997	Agree	High
2	The training provided adequately prepared me to educate patients about CAB-LA benefits.	3.09	0.755	Agree	High
3	The training sessions included practical demonstrations of CAB-LA injection techniques.	2.98	0.893	Agree	High
4	I feel confident in my ability to address patient concerns related to CAB-LA based on the training I received.	3.20	0.826	Agree	High
5	The training covered protocols for managing adverse reactions to CAB-LA effectively.	3.27	0.842	Agree	High
6	The duration of the training sessions were sufficient to enhance my skills for CAB-LA administration	3.23	0.772	Agree	High
7	The training materials (e.g., manuals, videos) provided were clear and useful for understanding CAB-LA administration.	2.98	0.906	Agree	High
8	The training improved my ability to integrate CAB-LA administration into routine patient care.	3.17	0.809	Agree	High
9	I am familiar with the procedures for handling CAB-LA, as explained during the training.	3.16	0.848	Agree	High
10	The training sessions emphasized the importance of follow-up care for patients on CAB-LA.	3.17	0.864	Agree	High

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11	Opportunities for hands-on practice during training enhanced my understanding of CABLA administration.	3.13	0.776	Agree	High
12	The training provided adequate guidance on overcoming logistical challenges related to CAB-LA rollout.	3.13	0.863	Agree	High
13	Regular refresher training sessions on CAB-LA administration are available for maintaining my competency.	3.30	0.799	Agree	High
14	I believe the training equipped me to contribute effectively to the successful implementation of CAB-LA in my facility	3.17	0.831	Agree	High
Grand Mean		**3.15**	**0.8415**	Agree	High

Legend: *1.00 -1.49 = Strongly Disagree, 1.50-2.49 = Disagree, 2.50-3.49 =Agree ,3.50-4.00 = Strongly Agree*

Respondents' Level of Resource Availability for CAB-LA Implementation

Table 2 presents the grand mean score of respondents' perceptions regarding resource availability for CAB-LA implementation. The grand mean was *3.13* with a standard deviation of *0.828*, corresponding to the scale response of *"Agree"* and a *High* level of resource availability. Based on these results, it is generally observed that respondents experienced generally favorable access to the necessary resources for implementing CAB-LA.

The highest mean score was recorded for Item 1 (Mean = *3.34*, SD = *0.904*), which stated that *"I access adequate financial resources to support the implementation of CAB-LA."* This high mean suggests that respondents perceived financial backing for CAB-LA to be adequate, which is critical for sustaining rollout efforts.

Conversely, the lowest mean score was noted in Item 3 (Mean = *2.86*, SD = *0.981*), which stated that *"I utilize necessary medical equipment for administering CAB-LA."* Although this item still falls within the *"Agree"* range, its relatively lower mean suggests that while resources are generally available, specific gaps in medical equipment availability could hinder seamless implementation.

Table 2. Respondents' Level of Resource Availability for CAB-LA Implementation

No.	Resource availability	Mean	SD	Scale response	Qualitative Descriptor
1	I access adequate financial resources to support the implementation of CAB-LA.	3.34	0.904	Agree	High
2	I rely on a consistent and reliable supply chain for the availability of CABLA.	3.04	0.733	Agree	High
3	I utilize necessary medical equipment for administering CAB-LA	2.86	0.981	Agree	High
4	I work with skilled healthcare personnel trained to administer CAB-LA.	3.09	0.783	Agree	High
5	I use educational materials to inform patients about CAB-LA.	3.29	0.846	Agree	High

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6	I receive technical support for handling CAB-LA-related challenges.	3.19	0.769	Agree	High
7	I allocate sufficient budget for staff training specific to CAB-LA.	3.03	0.860	Agree	High
8	I depend on logistical support for the transportation of CAB-LA supplies.	3.16	0.787	Agree	High
9	I engage with community resources to promote CAB-LA adoption.	3.22	0.752	Agree	High
10	I collaborate with other healthcare facilities for CAB-LA support	3.15	0.785	Agree	High
11	I follow policy and guideline documents to guide CAB-LA implementation.	3.12	0.858	Agree	
12	I have timely access to updated CAB-LA resources and materials to maintain best practices.	3.09	0.879	Agree	
Grand Mean		**3.131**	**0.828**	Agree	High

Legend: *1.00 -1.49 = Strongly Disagree, 1.50-2.49 = Disagree, 2.50-3.49 =Agree ,3.50-4.00 = Strongly Agree*

Respondents' Level of Implementation Success of CAB-LA

Table 3 presents the grand mean score of respondents' perceptions regarding the success of CAB-LA implementation. The grand mean was 3.14 with a standard deviation of 0.802, corresponding to the scale response of "Agree" and a *High* level of implementation success. These results suggest that the CAB-LA program has been implemented effectively, with respondents expressing a strong sense of accomplishment in rollout outcomes.

The highest mean score was recorded for Item 1 (Mean = 3.35, SD = 0.846), stating, "I access adequate financial resources to support the implementation of CAB-LA." This high mean implies that financial investment has played a pivotal role in driving the program's success.

Conversely, the lowest mean score was noted in Item 3 (Mean = 2.85, SD = 0.895), which stated that "I utilize necessary medical equipment for administering CAB-LA." Although still within the "Agree" category, this relatively lower score underscores the persistent challenges associated with medical equipment sufficiency, hinting at an area for improvement to boost overall program success.

Table 3. Respondents' Level of Implementation Success of CAB-LA

No.	Implementation success of CAB-LA	Mean	SD	Scale response	Qualitative Descriptor
1	I access adequate financial resources to support the implementation of CAB-LA.	3.35	0.846	Agree	High
2	I rely on a consistent and reliable supply chain for the availability of CAB-LA.	3.06	0.663	Agree	High
3	I utilize necessary medical equipment for administering CAB-LA	2.85	0.895	Agree	High
4	I work with skilled healthcare personnel trained to administer CAB-LA.	3.11	0.749	Agree	High

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5	I use educational materials to inform patients about CAB-LA.	3.34	0.808	Agree	High
6	I receive technical support for handling CAB-LA-related challenges.	3.19	0.756	Agree	High
7	I allocate sufficient budget for staff training specific to CAB-LA.	3.02	0.856	Agree	High
8	I depend on logistical support for the transportation of CAB-LA supplies.	3.12	0.798	Agree	High
9	I engage with community resources to promote CAB-LA adoption.	3.25	0.848	Agree	High
10	I collaborate with other healthcare facilities for CAB-LA support	3.12	0.801	Agree	High
Grand Mean		**3.141**	**0.802**	Agree	High

Legend: *1.00 -1.49 = Strongly Disagree, 1.50-2.49 = Disagree, 2.50-3.49 =Agree ,3.50-4.00 = Strongly Agree*

Relationship Between healthcare provider training and the implementation success of CAB-LA

Table 4 presents the correlation analysis to determine the relationship between healthcare provider training and the implementation success of CAB-LA. As shown in Table 4, healthcare provider training had a statistically significant relationship to the implementation success of CAB-LA (rho = 0.665***, p < .001). Therefore, the null hypothesis that stated no significant relationship exists between healthcare provider training and the implementation success of CAB-LA is rejected. It is important to note that, according to Schober et al. (2018), the interpretation standards suggest that a rho = 0.665 value between healthcare provider training and the implementation success of CAB-LA indicates a moderate correlation. This finding implies that strengthening healthcare provider training will positively impact implementation outcomes.

Table 4. Relationship Between healthcare provider training and the implementation success of CAB-LA

variable	Spearman's rho	df	P-value	Interpretation
Healthcare Provider Training	0.665	167	<.001	Moderate Correlation

Legend*: 0.00-0.10 = Neligible; 0.10 -0.39 = weak Correlation ;0.40-0.69= moderate Correlation ;0.70- 0.89 = strong correlation;0.90-1.00= Very strong correlation*

Relationship Between Resource availability and the implementation success of CAB-LA

Table 5 presents the correlation analysis to determine the relationship between resource availability and the implementation success of CAB-LA. As shown in Table 5, resource availability had a statistically significant relationship to the implementation success of CAB-LA (rho = 0.707***, p < .001). Therefore, the null hypothesis that stated no significant relationship exists between resource availability and the implementation success of CAB-LA is rejected. According to Schober et al. (2018), a rho = 0.707 value between resource availability and the implementation success of CAB-LA indicates a strong correlation. This finding emphasizes that sufficient and consistent resource availability plays a critical role in ensuring the successful implementation of CAB-LA.

Table 5. Relationship Between Resource availability and the implementation success of CAB-LA

variable	Spearman's rho	df	P-value	Interpretation
Resource availability	0.707	168	<.001	Strong Correlation

Legend*: 0.00-0.10 = Neligible; 0.10 -0.39 = weak Correlation ;0.40-0.69= moderate Correlation ;0.70- 0.89 = strong correlation;0.90-1.00= Very strong correlation*

Predictors of the implementation success of CAB-LA

As shown in Table 6, using the multiple regression method, healthcare provider training ($R^2 = 0.455$) and resource availability ($R^2 = 0.506$) emerged as significant predictors of implementation success of CAB-LA. Notably, resource availability ($\beta = 0.464$, $p < .001$) exhibited a more substantial predictive weight compared to healthcare provider training ($\beta = 0.277$, $p = 0.002$). These findings suggest that while both factors are critical to program success, ensuring robust resource support exerts a comparatively greater influence on effective implementation outcomes.

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Table 6. Predictors of implementation success of CAB-LA

Predictor	Estimate	SE	T	P	R^2 Change
Intercept	0.816	0.1736	4.70	<.001	
Healthcare Provider Training	0.277	0.0901	3.07	0.002	0.455
Resource Availability	0.464	0.0906	5.13	<.001	0.506

Legend*: P-value < 0.001, R2 = .658*

CONCLUSION

The findings of this study suggest that healthcare providers at Gitwe Hospital possess a comparatively high level of training, exhibit favorable perceptions regarding resource availability, and demonstrate a moderate degree of success in the implementation of CAB-LA. However, despite these strengths, the implementation of CAB-LA has not yet reached its full potential, particularly with respect to practical training components and infrastructural consistency.

The study revealed a statistically significant, moderate positive correlation between healthcare provider training and CAB-LA implementation success. This suggests that while training contributes meaningfully to implementation outcomes, it is not, in itself, a sufficient condition for ensuring effective implementation. Conversely, resource availability demonstrated a strong correlation with implementation success, underscoring the critical importance of sustained material, financial, and educational support. Similarly, regression analysis confirmed that both provider training and resource availability significantly contribute to successful implementation, indicating that while education empowers providers, resource sufficiency enhances their capacity to translate knowledge into effective action.

In conclusion, the results affirm that implementation success of CAB-LA is influenced by a confluence of factors, with provider training and resource availability being particularly salient, the latter exerting a comparatively greater influence. These findings underscore the necessity of adopting a multifaceted, systems-based approach that strengthens both human resource capacity and structural enablers to optimize CAB-LA implementation outcomes.

RECOMMENDATION

Based on the findings of this study, the following recommendations are proposed to enhance the implementation of CAB-LA at Gitwe Hospital and similar healthcare settings:

Education and Training for Healthcare Providers: Healthcare providers should receive comprehensive education on the clinical use, administration protocols, and patient counseling strategies specific to CAB-LA. Additionally, practical and procedural skills should be strengthened through simulation exercises, clinical demonstrations, and hands-on workshops to improve providers' confidence and competence in delivering long-acting injectable PrEP.

Policy and Institutional Support: The Ministry of Health of Rwanda and Hospitals should collaborate with educational institutions to ensure the integration of CAB-LA delivery and HIV prevention strategies into nursing, midwifery, and medical curricula. This includes revising policies to enhance competency-based learning and aligning clinical training with national HIV prevention guidelines. Additionally, institutional support should be bolstered to ensure continuous professional development opportunities for healthcare providers, particularly in areas related to PrEP, HIV prevention innovations, and community-based service delivery models.

Health Information Systems: Health information systems should be strengthened to support data-driven decision-making and track CAB-LA implementation progress. Developing a centralized digital platform that disseminates accurate, up-to-date information to healthcare professionals, monitors patient adherence, and facilitates training records would greatly enhance communication, coordination, and evidence-based planning.

School-Based Health Education: Health education initiatives should be expanded within secondary and tertiary educational institutions, including health science and nursing schools. These schools should incorporate HIV prevention and CAB-LA awareness into their curricula. Workshops, seminars, and simulations related to PrEP administration and counseling should be conducted regularly to build early familiarity, reduce stigma, and foster public health advocacy among students.

Future Research Directions: Further studies should explore other systemic, cultural, and individual-level factors that may influence CAB-LA implementation success, such as patient acceptability, stigma, gender dynamics, and healthcare worker workload. Future research can also examine how interdisciplinary collaboration, mentorship programs, and decentralized service delivery models affect the scalability and sustainability of CAB-LA integration into national HIV prevention programs.

REFERENCES

1) Baumann, A. A., Hooley, C., Goss, C. W., Mutabazi, V., Brown, A. L., Schechtman, K. B., Twagirumukiza, M., De Las Fuentes, L., Reeds, D., Williams, M., Mutimura, E., Bergström, A., Nishimwe, A., Ingabire, C., & Davila-Roman, V. G. (2021). Exploring contextual

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factors influencing the implementation of evidence-based care for hypertension in Rwanda: a cross-sectional study using the COACH questionnaire. *BMJ Open*, *11*(9), e048425. https://doi.org/10.1136/bmjopen-2020-048425

2) Christopoulos, K. A., Hickey, M. D., & Rana, A. (2024). Use of long-acting injectable cabotegravir/rilpivirine in people with HIV and adherence challenges. *Current Opinion in HIV and AIDS*, *20*(1), 11–18. https://doi.org/10.1097/coh.0000000000000904
3) Czarnogorski, M., Garris, C., Wannamaker, P., D'Amico, R., Selenski, C., Williams, W., McHorney, C. A., Stassek, L., Wohlfeiler, M., Sinclair, G. I., Mena, L. A., & Margolis, D. (2020). 1037. Qualitative Findings from a Hybrid III Implementation-Effectiveness Study to Explore Perspectives of Health-care Staff on Early Implementation of Cabotegravir and Rilpivirine Long Acting (CAB+RPV LA) Injectable HIV treatment in the US (CUSTOMIZE). *Open Forum Infectious Diseases*, *7*(Supplement_1), S549. https://doi.org/10.1093/ofid/ofaa439.1223
4) Fletcher, L., Burrowes, S., Sabin, L. L., McCann, N., Khan, G. K., Ruiz-Mercado, G., Johnson, S., Kimmel, S. D., Pierre, C., & Drainoni, M. (2024). Long-Acting Injectable ART in Practice: A Mixed Methods implementation study assessing the feasibility of using LAI ART in high risk populations and at alternative low barrier care sites. *AIDS Patient Care and STDs*, *38*(5), 221–229. https://doi.org/10.1089/apc.2024.0048
5) Gutner, C. A., Hocqueloux, L., Jonsson-Oldenbüttel, C., Vandekerckhove, L., Van Welzen, B. J., Slama, L., Crusells-Canales, M., Sierra, J. O., DeMoor, R., Scherzer, J., Ait-Khaled, M., Bontempo, G., Gill, M., Patel, N., D'Amico, R., Hove, K., Baugh, B., Barnes, N., Hadi, M., . . . Czarnogorski, M. (2024). Implementation of long-acting cabotegravir and rilpivirine: primary results from the perspective of staff study participants in the Cabotegravir And Rilpivirine Implementation Study in European Locations. *Journal of the International AIDS Society*, *27*(7). https://doi.org/10.1002/jia2.26243
6) Hickey, M. D., Grochowski, J., Mayorga-Munoz, F., Oskarsson, J., Imbert, E., Spinelli, M., Szumowski, J. D., Appa, A., Koester, K., Dauria, E. F., McNulty, M., Colasanti, J., Havlir, D. V., Gandhi, M., & Christopoulos, K. A. (2024). Identifying Implementation Determinants and Strategies for Long-Acting Injectable Cabotegravir-Rilpivirine in People with HIV Who Are Virally Unsuppressed. *JAIDS Journal of Acquired Immune Deficiency Syndromes*. https://doi.org/10.1097/qai.0000000000003421
7) Hiv, N. L. (2022). Equitable access to long-acting PrEP on the way? *The Lancet HIV*, *9*(7), e449. https://doi.org/10.1016/s2352-3018(22)00167-9
8) Hsu, R. K., Phoenix, J., Sinclair, G. I., Gupta, S. K., Puga, A., Nguyen, K., Schubert, C. K., Merrill, D., Richardson, D., Nelson, K., Reynolds, M., Zografos, L., Jean-Louis, A., & Garris, C. (2022). 1288. US Healthcare Provider Perspectives on the initiation of cabotegravir and rilpivirine long-acting (CAB+RPV LA) in an observational real-world study (BEYOND). *Open Forum Infectious Diseases*, *9*(Supplement_2). https://doi.org/10.1093/ofid/ofac492.1119
9) Jenkins, S. Y., Resar, D., Panos, Z., Staple, A., Watkins, M., Ripin, D., & Amole, C. (2023a). Securing accelerated access to long-acting injectable cabotegravir for HIV prevention in low- and middle-income countries. *Journal of the International AIDS Society*, *26*(S2). https://doi.org/10.1002/jia2.26101
10) Jenkins, S. Y., Resar, D., Panos, Z., Staple, A., Watkins, M., Ripin, D., & Amole, C. (2023b). Securing accelerated access to long-acting injectable cabotegravir for HIV prevention in low- and middle-income countries. *Journal of the International AIDS Society*, *26*(S2). https://doi.org/10.1002/jia2.26101
11) Johnson, L. F., Myer, L., Jamieson, L., Meyer-Rath, G., Delany-Moretlwe, S., & Davey, D. J. (2023). The potential benefits of long-acting injectable cabotegravir in pregnant and breastfeeding women and their infants. *AIDS*, *38*(4), 589–594. https://doi.org/10.1097/qad.0000000000003803
12) Meyer-Rath, G., Jamieson, L., & Pillay, Y. (2023). What will it take for an injectable ARV to change the face of the HIV epidemic in high-prevalence countries? Considerations regarding drug costs and operations. *Journal of the International AIDS Society*, *26*(S2). https://doi.org/10.1002/jia2.26106
13) Moyo, E., Murewanhema, G., Musuka, G., & Dzinamarira, T. (2022). Long-Acting injectable drugs for HIV-1 Pre-Exposure prophylaxis: Considerations for Africa. *Tropical Medicine and Infectious Disease*, *7*(8), 154. https://doi.org/10.3390/tropicalmed7080154
14) Nkundabaza, C., Stamatakis, C., Mukamurigo, J., & Ndagijimana, A. (2024). The level of non-adherence and its associated factors among adult HIV patients on antiretroviral therapy in Nyamasheke district, Rwanda: a cross-sectional study, 2023. *Research Square (Research Square)*. https://doi.org/10.21203/rs.3.rs-4575128/v1
15) Nkurunziza, C., Ghebre, R., Magriples, U., Ntasumbumuyange, D., & Bazzett-Matabele, L. (2021). Healthcare provider challenges to early detection of cervical cancer at primary healthcare level in Rwanda. *Gynecologic Oncology Reports*, *37*, 100810. https://doi.org/10.1016/j.gore.2021.100810
16) Pierre, B. J., Ntakirutimana, T., Habimana, & Munyanshongore, C. (2024). KNOWLEDGE AND PRACTICE OF HEALTHCARE PROVIDERS TOWARDS INFECTION PREVENTION AND CONTROL MEASURES FOR NOSOCOMIAL INFECTIONS IN PUBLIC HOSPITALS OF RWANDA. *Authorea (Authorea)*. https://doi.org/10.22541/au.173226988.81764933/v1
17) Pimenta, M. C., Torres, T. S., Hoagland, B., Cohen, M., Mann, C. G., Jalil, C. M., Carvalheira, E., Freitas, L., Fernandes, N., Castanheira, D., Benedetti, M., Moreira, J., Simpson, K., Trefiglio, R., O'Malley, G., Veloso, V. G., & Grinsztejn, B. (2024a). Preparing for the Implementation of Long-Acting Injectable Cabotegravir for HIV Pre-Exposure Prophylaxis Within the Brazilian Public Health System (ImPrEP CAB Brasil): Qualitative Study (Preprint). *JMIR Public Health and Surveillance*. https://doi.org/10.2196/preprints.60961
18) Pimenta, M. C., Torres, T. S., Hoagland, B., Cohen, M., Mann, C. G., Jalil, C. M., Carvalheira, E., Freitas, L., Fernandes, N., Castanheira, D., Benedetti, M., Moreira, J., Simpson, K., Trefiglio, R., O'Malley, G., Veloso, V. G., & Grinsztejn, B. (2024b). Preparing for the

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implementation of Long-Acting Injectable Cabotegravir for HIV Pre-Exposure prophylaxis within the Brazilian Public Health System (IMPREP CAB Brasil): Qualitative study. *JMIR Public Health and Surveillance*, *10*, e60961. https://doi.org/10.2196/60961

19) Pimenta, M. C., Torres, T. S., Hoagland, B., Cohen, M., Mann, C. G., Jalil, C. M., Carvalheira, E., Freitas, L., Fernandes, N., Castanheira, D., Benedetti, M., Moreira, J., Simpson, K., Trefiglio, R., O'Malley, G., Veloso, V. G., & Grinsztejn, B. (2024c). Preparing for the implementation of Long-Acting Injectable Cabotegravir for HIV Pre-Exposure prophylaxis within the Brazilian Public Health System (IMPREP CAB Brasil): Qualitative study. *JMIR Public Health and Surveillance*, *10*, e60961. https://doi.org/10.2196/60961
20) Tumwine, Y., Rajab, K., Kutyabami, P., Nyandwi, J. B., & Asingizwe, D. (2023). Cold chain management practices of non-vaccine commodities in public health facilities of Rwenzori Region, Western Uganda. *Journal of Pharmaceutical Policy and Practice*, *16*(1). https://doi.org/10.1186/s40545-023-00516-5
21) Van Welzen, B., Vandekerckhove, L., Jonsson-Oldenbuettel, C., Hocqueloux, L., Demoor, R., Scherzer, J., Barnes, N., Czarnogorski, M., Gutner, C., & Slama, L. (2023). Implémentation de CAB+RPV LA: résultats de l'étude européenne CARISEL. *Médecine Et Maladies Infectieuses Formation*, *2*(2), S154–S155. https://doi.org/10.1016/j.mmifmc.2023.03.356
22) Venkatesh, R., Huang, A. S., Gurmessa, K., & Hsu, E. B. (2024, December). Understanding Barriers to Hepatitis C Antiviral Treatment in Low–Middle-Income Countries. *In Healthcare* (Vol. 13, No. 1, p. 43). MDPI. doi.org/10.3390/healthcare13010043 Add to Citavi project by DOI
23) Waters, L., & Sparrowhawk, A. (2022). Clinical implementation of long-acting antiretroviral treatment in high-income countries: challenges and advantages. *Current Opinion in HIV and AIDS*, *17*(3), 121–126. https://doi.org/10.1097/coh.0000000000000730

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