Revista Prevenção de Infecção e Saúde
The Official Journal of the Human Exposome and Infectious Diseases Network

EXPERIENCE REPORT

DOI: https://doi.org/10.26694/repis.v9i1.4300

On-Demand PrEP: Clinical Report of Pharmaceutical Care in HIV Pre-Exposure Prophylaxis

PrEP sob demanda: relato clínico de cuidado farmacêutico na Profilaxia Pré-Exposição ao HIV

PrEP bajo demanda: Informe clínico de atención farmacéutica en la profilaxis previa a la exposición al VIH

André Luiz Ribeiro[1], **Luane da Silva Oliveira Siqueira**[1], **Nathalie de Lourdes Souza Dewulf**[1], **Angela Ferreira Lopes**[1]

How to cite this article:
Ribeiro AL, Siqueira LSO, Dewulf NLS, Lopes AF. On-Demand PrEP: Clinical Report of Pharmaceutical Care in HIV Pre-Exposure Prophylaxis. Rev Pre Infec e Saúde [Internet]. 2023;9:4300. Available from: http://periodicos.ufpi.br/index.php/repis/article/view/4300. DOI:https://doi.org/10.26694/repis.v9i1.4300

[1] Federal University of Goiás, Faculty of Pharmacy, Laboratory of Research in Teaching and Health Services (LaPESS). Goiânia, Goiás, Brazil.

ABSTRACT

Introduction: Pre-Exposure Prophylaxis (PrEP) for HIV involves the combined use of antiretrovirals for individuals frequently exposed to HIV. Initially implemented in Brazil in 2018 with a daily dosing regimen of one pill, on-demand usage was recently (2022) incorporated into routine practice. **Aim**: To report the experience of providing pharmaceutical care to an on-demand PrEP patient in an outpatient pharmacy within Brazil's Unified Health System. **Outlining**: This experience report details of pharmaceutical care that included reception of the patient, conducting anamnesis, legally and technically prescription evaluation, dispensing PrEP with verbal guidance on potential adverse events related to pharmacotherapy, and scheduling a return visit to the service. **Results**: The patient was initially prescribed a daily regimen of PrEP. During the first return consultation, 30 days after starting PrEP, the patient reported adverse effects related to the gastrointestinal tract, leading to the recommendation of an on-demand PrEP regimen. **Implications**: As of the last pharmaceutical consultation (June 21, 2022), the patient maintained a negative HIV serology, was accustomed to the newly prescribed dosage, and reported reduced gastric discomfort associated with the use of on-demand PrEP. This facilitated adherence to pharmacotherapy and improved the preventive efficacy against HIV infection.

DESCRIPTORS

Pre-Exposure Prophylaxis; HIV; Emtricitabine, Tenofovir Disoproxil Fumarate Drug Combination; Pharmaceutical Services.

Corresponding Author:
Angela Ferreira Lopes
Address: Rua 240 corner with 5ª Avenida, Room 209, Setor Leste Universitário
ZIP Code: 74605-170 - Goiânia - GO, Brazil.
Phone: +55 (62) 99853-0379
E-mail: angela_lopes@ufg.br

Submitted: 2023-05-30
Accepted: 2023-10-16
Published: 2024-02-01

INTRODUCTION

In Brazil, Pre-Exposure Prophylaxis (PrEP) for HIV involves the combined use of Emtricitabine (FTC) 200mg and Tenofovir (TDF) 300mg. Initially, it targeted individuals at a higher risk of HIV infection, known as key populations:[1] gay individuals, men who have sex with men (MSM), intravenous drug users, sex workers, and transgender individuals. Since its implementation in the Unified Health System (SUS) in 2018, over 52,000 people have accessed PrEP by 2022. The Clinical Protocol and Therapeutic Guidelines for this prevention strategy were updated in 2022, [2] expanding the eligibility criteria. PrEP is now recommended for all sexually active adults and adolescents at increased risk of HIV infection, in response to epidemiological evidence indicating a rise in infections among those aged 15 to 29 years.[3]

Current literature describes two types of PrEP usage: daily use of one pill and on-demand use, an alternative for those who can plan for potential HIV risk events. This new non-daily PrEP modality, known as on-demand PrEP, event-based PrEP, or the "2+1+1" regimen, was incorporated into the SUS in 2022.[4] It involves taking an initial dose of two pills 2 to 24 hours before sexual intercourse, followed by one pill 24 hours and another 48 hours after the initial dose. This modality is indicated solely for cisgender men and transgender individuals assigned male at birth who are not using estradiol-based hormones. Additionally, this PrEP modality requires the patient to typically engage in sexual intercourse less than twice a week and understand the need to plan in advance for potential HIV risk events. This requirement can pose challenges in regimen adherence and impact the efficacy of PrEP.[5-6]

In this context, beyond the technical-managerial aspects of pharmaceutical care related to PrEP and the clinical-assistance activities of dispensing this prophylactic strategy, in March 2023, the Ministry of Health, through Circular Letter No. 48/2023/SVSA,[7] endorsed the technical competence of pharmacists in prescribing PrEP and Post-Exposure Prophylaxis (PEP) for HIV in the country's public health services. This professional involvement expands SUS users' access to preventive strategies, aligning with the growing clinical role of pharmacists in the global HIV prevention landscape.[8-10]

In the realm of pharmaceutical care, aiming to support patients using PrEP, whether in a daily or on-demand regimen, through assistance encompassing user reception, adherence evaluation, efficacy assessment, management of potential adverse events from antiretroviral use, as well as follow-up in the health service,[11-12] the objective of this study is to report the pioneering experience of pharmaceutical care in the central-west, provided to an on-demand PrEP user in an outpatient pharmacy of the public service within Brazil's Unified Health System.

METHOD

This case study focuses on an individual using on-demand PrEP for HIV, who was attended to at a public outpatient pharmacy located in a reference hospital for infectology in the central-west region of Brazil. According to official data, this region represents approximately 9% of the over 430,000 HIV infection cases reported nationwide from 2007 to 2022.[13]

Pharmaceutical services for PrEP users have been available at this public health unit since 2018, following the national implementation of this preventive strategy. The dispensation of PrEP adheres to the Clinical Protocol and Therapeutic Guidelines of the Ministry of Health, which, at that time, required a clinical-epidemiological evaluation conducted by an infectologist, rapid HIV testing, and, for individuals eligible for PrEP use, referral to the outpatient pharmacy.

Direct communication between the pharmacist and patient occurred during private, individual consultations in a dedicated office. Pharmaceutical care included welcoming the user,

conducting anamnesis, legal and technical assessment of the prescription, dispensing PrEP with verbal instructions on potential adverse events related to pharmacotherapy, and scheduling return visits to the service. Beyond self-reported information, sociodemographic and clinical-laboratory data were obtained from the Logistic Control System of Medicines (Siclom).

The study, conducted between February and June 2022, adhered to the Declaration of Helsinki and complied with ethical principles as per the guidelines of Resolution No. 466 of 2012 from the National Health Council. It received approval from a Research Ethics Committee under registration CAAE: 38348820.0.0000.5083. The participant provided informed consent to partake in this study.

RESULTS AND DISCUSSION

A.F.T., a 29-year-old cisgender man with a college degree, self-identifies as mixed-race and homosexual. He reported being in an open relationship for one year, averaging four sexual partners per month. He stated that he used latex condoms with these partners, but not with his primary partner. He had a history of syphilis, treated with benzylpenicillin in an outpatient setting. He denied any prior hospitalizations and considered himself healthy, engaging in physical exercise at least three times a week. Although he reported no comorbidities, he experienced gastric discomfort when taking medications such as analgesics and non-steroidal anti-inflammatory drugs.

In February 2022, the patient visited the reference hospital for infectology, expressing interest in starting PrEP. The health unit provided care in line with the recommendations of The Clinical Protocol and Therapeutic Guidelines. An initial pharmaceutical consultation was conducted, followed by the dispensation of the medication. During the follow-up visit, 30 days after starting PrEP, the patient reported not only his usual gastric discomfort but also symptoms of diarrhea, flatulence, nausea, vomiting, and a two-kilogram weight loss. Considering the risk of low adherence to PrEP, and following discussions with the healthcare team and a review of the substantial international scientific literature[14] affirming the safety and efficacy of on-demand PrEP use, this modality was recommended to the patient to enhance adherence to pharmacotherapy. After transitioning to on-demand PrEP, the patient returned for bimonthly monitoring of potential adverse events, adherence assessment, and laboratory tests to check his serological status for HIV infection and screen for other Sexually Transmitted Infections (STIs).

The patient was monitored in the health service from February to June 2022, a total of four months. Following the initiation of on-demand PrEP use, and up until the date of the last pharmaceutical consultation (June 21, 2022), he maintained a negative serology for HIV and syphilis, adapted well to the new PrEP dosage, and had laboratory results within the normal ranges for his sex and age (Table 1).

Table 1 - Laboratory Results of a Patient on On-Demand PrEP under Pharmaceutical Care in Central-West Brazil, 2022.

Follow-Up	Laboratory Tests								
	Hematological Tests			Renal Function		Liver Function		STI	
	RBC	Hgb	Hct	Urea	Creatinine	AST	ALT	HIV Serology	VDRL Serology
February 24, 2022	5,1 10^3/L	14,7 g/dL	48%	28 mg/mL	0,66 mg/dL	17 U/L	18 U/L	Non-reactive	Non-reactive
April 19, 2022	5,3 10^3/L	13,9 g/dL	47%	30 mg/mL	0,71 mg/dL	15 U/L	16 U/L	Non-reactive	Non-reactive
June 14, 2022	5,2 10^3/L	14,6 g/dL	47%	29 mg/mL	0,69 mg/dL	16 U/L	16 U/L	Non-reactive	Non-reactive

Legend: STI (sexually transmitted infection); RBC (red blood cells); Hgb (hemoglobin); Hct (hematocrit); AST (aspartate aminotransferase); ALT (alanine aminotransferase); HIV (Human Immunodeficiency Virus); VDRL (Venereal Disease Research Laboratory test).
Source: Research data.

According to the patient, on the days when he took two PrEP pills (before sexual intercourse), he experienced nausea and some episodes of diarrhea, but these were less intense compared to the daily use of PrEP. He also reported that he used on-demand PrEP every weekend during the study period, starting with two pills on Fridays, one pill on Saturdays, and one pill on Sundays. In cases of sexual relations during the week, the patient reported using a condom, feeling more confident and comfortable maintaining the on-demand PrEP regimen on weekends. Up to the date of the last pharmaceutical consultation on June 21, 2022, the patient maintained negative serology for HIV, was accustomed to his new dosage, and reported fewer adverse events related to the use of on-demand PrEP compared to its daily use.

This study presents a clinical case related to pharmaceutical care services for a patient using the new dosing modality of HIV Pre-Exposure Prophylaxis, on-demand PrEP, recently (2023) incorporated by the Ministry of Health for users in the Unified Health System. To our knowledge, in the Brazilian context, there is a scarcity of scientific literature on this topic. Our group identified only one study conducted in Ceará, with an epidemiological and pharmacoeconomic focus.[15] However, no other study on aspects related to pharmaceutical care for on-demand PrEP users, both in the central-west and in other regions of Brazil, was found. Moreover, this usage modality was not yet included in official protocols, being considered off-label to date, as this dosage is not listed in the drug leaflet[16] registered with Anvisa for this therapeutic purpose.

FINAL CONSIDERATIONS

It is important to highlight that the patient in this study, after being connected with and monitored by a clinical pharmacist in the healthcare service, effectively managed his dosing regimen and met the current eligibility criteria for the use of on-demand PrEP, as outlined in the Ministry of Health's latest protocol. This represents a successful experience in the SUS regarding patient risk management, ensuring adherence to pharmacotherapy by minimizing adverse effects associated with PrEP use and thereby enhancing the therapy's effectiveness.

In addition to the benefits derived from established pharmaceutical services with extensive coverage in the SUS, the recent expansion of these professionals' role to include prescribing both pre- and post-exposure prophylaxis for HIV is one of the effective, innovative, and sustainable initiatives. These initiatives are undertaken by countries committed to achieving the World Health Organization's goal of ending the AIDS epidemic and sexually transmitted infections as public health concerns in the Americas by 2030.

RESUMO

Introdução: A Profilaxia Pré-Exposição (PrEP) ao HIV consiste no uso combinado de antirretrovirais destinada a indivíduos com frequentes situações de exposição ao HIV. Foi implementada inicialmente em 2018 no Brasil na posologia de uso diário de um comprimido e, recentemente (2022), o uso sob demanda foi incorporado na rotina. **Objetivo:** Relatar a experiência do cuidado farmacêutico prestado a usuário de PrEP na modalidade sob demanda, em uma farmácia ambulatorial de serviço público no Sistema Único de Saúde do Brasil. **Delineamento:** O relato de experiência aborda o cuidado farmacêutico o qual compreendeu o acolhimento do usuário, a anamnese, a avaliação legal e técnica da prescrição, a dispensação da PrEP com orientação verbal sobre possíveis eventos adversos relacionados à farmacoterapia e o agendamento do retorno ao serviço. **Resultados:** Inicialmente, a PrEP em regime diário foi prescrita ao paciente. Na primeira consulta de retorno, em 30 dias após o início da PrEP, efeitos adversos relacionados ao trato gastrointestinal foram relatados pelo usuário, e o esquema de PrEP na modalidade sob demanda foi indicado. **Implicações: A**té a data da última consulta farmacêutica (21/06/2022) o paciente mantinha sorologia negativa para HIV, estava habituado a nova posologia indicada, e relatou menor desconforto gástrico associado ao uso de PrEP sob demanda, possibilitando sua adesão à farmacoterapia e melhor eficácia preventiva de infecção por HIV.

DESCRITORES

Profilaxia Pré-Exposição; HIV; Combinação Emtricitabina e Fumarato de Tenofovir Desoproxila; Assistência Farmacêutica.

RESUMEN

Introducción: La Profilaxis Pre-Exposición (PrEP) para el VIH implica el uso combinado de antirretrovirales para individuos frecuentemente expuestos al VIH. Inicialmente implementada en Brasil en 2018 con un régimen de dosificación diaria de una pastilla, el uso bajo demanda fue recientemente (2022) incorporado a la práctica rutinaria. **Objetivo**: Informar sobre la experiencia de proporcionar atención farmacéutica a un usuario de PrEP bajo demanda en una farmacia ambulatoria dentro del Sistema Único de Salud de Brasil. **Delineación**: Este informe de experiencia detalla la atención farmacéutica que incluyó la bienvenida al usuario, la realización de la anamnesis, la evaluación legal y técnica de la prescripción, la dispensación de PrEP con orientación verbal sobre posibles eventos adversos relacionados con la farmacoterapia, y la programación de una visita de retorno al servicio. **Resultados**: Al paciente inicialmente se le prescribió un régimen diario de PrEP. Durante la primera consulta de retorno, 30 días después de comenzar con PrEP, el usuario informó efectos adversos relacionados con el tracto gastrointestinal, lo que llevó a la recomendación de un régimen de PrEP bajo demanda. **Implicaciones**: Hasta la última consulta farmacéutica (21 de junio de 2022), el paciente mantuvo una serología negativa para el VIH, se acostumbró a la nueva dosis prescrita e informó una menor molestia gástrica asociada con el uso de PrEP bajo demanda. Esto facilitó la adherencia a la farmacoterapia y mejoró la eficacia preventiva contra la infección por el VIH.

DESCRIPTORES

Profilaxis Pre-Exposición; VIH; Combinación Emtricitabina y Fumarato de Tenofovir Disoproxil; Servicios Farmacéuticos.

REFERENCES

1. Ministério da Saúde (BR). Protocolo Clínico e Diretrizes Terapêuticas para Profilaxia Pré-Exposição (PrEP) de Risco à Infecção pelo HIV — Departamento de HIV/Aids, Tuberculose, Hepatites Virais e Infecções Sexualmente Transmissíveis [Internet]. 2018 [cited 2023 Mar 29]. Available from: https://bvsms.saude.gov.br/bvs/publicacoes/protocolo_clinico_diretrizes_terapeuticas_profilaxia_pre_exposicao_risco_infeccao_hiv.pdf

2. Ministério da Saúde (BR). Protocolo Clínico e Diretrizes Terapêuticas para Profilaxia Pré-Exposição (PrEP) de Risco à Infecção pelo HIV — Departamento de HIV/Aids, Tuberculose, Hepatites Virais e Infecções Sexualmente Transmissíveis [Internet]. 2022 [cited 2023 Mar 29]. Available from: https://www.gov.br/aids/pt-br/centrais-de-conteudo/pcdts/2017/hiv-aids/pcdt-prep-versao-eletronica-22_09_2022.pdf/view

3. Ministério da Saúde (BR). Boletim Epidemiológico - HIV/Aids. Departamento de HIV/Aids, Tuberculose, Hepatites Virais e Infecções Sexualmente Transmissíveis [Internet].2022 [cited 2023 Mar 29]. Available from: https://www.gov.br/aids/pt-br/centrais-de-conteudo/boletins-epidemiologicos/2022/hiv-aids/boletim_hiv_aids_-2022_internet_31-01-23.pdf/view

4. Ministério da Saúde (BR). Secretaria de Vigilância em Saúde, Departamento de Doenças de Condições Crônicas e Infecções Sexualmente Transmissíveis. Nota técnica Nº 563/2022-CGAHV/DCCI/SVS/MS [Internet]. 1 ed. Brasília: MS; 2022. [cited 2023 Mar 29]. Available from: http://azt.aids.gov.br/documentos/SEI_MS%20-%200030684487%20-%20Nota%20T%C3%A9cnica%20563.2022.pdf

5. US Public Health Service. Preexposure Prophylaxis for the Prevention of HIV Infection in the United States - 2021 Update: Clinical Providers' Supplement [Internet]. US Department of Health and Human Services; 2021 [cited 2022 Apr 1]. Available from: https://www.cdc.gov/hiv/pdf/risk/prep/cdc-hiv-prep-guidelines-2021.pdf

6. PrEP (Profilaxia Pré-Exposição) [Internet]. Departamento de HIV/Aids, Tuberculose, Hepatites Virais e Infecções Sexualmente Transmissíveis. 2023 [cited 2023 Mar 29]. Available from: https://www.gov.br/aids/pt-br/assuntos/prevencao-combinada/prep-profilaxia-pre-exposicao/prep-profilaxia-pre-exposicao

7. Ministério da Saúde (BR). Secretaria de Vigilância em Saúde. Ofício Circular nº 48/2023/SVSA [Internet]. 1 ed. Brasília: MS; 2023. [cited 2023 Mar 29]. Available from: http://azt.aids.gov.br/documentos/PREP%20PEP%20MS%20Of%20Circ%2048.2023.pdf

8. Myers JE, Farhat D, Guzman A, Arya V. Pharmacists in HIV Prevention: An Untapped Potential. Am J Public Health [Internet]. 2019 [cited 2023 Mar 29];109(6):859-861. Available from: https://doi.org/10.2105/AJPH.2019.305057

9. Lutz S, Heberling M, Goodlet KJ. Patient perspectives of pharmacists prescribing HIV pre-exposure prophylaxis: A survey of patients receiving antiretroviral therapy. J Am Pharm Assoc [Internet]. 2021 Mar [cited 2023 Mar 29];61(2):75-9. Available from: https://doi.org/10.1016/j.japh.2020.09.020

10. Lal L, Ryan K, Liu IY, Price B, Lockwood T, Aguirre I, et al. Transformation of Australian Community Pharmacies Into Good Clinical Practice Compliant Trial Pharmacies for HIV Pre-Exposure Prophylaxis. Front Pharmacol. [Internet]. 2019 Nov [cited 2023 Apr 1];10(1):1-12. Available from: https://doi.org/10.3389/fphar.2019.01269

11. Farmer EK, Koren DE, Cha A, Grossman K, Cates DW. The pharmacist's expanding role in HIV pre-exposure prophylaxis. AIDS Patient Care STDS [Internet]. 2019 [cited 2023 Apr 1];33(5):207-13. Available from: https://doi.org/10.1089/apc.2018.0294

12. Hill LA, Ballard C, Cachay ER. The Role of the Clinical Pharmacist in the Management of People Living with HIV in the Modern Antiretroviral Era. AIDS Reviews [Internet]. 2019 [cited 2023 Apr 1];21(4):195-210. Available from: https://doi.org/10.24875/aidsrev.19000089

13. Ministério da Saúde (BR). Boletim Epidemiológico - HIV/Aids. Departamento de HIV/Aids, Tuberculose, Hepatites Virais e Infecções Sexualmente Transmissíveis [Internet].2022 [cited 2023 Mar 29]. Available from: https://www.gov.br/aids/pt-br/centrais-de-conteudo/boletins-epidemiologicos/2022/hiv-aids/boletim_hiv_aids_-2022_internet_31-01-23.pdf/view

14. Molina JM, Charreau I, Spire B, Cotte L, Chas J, Capitant C, et al. Efficacy, safety, and effect on sexual behaviour of on-demand pre-exposure prophylaxis for HIV in men who have sex with men: an observational cohort study. Lancet HIV [Internet]. 2017 Sep [cited 2023 Mar 29];4(9):402-10. Available from: https://doi.org/10.1016/S2352-3018(17)30089-9

15. Fernandes JD. Revisão bibliográfica sobre a análise de custo-efetividade da profilaxia pré-exposição ao HIV (PrEP) sob demanda e as contribuições do profissional farmacêutico. UFRN; 2021 [cited 2023 Mar 29]; Available from: https://repositorio.ufrn.br/handle/123456789/48310

16. Ministério da Saúde (BR). Entricitabina + Fumarato de Tenofovir Desoproxila [package insert]. FIOCRUZ, RJ: Fundação Oswaldo Cruz/Instituto de Tecnologia em Fármacos (Farmanguinhos). ANVISA; 2022. [cited 2023 Mar 29]. Available from: https://consultas.anvisa.gov.br/#/medicamentos/25351316550201826/

COLLABORATIONS

LSOS, NLS, and AFL contributed to the study's conception. Data collection was conducted by LSOS and ALR. Data analysis and interpretation were carried out by ALR, NLSD, and AFL. Active participation in the discussion of results and drafting of the article was led by ALR and AFL. Critical review of the intellectual content was performed by AFL. ALR and AFL managed the final review and approval of the version to be published and agree with the truthfulness and integrity of the manuscript's information. **All authors agree and take responsibility for the content of this version of the manuscript to be published.**

ACKNOWLEDGMENTS

We thank the team of collaborators from the pharmacy department of the hospital unit where this study was conducted, as well as the Federal University of Goiás. This work has been supported by Coordenação de Aperfeiçoamento de Pessoal de Nível Superior - Brasil (CAPES).

AVAILABILITY OF DATA

All data can be found in the article itself

FUNDING SOURCE

The research was financed by its authors.

CONFLICTS OF INTEREST

There are no conflicts of interest to declare.