

Expanding pharmacist involvement in the HIV care continuum in the Philippines: Opportunities and challenges

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Abstract

The Filipino pharmacist is an important healthcare frontliner and can especially contribute meaningfully to the national response to human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS) in the country. However, national policies need to better elaborate their roles and functions. This review aims to summarize and synthesize the existing literature available in the country to provide a comprehensive understanding of pharmacists and their contribution to HIV prevention and management. Although their emerging roles are internationally recognized, research and evidence in the Philippines remains limited. Furthermore, limitations in logistics, administration, regulation, professional practice, and patients are observed in many pharmacy-led programs and initiatives which can be anticipated in pharmacy-led HIV programs. On top of that, there needs to be a more effective translation of evidence into the context of the Philippines. This calls for a re-evaluation of current practices, standards, and guidelines to ensure pharmacists can be involved and become proactive in this area of healthcare. Collaboration with key stakeholders is important in ensuring the effective integration of the pharmacists in the current framework of HIV care continuum in the country.

Keywords: HIV/AIDS, pharmacists, pharmacy practice, HIV care continuum, pharmaceutical care, Philippines, antiretroviral therapy (ART)

Introduction

The human immunodeficiency virus and acquired immune deficiency syndrome (HIV/AIDS) remains a burden in the Philippines. It is estimated that the total number of people living with HIV (PLHIV) will increase by 200% from 2022 to 2030.¹

Currently there is an estimated 189,000 PLHIV in the country and reports have shown the HIV incidence rate to be an average of 55 individuals per year.² HIV-related deaths and complications have been recorded annually, with a reported increase of over 500% since 2010.² Based on the Joint Union Nations Programme on HIV/AIDS (UNAIDS) global target, the Philippines has only achieved 63-65-97, where 63% know their HIV status, 65% are on antiretroviral therapy (ART), and 97% have achieved suppression of viral load.¹ Pharmacists can play a role in contributing to the achievement of these goals and increasing the country's response. However, current practices do not highlight these healthcare professionals in the HIV care continuum.

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The HIV care continuum can be described as a sequential model where patients undertake essential healthcare steps to achieve the ultimate goal of viral suppression.³ These steps include being tested or screened, then being linked to care by healthcare providers, being prescribed ART, and ultimately be virally suppressed. On top of the linear and sequential nature of the HIV care continuum, there exists a more complex and dynamic layer experienced by PLHIV that affects and contributes to their adherence to HIV care that isn't as straightforward as just measuring outcomes.⁴ All these aspects in care require the proactive contribution and collaboration by healthcare providers, including pharmacists.

Pharmacist-led HIV interventions and care programs have been known to be cost-effective, feasible, and acceptable to the people⁵⁻⁷ but have been slow to implement. In the Philippines, where significant improvements in the current care status have already been reported, much more remains to be addressed. While there are no recent data available, the pharmacist density in the Philippines in 2016 was found to be 5.81 per 10,000 people but this has been projected to increase.⁸ Pharmacists are uniquely positioned to advance the HIV care continuum in the Philippines, yet their roles remain underutilized.

The current underutilization of pharmacists in HIV care suggests a gap in both research and policy, necessitating further investigation into their potential contributions. Hence, this literature review aims to summarize and synthesize the existing literature, evidence, and available national policies regarding the role of the pharmacist in HIV care in the country.

Our goal is to identify gaps in policy and practice in the Philippines that warrants further investigation.

The Role of the Pharmacist in HIV Care

Pharmacists have an important role to provide accessibility, pharmaceutical care, and spearhead antiretroviral stewardship programs. As the first healthcare provider accessible to the community,⁹ pharmacists are able to contribute and support many government initiatives for health including HIV/AIDS. They can particularly expand their role to include HIV testing and counseling or to provide referrals to facilities for these HIV care services, if they are not already being offered. Pharmacists can also provide services to populations with the poorest access to health resources.⁵ Furthermore, pharmacists can provide information about medications to patients and healthcare providers.^{10,11}

One of the most important functions of a pharmacist is to provide pharmaceutical care. Pharmaceutical care is the responsible and rational use of drugs for achieving health outcomes and quality of life improvements.⁸ This concept has been a cornerstone of pharmacy practice. In the context of HIV management and prevention, pharmaceutical care can be manifested through reviewing patient's antiretroviral therapy, medication management, and dispensing of ART.¹³ Furthermore, they can provide counselling services and promote adherence to ART and pre-exposure prophylaxis (PrEP).^{5,7} Pharmaceutical care for PLHIV goes beyond traditional roles and extends to research, education, collaboration with other healthcare providers, and other clinical services that may not be directly related to testing, prevention, or treatment.¹⁴

Pharmaceutical care is one underlying philosophy that is important in antiretroviral stewardship programs, which is the coordination of evidence-based interventions to improve HIV care continuity, including medication reconciliation, dosing, mitigation of drug interactions, and viral resistance prevention.¹⁵ In antiretroviral stewardship programs, pharmacists may work alone or in a multi-disciplinary team to provide medication-related services as well as provide provisions for transition of care at the time of hospital discharge.¹⁶ They can also conduct prospective audits in hospitalized PLHIV to reduce medication errors.¹⁷ Pharmacists and physicians can be leaders in antiretroviral stewardship ensuring that program outcomes are obtained and accounted.¹¹

Furthermore, pharmacists can offer support services to PLHIV. These support services include activities and interventions that go beyond the scope of primary or secondary HIV healthcare facilities. They aim to address the holistic needs of PLHIV, including psychological, emotional, and psychosocial concerns that arise from living with or being at risk of HIV. Specifically, pharmacists can provide harm reduction strategies, refer patients to mental health services, offer

psychological first aid, deliver psychosocial support, and educate patients about HIV and its management.

Pharmacy-Led Programs in Other Countries

Many high-income countries have established studies and guidelines that actively integrate pharmacists into various aspects of HIV care. A prime example of this is the integration of pharmacies in HIV testing which includes three pharmacy-based models as reported in Table 1.¹³ These successful models can be used as benchmarks for the improvement of policies and programs in the Philippines.

Table 1. Pharmacy-based models for HIV testing

Model	Description
Stand-Alone Pharmacy Model	Pharmacies may work as stand-alone facilities that independently provide point-of-care testing, linkage to care or referral, and other related activities integrated into existing pharmacy duties and standard operating procedures.
Collaborative Pharmacy Model	Pharmacists can perform specific HIV care roles like testing through a collaborative practice agreement with local or national health departments, clinics, or other related organizations.
Pharmacy Venue-Based Model	The pharmacy is used as the venue for external entities to provide testing, linkage to care, and prevention services.

Abbreviations: HIV, human immunodeficiency virus

In the United States, pharmacists and clinical pharmacists have long been recognized as a key resource in ending the HIV epidemic^{14,18} and that not only can they provide pharmaceutical HIV care services but can also prescribe PrEP and post exposure prophylaxis (PEP) through collaborative practice agreements.¹³ In Canada, pharmacists are key players in the delivery of antiretroviral stewardship programs and have also been instrumental in the creation and updating of online resources made available to the public and other healthcare provider.¹⁹ These resources provide comprehensive data emphasizing on the identification and management of drug interactions.

Community pharmacies have also been used to provide HIV care services more closely to the people in communities. In France, antiretrovirals (ARVs) can be dispensed by both hospital and community pharmacists but are most commonly dispensed in community pharmacies owing to the fact that these establishments have a dense neighborhood network in the country.²⁰ London has also started tapping into community pharmacies because of their accessibility and strong links to the communities they serve.²¹ Canadian community

pharmacies not only provide PrEP and PEP, but also provides HIV testing, counselling, and referral or linkage to care.¹⁹

In some lower income countries, particularly those in Asia, there seems to be some variability as to the extent of involvement of pharmacists in HIV care. In Indonesia for example, a pharmacy practice guideline was identified but there were no national policies found that explicitly described the involvement of pharmacists in HIV care.²² Furthermore, the actual activities of Indonesian pharmacists in HIV prevention and management remains lacking, highlighting the need for further investigation. In Nepal, there is a scarcity of pharmacists involved in HIV care delivery with some only being responsible for the logistical management of antiretroviral medications.²³

This isn't the case though in Malaysia where aside from ward pharmacy services for HIV, at least one pharmacist is also required by protocol in health clinics and is responsible for a variety of services including assessing patient's readiness to medication adherence and interpreting laboratory results to monitor outcomes of therapy.²⁴ ART delivery in Thailand are carried out by pharmacists and beyond that, the country also permits pharmacist-led pickup centers as an out-of-facility delivery model.²⁵ Furthermore, a pilot program was launched in 2020 where private pharmacies, and other outlets, started rolling out HIV self-test kits. These implementations were found to be effective. However, challenges to follow up care persisted.²⁶

Philippine regulatory Framework for HIV/AIDS

While the surrounding literature and studies highlight the potential of pharmacists in HIV care internationally, the Philippine regulatory framework is limited both nationally and locally. The national response of the Philippines against HIV is mandated by Republic Act No. 11166 (RA 11166), otherwise known as the Philippine HIV and AIDS Policy Act. RA 11166 functions to strengthen and reinforce the policies and regulations on HIV/AIDS treatment, prevention, care, and support.²⁷

In RA 11166, the reinstatement of the Philippine National AIDS Council (PNAC) was mandated. The PNAC is the agency attached to the Philippine Department of Health (DOH) that is tasked with the implementation of interventions, programs, and other actions considered to be the country's response against HIV/AIDS.²⁷ Furthermore, the PNAC will also work in coordination with the DOH's National HIV and AIDS and STI Prevention and Control Program (NASPCP) - a program composed of qualified medical specialists and support personnel, for the implementation of the health sector's response to HIV, AIDS, and other sexually-transmitted infections (STIs).²⁷

Through the PNAC, a multidisciplinary approach is utilized to respond to the current state of the HIV epidemic in the

country. This includes collaboration with the DOH and the Department of Education, Commission of Higher Education, Department of Justice, Department of Social Welfare and Development, and more government agencies and civil service organizations.²⁷ All these collaborations ensure that the support and care needed by PLHIV, at-risk individuals, vulnerable groups, and other key demographics are available, accessible, and appropriate in all aspects of an individual's life.

Biomedical interventions in the Philippines include highly active ARTs, PrEP, and PEP. National guidelines for these biomedical interventions have been elaborated by DOH Administrative Order 2022-002428 and DOH Department Memorandum 2021-0017.²⁹ These guidelines provide comprehensive information for the initiation and monitoring of treatment and biomedical prophylaxis for HIV. The DOH also reinforce in their health promotion campaigns basic public health information pertaining to HIV and STI prevention, which has been abbreviated in these campaigns as ABCDEs – Abstinence, Being faithful (monogamy), Condom use, Discouraging the use of drugs, and Education and Early detection.

These biomedical interventions remain pivotal and very important in the prevention and control of HIV/AIDS. Antiretroviral treatment in the form of tenofovir disoproxil fumarate, lamivudine, and dolutegravir single-formulation tablets has been prioritized among newly diagnosed PLHIV since 2020.¹ Pre-exposure prophylaxis using emtricitabine/tenofovir disoproxil fumarate tablets is available as once-daily or event-driven interventions. At the same time, long-acting cabotegravir/rilpivirine injectables as PrEP remain unavailable.¹ For PEP, it is currently limited to healthcare-related exposure with plans of expansion from healthcare-related exposure.¹

With RA 11166 and the country's transition of implementing universal healthcare as based on the Universal Healthcare Act of 2019 or Republic Act No. 11223 (RA 11223),³⁰ there have been significant progress in making sure that Filipinos receive equitable access to quality healthcare and that there are sustainable mechanisms to health-related financial gaps in HIV care. ART provisions by national HIV programs are free to PLHIV while other expenses for medical consultations and laboratory tests are covered by national health insurance.¹ Furthermore, HIV seronegative people that are at a substantial risk can access PrEP free of charge from treatment hubs and social hygiene clinics. Those without substantial risks can still access PrEP out-of-pocket and would cost around USD 30-65 a bottle.¹

The Filipino Pharmacist in the HIV Care Continuum

The involvement of pharmacists in HIV care has been minimally documented and researched in the Philippines. From a regulatory framework, pharmacists are mainly involved as members of the HIV/AIDS Core Team (HACT) of tertiary

hospitals and DOH-retained treatment hubs. According to the DOH Administrative Order 2018-0024 (AO 2018-0024), the HACT is a multidisciplinary team in a tertiary hospital that is composed of a variety of healthcare providers and functions for the implementation of prevention, treatment, and care services for HIV/AIDS.⁴

However, these care services provided by HACT are limited to hospital settings and in DOH-designated treatment hubs. Hospital pharmacy in the country mainly functions for dispensing of medication, along with management and patient care but is least involved in public health.³² Because the program is most emphasized in hospital settings, the pharmacists' functions in HACTs only involve inventory, dispensing, and monitoring of adverse reactions. It is only in the recent guideline under Administrative Order 2025-0027 that pharmacists have been included as members of case management teams in public or private treatment hubs, but specific guidelines are limited.³³ Additionally, current national policies do not specifically state the role of pharmacists in HIV/AIDS prevention and management outside of the HACT and treatment hubs. Pharmacists are capable of contributing to the HIV care continuum, especially for patients who are moving outside of the hospital.³⁴

This is important to note since only a few pharmacists work in the hospital, much less in HACT. Although limited, current evidence points towards community pharmacy as the predominant field of practice and more pharmacists work in urban setting rather than rural settings.^{34,35} Having more pharmacists in community settings that provide access to HIV services could be beneficial to increasing ART and PrEP uptake, especially if they are trained to identify at-risk individuals, offer testing options, provide linkage to care after diagnosis, and deliver education and counseling, as demonstrated in international models. However, the Filipino community pharmacists' role in providing pharmaceutical care to their patients is not fully realized by patients and is underutilized owing to the inefficient healthcare system and weak public perception.³⁶ As a result, the emerging roles of community pharmacists, including their role in HIV care, are not evidently performed. To address these gaps, targeted training programs and clearer guidelines for pharmacists' roles in ART management should be established.

Clinical pharmacy practice has already been established in the country and while it is integrated in all practice settings, most clinical pharmacists work in hospital settings. This is reinforced by the national hospital practice manual which requires clinical pharmacy experience or training for all hospital based pharmacists rendering clinical pharmacy services.³⁷ Clinical pharmacy practice in the Philippines aligns with roles and activities recommended by the American College of Clinical Pharmacy which includes patients' chart review and recommendations, monitoring of adverse events, and communication with other healthcare providers regarding

medications, and antimicrobial stewardship programs.³⁸ Despite that, the roles of clinical pharmacists in HIV and public health in the Philippines have not been investigated in recent literature in spite of their emerging roles in other countries.^{6,18,39}

Barriers to Pharmacist involvement

The barriers to pharmacist involvement in HIV care are multi-level in nature and involves the patients, the pharmacist and their infrastructures, as well as regulatory policies.⁵ Many patients face a variety of barriers in accessing HIV care in general. Barriers like lack of awareness^{40–42} added financial costs^{1,43} and stigma^{44–47} have remained important barriers that need to be addressed in any HIV care program and it is anticipated that these barriers will be emphasized more in pharmacist-led HIV programs. In addition to existing patient-related barriers, the roles of pharmacists as healthcare providers in the Philippines are weakly perceived by the public.³⁶ In the Philippines, people think of a pharmacist merely as a drug vendor.⁴⁸

In order for pharmacists to be involved in HIV care, they also need to be adequately trained and educated.⁵ In the Philippines, limited evidence show that there are HIV knowledge gaps and lack of confidence among pharmacists, particularly those who work in community pharmacy settings.⁴⁹ Furthermore, the same knowledge gaps can be traced to the undergraduate level indicating a need for curricular reinforcement on HIV and HIV care.⁵⁰ This may be, in part, due to the absence of specialized training programs within the country's pharmacy education framework.⁵¹ They also need to have the willingness to get trained and provide these services. These barriers are emphasized when there is also a lack of support and advocacy from professional organizations especially that of the profession.²³

Furthermore, pharmacists' workflow, time constraints, and compensation or reimbursement models should be considered and incorporated into current practice.⁵ Because HIV medicines are free of charge¹ mechanisms should be put in place to ensure reimbursement of additional expenses during storage, handling, and dispensing of these medicines, provisions of other related services, as well as compensation or incentives for pharmacists to offer these services. In providing pharmaceutical services, pharmacists are also already burdened with time constraints, excessive workloads, shortages in the pharmacy workforce, and lack of employer support.⁵² Many of these factors could lead to burn out which increases the incidence of apathy or turnover.⁵³ This could impact the current performance of pharmacists in other initiatives like the pharmacist directly observed treatment, short-course (DOTS) strategy for tuberculosis where pharmacists mainly focus on business and sales, showed through the lack of interest and engagement with patients, alongside a lack of training for other personnel including incoming pharmacists.⁵⁴

The pharmacy, itself, may also pose a barrier as well. Currently, there is a lack of available space in the pharmacy, especially in the hospital.⁵⁵ It has been noted that there are also limitations in physical facilities as well as a lack of time to provide patient medication counselling services.⁵⁶ These limitations are important since expanding the roles of pharmacist to provide counselling and additional services about HIV would necessitate dedicated facilities like counseling rooms to ensure privacy.⁵ In addition, accreditation or licensing requirements from the appropriate regulatory agencies must be fulfilled in order to provide HIV-related services. This ensures compliance with national policies.

Implications for Future Practice

The pharmacy profession in the Philippines is evolving to become increasingly involved in clinical settings and in public health. With the implementation of pharmacist vaccinators in independent and chain pharmacies through specialized training programs, the expanding roles of the pharmacists and their contribution to public health and society is closer to realization than it was before.⁵⁷ It is beneficial for stakeholders and policymakers to leverage the benefits that expanded pharmacy services can provide especially in improving patient outcomes, as learned with the implementation of the pharmacist as a vaccinator.⁵⁸ Despite that, challenges persists and a lot more work is needed to ensure the expanding roles of the pharmacists are cemented into the healthcare framework in the country. Similar initiatives involving pharmacists attempts to address barriers to their implementation⁵⁴ and these can be applied in anticipation of pharmacy-led HIV programs.

Pharmacists' involvement and contribution to reducing the HIV burden in the country requires the re-evaluation of policies and guidelines to integrate them effectively and efficiently into the current framework. Furthermore, these policies must be able to address the needs of the pharmacists in providing HIV pharmaceutical care as well as other factors like lack of incentives and lack of support from other healthcare providers.⁵⁵

Collaborations with both government and private sectors as well as program implementation must be spearheaded by the Philippine Pharmacists Association (PPHA). As they represent the pharmacy profession in the Philippines, it is through their initiatives that stakeholders and allied health professionals can recognize the emerging roles of the profession. The PPHA was instrumental in developing national practice standards for pharmacists⁵⁹ and immunizing pharmacy training programs during the COVID-19 pandemic.⁵⁷ Through PPHA, training modules on HIV pharmaceutical care could be developed in collaboration with the DOH to ensure pharmacists are equipped with the necessary knowledge and skills to support HIV-related initiatives. Moreso, national policies and guidelines on pharmaceutical care in HIV/AIDS can be developed and established as the basis of a standardized

pharmacist-led HIV care and management program. Collaborations between stakeholders will ensure capacity-building for pharmacies to ensure sustainability of possible pharmacy-led interventions.

With the passage of the Universal Healthcare Law in 2019, healthcare facilities including primary care and outpatient services were further supported and strengthened.⁶⁰ This development could greatly improve the integration of pharmacy services into various areas of healthcare and healthcare provider networks in the country.³⁰ Pharmacies and pharmacists act as advocates to ensure the advancement of universal health coverage.⁶¹ Pharmacists are key entry points to primary healthcare and making pharmacies the first port of call for any health concern will result in a reduced workload and service burden on other healthcare providers like physicians.⁶²

Further implementation of universal health care law and HIV care may involve pharmacists and promote their integration into primary care ensuring access to quality HIV services, immediate linkage to HIV care, and ART adherence programs – all of which are aims and goals of RA 11223 and RA 11166. Recent guidelines on PrEP and PEP delivery have highlighted the role of pharmacies and pharmacists in differentiated service delivery which further strengthens the role of pharmacist in HIV care.⁶³

Furthermore, research surrounding the pharmacist's role in HIV care has been emphasized in international studies, and yet they remain lacking in the Philippines. Translation of international research becomes inefficient because of the unique sociocultural and infrastructural situation of the country's healthcare system that is not reflected in these studies. Research done by Filipino pharmacists may offer a unique perspective that must be considered owing to their unique skills, focus, sociocultural experiences, and pharmacy-related exposure to the structural and systemic situation in the healthcare system.

Moreso, there should be better visibility and utilization of research work that has already been conducted. A systematic review investigating the effect of pharmacist care on PLHIV outcomes has noted there are no surveys in the Philippines, a country with high HIV prevalence. As a result, limited inferences about the country are generated.⁶⁴ This lack of evidence highlights the need to conduct and publish more research for better visibility and utilization of research work. While research should be translated to practice, such a task cannot be achieved without being able to access these studies first.

Conclusion

The national response to HIV/AIDS in the Philippines is a multifaceted and multisectoral effort requiring the active participation of all healthcare stakeholders. This review

underscores the considerable yet underutilized potential of Filipino pharmacists in advancing the HIV care continuum. While international models have demonstrated the effectiveness of pharmacist-led HIV interventions, the Philippine context presents unique barriers that hinder similar integration. These include vague or absent policy mandates, insufficient specialized training, low public perception of pharmacists' roles, and practice-level constraints such as lack of time, space, and reimbursement mechanisms. Patient-level barriers such as stigma, financial limitations, and lack of awareness further compound these challenges.

Future research must address these gaps through local implementation studies that evaluate the feasibility and outcomes of pharmacist-led HIV services in community and outpatient settings. Additionally, nationwide assessments of pharmacists' knowledge, attitudes, and practices can inform curriculum and continuing professional development initiatives. Research should also examine urban-rural disparities, pilot targeted training programs, and investigate policy mechanisms such as collaborative practice agreements and task-shifting models. Finally, studies assessing the alignment of expanded pharmacist roles with the Universal Health Care Law (RA 11223) will be critical to demonstrating their value in achieving equitable and sustainable HIV care.

Strengthening the evidence base through local, context-specific research is imperative to support policy reform and ensure that pharmacists are meaningfully integrated into HIV prevention and treatment efforts in the Philippines. Their strategic inclusion in the healthcare framework holds promise for improving ART access, enhancing adherence, and ultimately reducing the burden of HIV nationwide. Given their accessibility and expertise, Filipino pharmacists must be strategically integrated into HIV care frameworks to optimize patient outcomes and support national health goals.

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References

1. Gangcuangco LMA, Eustaquio PC. The State of the HIV Epidemic in the Philippines: Progress and Challenges in 2023. *Trop Med Infect Dis*. 2023;8(5):5. doi:10.3390/tropicalmed8050258
2. Cordero DA. Exploring the HIV Epidemic in the Philippines: Initiatives and Challenges. *J Int Assoc Provid AIDS Care*. 2025;24:23259582241312294. doi:10.1177/23259582241312294
3. Jaurrette M, Byrne M, Happ LP, et al. HIV care continuum outcomes among recently diagnosed people with HIV (PWH) in Washington, DC. *Epidemiol Infect*. 2023;151:e45. doi:10.1017/S0950268823000043
4. De Torres RQ, Operario D. Characterizing the "HIV Care Adherence Journey" for Persons With HIV in the Philippines: Conceptual Foundation for Person-Centered Intervention. *J Assoc Nurses AIDS Care*. 2024;35(4):325. doi:10.1097/JNC.0000000000000461
5. Crawford ND, Myers S, Young H, Klepser D, Tung E. The Role of Pharmacies in the HIV Prevention and Care Continuums: A Systematic Review. *AIDS Behav*. 2021;25(6):1819. doi:10.1007/s10461-020-03111-w
6. Cantillana-Suárez MG, Robustillo-Cortés M de las A, Gutiérrez-Pizarra A, Morillo-Verdugo R. Impact and acceptance of pharmacist-led interventions during HIV care in a third-level hospital in Spain using the Capacity-Motivation-Opportunity pharmaceutical care model: the IRAFE study. *Eur J Hosp Pharm*. 2021;28(e1):e157-e163. doi:10.1136/ejhp-2020-002330
7. Havens JP, Scarsi KK, Sayles H, Klepser DG, Swindells S, Bares SH. Acceptability and Feasibility of a Pharmacist-Led Human Immunodeficiency Virus Pre-Exposure Prophylaxis Program in the Midwestern United States. *Open Forum Infect Dis*. 2019;6(10):ofz365. doi:10.1093/ofid/ofz365
8. International Pharmaceutical Federation (FIP). Pharmacy Workforce Intelligence: Global Trends Report. Published online 2018. <https://www.fip.org/file/2077>
9. Okoro O, Hillman L. HIV pre-exposure prophylaxis: Exploring the potential for expanding the role of pharmacists in public health. *J Am Pharm Assoc*. 2018;58(4):412-420.e3. doi:10.1016/j.japh.2018.04.007
10. Visacri MB, Figueiredo IV, Lima T de M. Role of pharmacist during the COVID-19 pandemic: A scoping review. *Res Soc Adm Pharm*. 2020;17(1):1799. doi:10.1016/j.sapharm.2020.07.003
11. Michienzi SM, Ladak AF, Pérez SE, Chastain DB. Antiretroviral Stewardship: A Review of Published Outcomes with Recommendations for Program Implementation. *J Int Assoc Provid AIDS Care*. 2020;19:2325958219898457. doi:10.1177/2325958219898457
12. Al-Quteimat OM, Amer AM. Evidence-based pharmaceutical care: The next chapter in pharmacy practice. *Saudi Pharm J*. 2016;24(4):447-451. doi:10.1016/j.jsps.2014.07.010
13. McCree DH, Byrd KK, Johnston M, Gaines M, Weidle PJ. Roles for Pharmacists in the "Ending the HIV Epidemic: A Plan for America" Initiative. *Public Health Rep*. 2020;135(5):547-554. doi:10.1177/0033354920941184
14. Lam JT, Cocohoba J. At a crossroads: The crucial role of pharmacists in healthcare teams to end the HIV epidemic. *Am J Health Syst Pharm*. 2025;82(4):240-245. doi:10.1093/ajhp/zxae261
15. Koren DE, Scarsi KK, Farmer EK, et al. A Call to Action: The Role of Antiretroviral Stewardship in Inpatient Practice, a Joint Policy Paper of the Infectious Diseases Society of America, HIV Medicine Association, and American Academy of HIV Medicine. *Clin Infect Dis*. 2020;70(11):2241-2246. doi:10.1093/cid/ciz792

16. Brizzi MB, Burgos RM, Chiampas TD, et al. Impact of Pharmacist-Driven Antiretroviral Stewardship and Transitions of Care Interventions on Persons With Human Immunodeficiency Virus. *Open Forum Infect Dis*. 2020;7(8):ofaa073. doi:10.1093/ofid/ofaa073
17. Shea KM, Hobbs ALV, Shumake JD, Templet DJ, Padilla-Tolentino E, Mondy KE. Impact of an antiretroviral stewardship strategy on medication error rates. *Am J Health Syst Pharm*. 2018;75(12):876-885. doi:10.2146/ajhp170420
18. Scott JD, Abernathy KA, Diaz-Linares M, Graham KK, Lee JC. HIV clinical pharmacists – the US perspective. *Farm Hosp*. 2010;34(6):303-308. doi:10.1016/j.farma.2010.07.001
19. Tkachuk S, Ready E, Chan S, et al. Role of the pharmacist caring for people at risk of or living with HIV in Canada. *Can Pharm J Rev Pharm Can*. 2024;157(5):218-239. doi:10.1177/17151635241267350
20. Jacomet C, Langlois J, Secher S, et al. Pharmacist's role in HIV care in France. Implication for clinical improvement of people living with HIV worldwide. *Pharmacol Res Perspect*. 2020;8(5):e00629. doi:10.1002/prp2.629
21. Public Health England. Pharmacy offer for sexual health, reproductive health and HIV. GOV.UK. March 25, 2019. Accessed March 11, 2025. <https://www.gov.uk/government/publications/pharmacy-offer-for-sexual-health-reproductive-health-and-hiv>
22. Firmansah M, Presley B, Irawati S, Setiawan E, Christanti JV. Pharmacist involvement to prevent and manage HIV/AIDS in Indonesia: a systematic review. *Keluwih J Kesehat Dan Kedokt*. 2023;5(1):1. Accessed February 27, 2025. <https://journal.ubaya.ac.id/index.php/kesdok/article/view/5815>
23. Shahi A, Shrestha S, K. C B, Acharya K, Pradhan SK. Potential roles of pharmacists in HIV/AIDS care delivery in Nepal: A qualitative study. *PLOS ONE*. 2023;18(1):e0280160. doi:10.1371/journal.pone.0280160
24. Ministry of Health. Protocol Medication Therapy Adherence Clinic: Retroviral Disease (Adult & Paediatric) 2nd Edition 2014. Pharmaceutical Services Programme. April 9, 2015. Accessed February 28, 2025. <https://pharmacy.moh.gov.my/en/documents/protocol-medication-therapy-adherence-clinic-retroviral-disease-adult-paediatric-2nd-edition-2014.html>
25. Lujintanon S, Amatavete S, Photisan N, et al. Differentiated service delivery for HIV treatment models in Thailand: A cross-sectional assessment of real-world implementation and uptake. *Trop Med Int Health*. 2023;28(5):374-383. doi:10.1111/tmi.13872
26. Lertpiriyasuwat C, Mookleemas P, Pattarapayoon N, Rosa D, Tangcharoensathien V. Towards Ending AIDS: The Additional Role of HIV Self-Testing in Thailand. *Glob Health Sci Pract*. 2024;12(6). doi:10.9745/GHSP-D-24-00156
27. Congress of the Philippines. Republic Act No. 11166 - Philippine HIV and AIDS Policy Act. The LawPhil Project. December 20, 2018. Accessed November 2, 2024. https://lawphil.net/statutes/repacts/ra2018/ra_11166_2018.html
28. Department Of Health. *Administrative Order No. 2022-24: Guidelines on Differentiated Treatment for People Living with Human Immunodeficiency Virus (PLHIV) and Prophylaxis for HIV-Exposed Infants*. 2022. Accessed August 7, 2025. <https://www.ship.ph/ao-2022-24-guidelines-on-differentiated-treatment-for-people-living-with-human-immunodeficiency-virus-plhiv-and-prophylaxis-for-hiv-exposed-infants/>
29. Department Of Health. *Department Memorandum No. 2021-0017: 2021 Interim Guidelines on Pre-Exposure Prophylaxis (PrEP) for the Prevention of HIV Infection in the Philippines*. 2021. Accessed August 7, 2025. <https://www.ship.ph/2021-interim-guidelines-on-pre-exposure-prophylaxis-prep-for-the-prevention-of-hiv-infection-in-the-philippines/>
30. Congress of the Philippines. Republic Act No. 11223 - Universal Health Care Act. The LawPhil Project. February 20, 2019. Accessed August 7, 2025. https://lawphil.net/statutes/repacts/ra2019/ra_11223_2019.html
31. Department Of Health. *Administrative Order No 2018-0024: Revised Policies and Guidelines on the Use of Antiretroviral Therapy (ART) among People Living with Human Immunodeficiency Virus (HIV) and HIV—Exposed Infants*. 2018. Accessed October 28, 2024. <https://www.ship.ph/2018-art-guidelines/>
32. Agaceta CC, Diano GT, Lintag PMP, Loquias MM. Current Practices and Perceptions on Pharmaceutical Care of Hospital Pharmacists in Metro Manila. *Int Online Med Counc IOMC*. 2023;4(4):821-825. Accessed February 28, 2025. <https://www.iomcworld.org/abstract/current-practices-and-perceptions-on-pharmaceutical-care-of-hospital-pharmacists-in-metro-manila-43941.html>
33. Department of Health. Administrative Order No 2025-0027 - Guidelines on the Establishment and Certification of HIV Treatment Hubs in the Philippines. Published online 2025. Accessed May 16, 2026. https://www.ship.ph/wp-content/uploads/2025/12/ao2025-0027_69eea14a-35d0-42be-ba7c-a040e5413100.pdf
34. Horace AE. Pharmacists' Research Contributions in the Fight against HIV/AIDs. *AIDS Res Treat*. 2012;2012:869891. doi:10.1155/2012/869891
35. Loquias MM, Robles YR. Issues and concerns on utilization of the pharmacy workforce in the Philippines. *J Asian Assoc Sch Pharm*. 2012;Volume 1 No.2:86-96. Accessed November 2, 2024. http://www.aaspjournal.org/abstract.php?article_id=5955
36. Gargantiel MF, Faller EM. A Glance in the Pharmacy Practices of the ASEAN Countries: Indonesia, Vietnam, Malaysia, India and the Philippines. *Int J Innov Sci Res Technol*. 2022;7(10):1837-1850. doi:10.5281/zenodo.7264271
37. Department of Health. *Hospital Pharmacy Management Manual*. 4th ed. Department of Health; 2019.

38. Faller EM, Hernandez MT, Hernandez AM, Verma AK. Perception Towards the Standardization of Competency Assessment Tools Among Clinical Pharmacists in the Philippines. *Indian J Pharm Educ Res.* 2019;53(1):48-53. doi:10.5530/ijper.53.1.7
39. 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 Rev.* 2019;21(4):195-210. doi:10.24875/AIDSRev.19000089
40. James BC, Kawano R, Sunday ES, Chullapant K. Knowledge, Attitudes, and Practices on HIV/AIDS among College Students in Pampanga, Philippines. *Acta Med Philipp.* 2022;56(17):17. doi:10.47895/amp.vi0.3574
41. Gabucan VJMG. Cross-sectional study measuring the level and relationship of awareness, attitude and willingness to use HIV pre-exposure prophylaxis in Davao City, Philippines. *BMJ Open.* 2025;15(1):e091977. doi:10.1136/bmjopen-2024-091977
42. Zablotska I, Grulich AE, Phanuphak N, et al. PrEP implementation in the Asia-Pacific region: opportunities, implementation and barriers. *J Int AIDS Soc.* 2016;19(7S6):21119. doi:10.7448/IAS.19.7.21119
43. Joves PJM, Matulac MO, Pagcatipunan RS. Barriers to Antiretroviral Medication Adherence in People Living with HIV (PLHIV) at the Time of the COVID-19 Pandemic in the Philippines. *Trop Med Infect Dis.* 2023;8(10):461. doi:10.3390/tropicalmed8100461
44. Alibudbud R. Navigating the intersection: minority stress, mental health, and HIV care in the Philippines. *AIDS.* 2024;38(7):1097. doi:10.1097/QAD.0000000000003876
45. Torres RQD. Facilitators and barriers to condom use among Filipinos: A systematic review of literature. *Health Promot Perspect.* 2020;10(4):4. doi:10.34172/hpp.2020.49
46. Bustamante J, Plankey MW. Identifying Barriers to HIV Testing Among Men Who Have Sex with Men (MSM) in the Philippines. *Georget Med Rev.* 2022;6(1). doi:10.52504/001c.36967
47. Dinglasan JLG, Rosadiño JDT, Pagtakhan RG, et al. 'Bringing testing closer to you': barriers and facilitators in implementing HIV self-testing among Filipino men-having-sex-with-men and transgender women in National Capital Region (NCR), Philippines – a qualitative study. *BMJ Open.* 2022;12(3):e056697. doi:10.1136/bmjopen-2021-056697
48. Uadan J. Breaking the Stigma of Community Pharmacy in the Philippines. *Aust Pharm Stud J.* 2022;1(2):2. doi:10.55136/apsj1210
49. Gabucan VJMG, Brieta FMB. Knowledge and Attitude on Behavioral Skills to HIV Pre-Exposure Prophylaxis of Community Pharmacists in Region XI. *Int J Health Sci.* 2023;10(2):239-246. doi:10.5281/zenodo.10559002
50. Tobias EMV, Sibay ARS, Mahinay AAT, Montaña AM, Gabucan VJMG. Knowledge and attitude of pharmacy students towards HIV treatment and prophylaxis in Davao City, Philippines. *Pharm Educ.* 2024;24(1):1. doi:10.46542/pe.2024.241.657669
51. Gutierrez M, Salenga R, Gloria MA. The Comparative Analysis of Pharmacy Education: Benchmarking the Philippine Model Against Asian-Pacific Approaches. *Interprofessional J Health Sci.* 2024;22(1):1. Accessed September 21, 2024. <https://li05.tci-thaijo.org/index.php/IJHS/article/view/380>
52. Cristuta SMN, Cesar JHA. Adherence towards good pharmacy practice of community pharmacists in central Visayas, Philippines. *Int J Pharm Pract.* 2024;32(Supplement_2):ii51-ii52. doi:10.1093/ijpp/riae058.061
53. Carandang RR, Puguon Jr. F, Santos ML, Ilagan E, Gamboa KG, Aquino JG. Burnout and Turnover Intention Among Community and Hospital Pharmacists in Metro Manila, Philippines. *Merits.* 2024;4(4):4. doi:10.3390/merits4040033
54. Guevarra JP, Antonio CAT, Bermudez ANC, et al. Facilitators and Barriers to Implementation of the Pharmacy DOTS Initiative in Selected Project Sites in the Philippines. *Acta Med Philipp.* 2022;56(3):3. doi:10.47895/amp.vi0.3106
55. Agaceta CC, Diano GT, Lintag PMP, Loquias MM. Perceived Barriers to the Implementation of Pharmaceutical Care among Pharmacists in Private and Government Hospitals in Metro Manila. *Int J Pharm Sci Res.* 2014;5(08):436-440.
56. Luib SA, Loquias MM, Capule FR, Garcia KES, Sendito MJV. Evaluation of the Patient Medication Counseling Services in the Philippine General Hospital Using the CIPP Model. *Acta Med Philipp.* 2022;56(6):6. doi:10.47895/amp.v56i6.4522
57. Peña IG. The immunization training and certification for pharmacists and integration of immunization topics in the pharmacy curriculum: The Philippine experience. *J Asian Assoc Sch Pharm.* 2022;Volume 11:15-21. Accessed August 6, 2025. http://www.aaspjournal.org/abstract.php?article_id=14155
58. Villaluz RMB, Khaleq YDA, Gula AMM, et al. Assessment of Filipino Immunizing Pharmacist Engagement amidst COVID-19 Pandemic using Knowledge, Attitudes, and Practices (KAP) Model. *GSC Biol Pharm Sci.* 2022;20(1):1. doi:10.30574/gscbps.2022.20.1.0264
59. International Pharmaceutical Federation (FIP). Advanced Practice and Specialisation in Pharmacy: Global Report. Published online 2015. Accessed August 6, 2025. <https://www.fip.org/file/1397>
60. Bernal-Sundiang N, Mesa RYHD, Marfori JRA, et al. Governance in Primary Care Systems: Experiences and Lessons from Urban, Rural, and Remote Settings in the Philippines. *Acta Med Philipp.* 2023;57(3):3. doi:10.47895/amp.vi0.4834
61. Amit AML, Pepito VCF, Dayrit MM. Advancing Universal Health Coverage in the Philippines through self-care interventions. *Lancet Reg Health – West Pac.* 2022;26. doi:10.1016/j.lanwpc.2022.100579
62. Duggan C. Advancing the workforce to meet the Primary Health Care Agenda: pharmacy's contribution to universal

- health coverage. *Int J Pharm Pract.* 2020;28(2):118-120. doi:10.1111/ijpp.12579
63. Department of Health. Administrative Order No. 2026-0005 - Guidelines on Differentiated Service Deliver (DSD) for Pre-Exposure Prophylaxis (PrEP) and Post-Exposure Prophylaxis (PEP) in the Prevention of HIV in the Philippines. Published online 2016. https://files-hivpreventioncoalition.unaids.org/gpc/attachments/doh-ao-2026-0005_guidelines-on-differentiated-service-delivery-for-pre-exposure-prophylaxis-and-post-exposure-prophylaxis-in-the-prevention-of-hiv-in-the-philippines.pdf
64. Ahmed A, Abdulelah Dujaili J, Rehman IU, et al. Effect of pharmacist care on clinical outcomes among people living with HIV/AIDS: A systematic review and meta-analysis. *Res Soc Adm Pharm.* 2022;18(6):2962-2980. doi:10.1016/j.sapharm.2021.07.020