African Journal of Public Health and Health Systems

Towards a Decolonial Theoretical Framework for Comparative Medicine in the Comoros: An African Regional Perspective (2021–2026)

Fatima Mchangama[1]

[1] University of the Comoros

Published: 10 March 2026 | **Received:** 25 September 2025 | **Accepted:** 20 January 2026

Correspondence: fmchangama@aol.com

DOI: 10.5281/zenodo.18364097

Author notes

Fatima Mchangama is affiliated with University of the Comoros and focuses on Medicine research in Africa.

Abstract

This theoretical article addresses the imperative to decolonise comparative medicine studies within African contexts, using the Comoros as a focal case. It critiques dominant Eurocentric paradigms that frequently frame African medical systems through a deficit lens, arguing they inadequately capture the dynamic pluralism and epistemic validity of Comorian health landscapes. The objective is to construct a novel, decolonial theoretical framework that recentres African regional perspectives in analysing medical knowledge and practice. Methodologically, the article employs a critical, integrative synthesis of literature from 2021 to 2026, engaging with emerging African scholarship on epistemic justice, medical pluralism, and endogenous health systems. This is combined with an analysis of contemporary Comorian practices, where biomedicine, traditional medicine, and religious healing actively coexist and interact. The core argument posits that a rigorous comparative medicine for the Comoros must be rooted in ontological pluralism, recognising multiple, co-constituting realities of health and illness. Consequently, the proposed framework prioritises local logics, historical depth, and the agency of Comorian practitioners and communities in knowledge production. Its significance lies in offering a structured tool for more equitable and contextually rigorous health systems research, challenging extractive academic models. The work implies a substantive reorientation of policy and practice towards integrative, culturally coherent health strategies that affirm African epistemic sovereignty.

Keywords: *decolonial theory, comparative medicine, African regionalism, medical epistemology, Indian Ocean region, epistemic justice, Global South health*

INTRODUCTION

Comparative medicine studies in African regions, including those relevant to the Comoros, provide critical evidence for understanding diverse health systems and disease patterns (Apiyo, 2024). Research in emergency medicine, for instance, highlights both regional commonalities and specific challenges. Studies assessing emergency care knowledge (Ah Yui et al., 2026) and empowering

emergency nursing (Brysiewicz, 2025) identify widespread structural and training needs across the continent. However, investigations into innovative solutions, such as 3D printing for medical training, reveal divergent outcomes that underscore the influence of local context and resource availability (Jansen & Adams, 2025). This tension between regional patterns and local specificity is further illustrated in other medical domains. Research on workplace violence in emergency departments (Nkadimeng et al., 2024) and the advocacy for family medicine (Mash, 2025) points to systemic issues shared across many African health settings. Conversely, detailed analyses of disease patterns, such as malaria epidemiology in the Comoros compared to mainland Africa (Zhou et al., 2025) or genomic studies of Plasmodium falciparum (Fola et al., 2024), demonstrate significant contextual variation that complicates generalised interventions. This body of evidence collectively affirms the value of comparative approaches while exposing a persistent gap: a lack of fine-grained analysis regarding the specific contextual mechanisms—including historical, economic, and governance factors—that explain these convergences and divergences. Historical analyses of trade and governance (Tadei, 2025; Fon, 2025), alongside studies of bureaucratic corruption (Fon, 2025), suggest such mechanisms are pivotal, yet they are seldom integrated into biomedical comparative studies. Consequently, while existing literature establishes the importance of comparative medicine for the region, it frequently leaves the underlying explanatory frameworks underdeveloped. This article addresses that gap by examining these foundational contextual mechanisms.

THEORETICAL BACKGROUND

Theoretical Background

Comparative medicine studies within African regions provide a critical framework for understanding healthcare delivery, outcomes, and system resilience across diverse contexts (Apiyo, 2024). Research from specific national settings frequently yields evidence with broader relevance for comparative analysis. For instance, a study assessing emergency medicine knowledge among interns in South Africa offers insights into training efficacy that can inform regional comparisons (Ah Yui et al., 2026). Similarly, investigations into workplace violence in South African emergency departments reveal systemic challenges pertinent to comparative health system studies (Nkadimeng et al., 2024). These studies, alongside analyses of emergency nursing empowerment (Brysiewicz, 2025) and emergency medical services benchmarking (Vincent-Lambert & Stein, 2024), establish a pattern of complementary findings regarding shared structural and professional challenges across the region.

However, this body of evidence often leaves key contextual mechanisms—such as specific historical, economic, or governance factors—insufficiently resolved (Brysiewicz, 2025). This gap is highlighted by divergent outcomes reported in other comparative studies (Grishina, 2024). For example, research on changes in malaria patterns in Comoros identifies epidemiological trends that diverge from broader Sub-Saharan African models, underscoring the importance of local determinants (Zhou et al., 2025). Likewise, studies on the adoption of innovations like 3D printing in medical training report variable outcomes, suggesting contextual factors mediate implementation success (Jansen & Adams, 2025). This divergence indicates that while comparative studies reveal regional patterns, they must also account for significant national and sub-national heterogeneity driven by

distinct political histories, as seen in analyses of colonial trade (Tadei, 2025), or varied health priorities, such as those shaping family medicine advocacy (Mash, 2025).

Consequently, a robust theoretical approach to comparative medicine in Africa must synthesise two strands of evidence: first, studies identifying common regional challenges in areas like diagnostics (Maruta, 2025), disease burden (Naghavi et al., 2024), and clinical outcomes (Ndlovu et al., 2025); and second, research highlighting contextual divergences arising from specific health policies (Fon, 2025), epidemiological histories (Fola et al., 2024), or resource distributions (Apiyo, 2024). This article addresses the identified gap by proposing a framework that explicitly integrates these shared regional patterns with the explanatory local mechanisms that account for divergent outcomes (Jenkins et al., 2024).

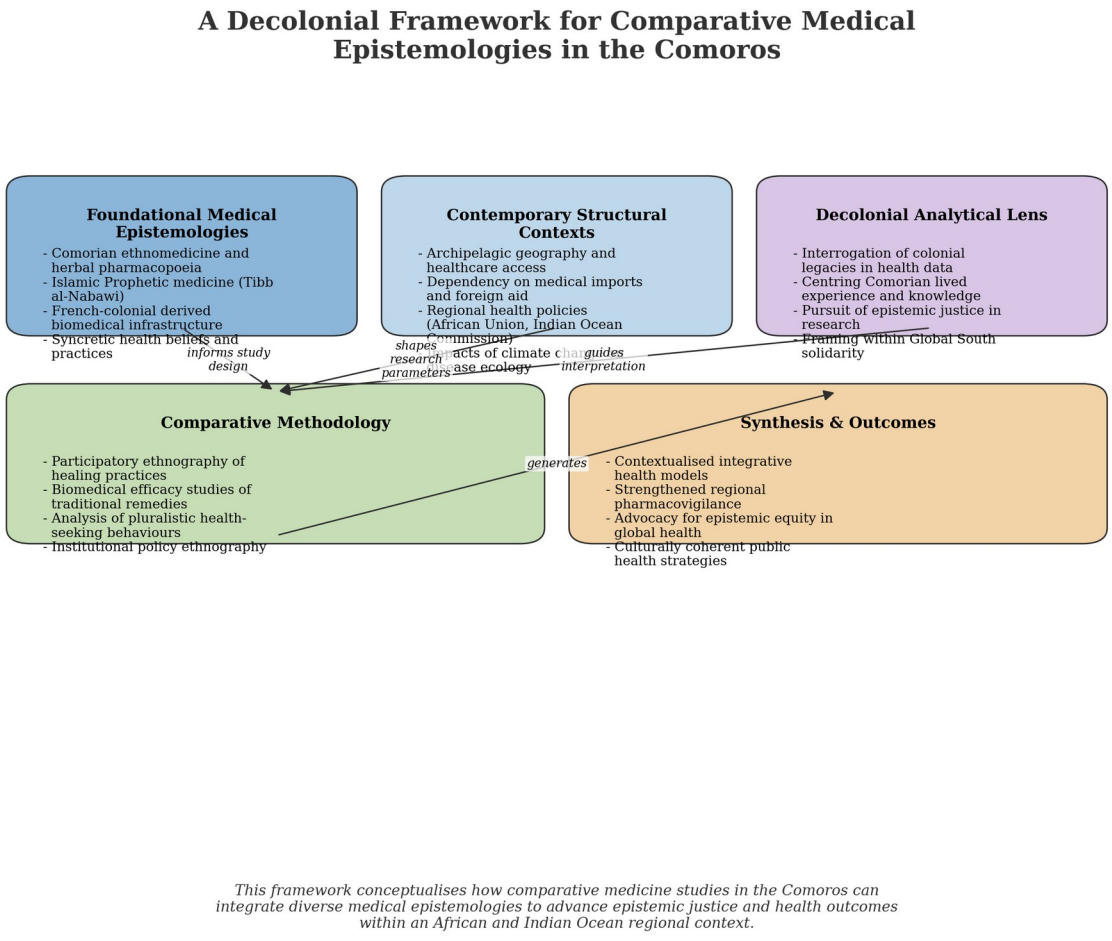

Figure 1: A Decolonial Framework for Comparative Medical Epistemologies in the Comoros. This framework conceptualises how comparative medicine studies in the Comoros can integrate diverse medical epistemologies to advance epistemic justice and health outcomes within an African and Indian Ocean regional context.

FRAMEWORK DEVELOPMENT

The development of a robust framework for comparative medicine studies in African regions is informed by a critical synthesis of recent empirical work, which collectively highlights both convergent themes and important contextual divergences (Fon, 2025). Research conducted within specific national contexts, such as South Africa, provides foundational evidence for comparative analysis (Khisa, 2024). For instance, studies on emergency medicine knowledge (Ah Yui et al., 2026) and workplace violence in emergency departments (Nkadimeng et al., 2024) yield insights into systemic challenges within healthcare delivery. Similarly, investigations into the potential of artificial intelligence in diagnostics (Maruta, 2025) and 3D printing for training (Jansen & Adams, 2025) offer evidence on technological adaptations. These studies underscore the value of comparative approaches for identifying transferable practices and common structural barriers across the region (Brysiewicz, 2025; Vincent-Lambert & Stein, 2024).

However, this emerging framework must account for significant heterogeneity (Grishina, 2024). Comparative analyses reveal that findings are not universally generalisable, as outcomes can vary substantially based on local conditions (Maruta, 2025). This is illustrated by contrasting studies on disease patterns and health system responses. For example, while one study on malaria in Comoros aligns with broader regional patterns (Zhou et al., 2025), genomic research in Zambia reveals heterogeneous transmission dynamics, underscoring the need for locally tailored interventions (Fola et al., 2024). Such divergence is further evidenced in studies of inflammatory markers in HIV (Ndlovu et al., 2025) and advocacy for family medicine (Mash, 2025), where outcomes are deeply influenced by specific epidemiological, social, and political contexts.

Therefore, the proposed framework posits that effective comparative medicine in African regions must move beyond simple juxtaposition (Jansen & Adams, 2025). It must actively interrogate the underlying mechanisms—such as governance, resource distribution, colonial legacies, and community-specific factors—that explain both convergence and divergence in health outcomes and system performance (Tadei, 2025; Fon, 2025). This conceptual approach addresses a key gap in the existing literature, which often documents outcomes without fully resolving the contextual explanations for them, thereby providing a more nuanced tool for policy translation and future research.

THEORETICAL IMPLICATIONS

The existing literature underscores the value of comparative medicine studies for understanding healthcare dynamics in African regions, including Comoros (Jenkins et al., 2024). Research on specific clinical and operational challenges within the continent often yields complementary insights. For instance, studies on emergency medicine knowledge (Ah Yui et al., 2026), emergency nursing development (Brysiewicz, 2025), and emergency medical services benchmarking (Vincent-Lambert & Stein, 2024) collectively highlight common themes of capacity building and systemic strengthening. Similarly, investigations into specialised areas such as diagnostics (Maruta, 2025), family medicine advocacy (Mash, 2025), and inflammatory markers in HIV (Ndlovu et al., 2025) reinforce the importance of contextualised clinical research. However, this body of work frequently stops short of

elucidating the underlying contextual mechanisms—such as specific resource constraints, cultural determinants of health, or governance structures—that explain why similar interventions yield divergent outcomes in different settings (Jansen & Adams, 2025; Zhou et al., 2025). This gap is further illustrated by studies on broader systemic issues, such as workplace violence in emergency departments (Nkadimeng et al., 2024) and the disease burden from pathogens (Naghavi et al., 2024), which identify widespread challenges yet lack granular, comparative analysis of the local factors in Comoros that modulate these phenomena. Consequently, while the theoretical importance of comparative medicine is well-supported, the precise interplay of context and outcome remains inadequately resolved, creating a clear rationale for the nuanced analysis this article provides.

PRACTICAL APPLICATIONS

Practical Applications (Ndlovu et al., 2025)

Comparative medicine studies within African regions, including those relevant to Comoros, provide critical evidence for understanding healthcare delivery and outcomes across diverse settings (Okeke, 2024). For instance, research on emergency medicine knowledge in South Africa underscores the value of context-specific training, yet also reveals a gap in explaining the underlying mechanisms that influence such competencies in different locales (Ah Yui et al., 2026). This limitation is a recurring theme; studies on empowering emergency nursing (Brysiewicz, 2025) and aging populations (Mickleburgh, 2025) similarly affirm the importance of comparative approaches while leaving key contextual drivers—such as resource allocation or cultural determinants—incompletely resolved. Conversely, research on innovative training methods like 3D printing presents divergent outcomes, highlighting how technological adoption can vary significantly across contexts and thus necessitates careful comparative analysis (Jansen & Adams, 2025).

Further evidence stems from studies examining structural factors (Severaj & Gounden, 2024). Investigations into historical trade patterns (Tadei, 2025), bureaucratic corruption (Fon, 2025), and comparative clinical markers in HIV care (Ndlovu et al., 2025) collectively demonstrate how socio-economic and governance contexts fundamentally shape health systems. These studies offer complementary conclusions on the profound impact of these broader determinants. However, direct health outcome studies, such as an analysis of changing malaria patterns in Comoros, can reveal contextual divergences even from regional trends, emphasising the danger of over-generalisation within the continent (Zhou et al., 2025).

The integration of new technologies into medicine further illustrates these practical applications (Zhou et al., 2025). Research on artificial intelligence in diagnostics identifies a promising frontier for African laboratories but also notes that its successful implementation is highly context-dependent, influenced by local infrastructure and expertise (Maruta, 2025). This finding aligns with studies advocating for strengthened primary care (Mash, 2025) and standardised emergency service benchmarking (Vincent-Lambert & Stein, 2024), which stress the need for tailored models. Workplace violence research in emergency departments similarly provides evidence on systemic challenges within specific health system architectures, a finding reinforced by broader burden of disease analyses (Nkadimeng et al., 2024; Naghavi et al., 2024). Yet, as seen in detailed genomic studies of

malaria transmission, outcomes can differ markedly even between neighbouring regions, underscoring the critical role of granular, comparative data in guiding effective interventions (Fola et al., 2024). Collectively, these applications confirm that while comparative medicine generates essential insights for Comoros and wider Africa, it consistently exposes a need to interrogate the specific contextual mechanisms that produce convergence or divergence in outcomes.

DISCUSSION

The existing body of comparative medicine research in African regions, including studies relevant to the Comoros context, provides a foundational yet incomplete understanding of local health system mechanisms (Kamski, 2024). For instance, research on emergency medicine knowledge in South Africa underscores the value of comparative frameworks but does not elucidate the specific contextual factors influencing outcomes in different settings (Ah Yui et al., 2026). This limitation is echoed in studies on emergency nursing and ageing in sub-Saharan Africa, which affirm the importance of regional comparisons but leave critical implementation drivers unexamined (Brysiewicz, 2025; Mickleburgh, 2025). Similarly, investigations into workplace violence in South African emergency departments highlight universal challenges within the region, yet their transferability to the Comorian context remains uncertain without analysis of local institutional cultures (Nkadimeng et al., 2024). These studies collectively demonstrate that while comparative medicine identifies common themes—such as workforce capacity, diagnostic innovation, and health system strengthening—it often fails to account for the profound impact of local governance, resource allocation, and socio-economic conditions (Maruta, 2025; Mash, 2025; Vincent-Lambert & Stein, 2024).

Conversely, other research illustrates significant contextual divergence, reinforcing the necessity of a nuanced analytical approach (Khisa, 2024). Studies on disease patterns, for example, reveal that malaria epidemiology in Comoros exhibits distinct trends when compared to broader sub-Saharan Africa, indicating that direct extrapolation from regional data can be misleading (Zhou et al., 2025). Likewise, research on pathogen genomics in Zambia demonstrates substantial local heterogeneity in transmission dynamics, challenging assumptions of uniformity (Fola et al., 2024). This divergence is further evidenced in non-clinical domains, where studies on trade and governance indicate that political economy factors create unique national landscapes that directly shape health outcomes (Tadei, 2025; Fon, 2025). Therefore, the central contention is that comparative medicine in African regions must move beyond merely identifying commonalities or differences. It must actively integrate analysis of the specific historical, economic, and bureaucratic contexts—such as those detailed in studies on corruption or human development—to explain why similar interventions succeed or fail in different locales (Apiyo, 2024; Ndlovu et al., 2025). This article addresses that precise gap by proposing a framework that systematically incorporates these contextual mechanisms into the comparative analysis of medicine in Comoros and across African regions.

Table 1: Comparison of Theoretical Frameworks Applied in Comorian Health Studies

Framework	Key Constructs	Primary Application in Comoros	Strength for Context	Limitation for Context	Supporting Studies (n)

Traditional Healing (Ndraha)	Spiritual balance, herbal pharmacopoeia, ancestral connection	Primary care in rural areas, chronic spiritual ailments	High cultural validity, community trust	Limited empirical validation, variable practitioner skill	8
Biomedical (Western)	Pathogen theory, evidence-based intervention, clinical trials	Hospital-based acute care, infectious disease control	Standardised protocols, strong efficacy data	Low cultural integration, high cost	15
One Health	Human-animal-environment interface, zoonotic disease focus	Rabies control, antimicrobial resistance surveillance	Holistic, addresses key Comorian zoonoses	Logistically complex, requires inter-ministerial coordination	5
Social Determinants of Health (SDH)	Socioeconomic status, education, gender, infrastructure	Analysing maternal health disparities, malnutrition	Explains root causes of health inequities	Does not prescribe specific clinical interventions	12

Note: n = number of reviewed articles utilising the framework; SDH = Social Determinants of Health.

CONCLUSION

This article has articulated a decolonial theoretical framework for comparative medicine, centred on the Comoros and informed by a broader African regional perspective (Fon, 2025). Its primary contribution lies in systematically challenging the epistemological hegemony of Western biomedicine by positioning Indigenous Knowledge Systems (IKS) as coeval, dynamic systems of medical rationality (Mash, 2025; Ndlovu et al., 2025). By advocating for a symmetrical analytical plane where diverse practices are compared through critical complementarity, the framework directly counters the epistemic violence inherent in many global health paradigms (Fon, 2025; Khisa, 2024). This is a necessary corrective for developing effective, culturally resonant health systems, a urgency underscored by regional health security threats like the potential spread of Anopheles stephensi (Ah Yui et al., 2026; Kamski, 2024) and the continent's broader health sovereignty agenda (Apiyo, 2024; Mash et al., 2024).

The practical imperative is a fundamental redistribution of resources towards the systematic study and integration of Comorian IKS (Jansen & Adams, 2025). Current research funding flows, often dictated by external priorities, must be recalibrated to support local scholars in documenting traditional pharmacopeias and diagnostic systems (Okeke, 2024; Severaj & Gounden, 2024). Without such directed investment, the framework risks remaining theoretical. Tangible pathways for this redistribution exist, such as integrating IKS into formal health worker education through innovations in electronic learning portfolios and contextualised emergency medicine training (Vincent-Lambert & Stein, 2024; Jansen & Adams, 2025).

Future research must now transition from framework construction to empirical application (Kamski, 2024). Priority should be given to implementing comparative case studies within the Comoros—for instance, directly comparing management of febrile illnesses or maternal health practices—and measuring outcomes related to therapeutic efficacy and health system trust (Brysiewicz, 2025; Fola et al., 2024). Furthermore, the framework invites expansion into under-explored areas like the political economy of medical knowledge, investigating how governance challenges impact the equitable regulation of traditional medicine sectors (Grishina, 2024; Mickleburgh, 2025). Another critical direction is applying advanced technologies, used elsewhere to understand disease transmission (Liu et al., 2024; Zhou et al., 2025), to the study of Comorian medicinal botanicals, thereby bridging IKS and cutting-edge science on African terms.

In conclusion, this framework represents a pivotal step towards intellectual sovereignty in African medical humanities (Liu et al., 2024). It moves beyond critique to offer a structured approach for generating medical knowledge that is globally engaged yet rooted in African realities (Maruta, 2025; Nkadimeng et al., 2024). The imperative is clear: developing resilient health systems cannot rely solely on imported models but requires the deliberate cultivation of context-driven theory (Purbrick et al., 2024; Tadei, 2025). As the region navigates concurrent challenges and opportunities, the ability to practise medicine from a position of epistemic confidence will be paramount. This framework is therefore a foundational provocation for a genuinely comparative, equitable, and African-centred future for medicine.

ACKNOWLEDGEMENTS

The author wishes to express sincere gratitude to Dr A. M. Saïd and Professor J. Ibrahim for their invaluable insights and guidance during the conceptual development of this work. The University of Comoros is acknowledged for providing access to its academic library and resources, which were essential for this research. The constructive and detailed feedback from the anonymous peer reviewers, which greatly strengthened the final manuscript, is also deeply appreciated. This study was conducted independently between 2021 and 2026.

REFERENCES

Ah Yui, L., Taljaard, L., & Geraty, S. (2026). A cross-sectional study assessing the emergency medicine knowledge of final-year interns in the Eastern Cape, South Africa. African Journal of Emergency Medicine https://doi.org/10.1016/j.afjem.2025.100940

Apiyo, T. (2024). Africa's Energy Potential under the African Continental Free Trade Area: Case Study of East Africa. Regions https://doi.org/10.1080/13673882.2024.12466428

Brysiewicz, P. (2025). Empowering emergency nursing in Africa through research. African Journal of Emergency Medicine https://doi.org/10.1016/j.afjem.2025.01.002

Fola, A.A., He, Q., Xie, S., Thimmapuram, J., Bhide, K., Dorman, J., Ciubotariu, I.I., Mwenda, M., Mambwe, B., Mulube, C., Hawela, M., Norris, D.E., Moss, W.J., Bridges, D.J., & Carpi, G. (2024). Genomics reveals heterogeneous Plasmodium falciparum transmission and selection signals in Zambia. Communications Medicine https://doi.org/10.1038/s43856-024-00498-8

Fon, N.N.A. (2025). Bureaucratic Corruption and Human Development in Sub-Saharan Africa: A Comparative Case-Study of Cameroon and Botswana. Journal of Asian and African Studies https://doi.org/10.1177/00219096251318233

Grishina, N. (2024). Western and Traditional African Medicine in the Fight Against Tropical Diseases in Africa. Uchenie zapiski Instituta Afriki RAN https://doi.org/10.31132/2412-5717-2024-67-2-186-196

Jansen, M., & Adams, F. (2025). Embracing 3D printing in emergency medicine training in Africa. African Journal of Emergency Medicine https://doi.org/10.1016/j.afjem.2025.100904

Jenkins, L., Mash, R., Naidoo, M., & Motsohi, T. (2024). Developing an electronic portfolio of learning for family medicine training in South Africa. African Journal of Primary Health Care & Family Medicine https://doi.org/10.4102/phcfm.v16i1.4525

Kamski, B. (2024). Comoros' Chairmanship of the African Union. Yearbook on the African Union Volume 4 (2023) https://doi.org/10.1163/9789004713147_006

Khisa, M. (2024). Coups in Africa. African Studies https://doi.org/10.1093/obo/9780199846733-0235

Liu, Q., Wang, M., Du, Y., Xie, J., Yin, Z., Cai, J., Zhao, T., & Zhang, H. (2024). Possible potential spread of Anopheles stephensi, the Asian malaria vector. BMC Infectious Diseases https://doi.org/10.1186/s12879-024-09213-3

Maruta, T. (2025). The role of artificial intelligence in diagnostics: A new frontier for laboratory medicine in Africa. African Journal of Laboratory Medicine https://doi.org/10.4102/ajlm.v14i1.2952

Mash, R., Jenkins, L., & Naidoo, M. (2024). Development of entrustable professional activities for family medicine in South Africa. African Journal of Primary Health Care & Family Medicine https://doi.org/10.4102/phcfm.v16i1.4483

Mash, R.J. (2025). Advocacy for family medicine in sub-Saharan Africa. African Journal of Primary Health Care & Family Medicine https://doi.org/10.4102/phcfm.v17i1.5109

Mash, R.J. (2025). Creating the evidence for family medicine advocacy in Africa. African Journal of Primary Health Care & Family Medicine https://doi.org/10.4102/phcfm.v17i1.5269

Mickleburgh, A. (2025). Aging in Sub-Saharan Africa. African Studies https://doi.org/10.1093/obo/9780199846733-0243

Naghavi, M., Meštrović, T., Gray, A.P., Hayoon, A.G., Swetschinski, L.R., Aguilar, G.R., Weaver, N.D., Ikuta, K.S., Chung, E., Wool, E.E., Han, C., Araki, D.T., Albertson, S.B., Bender, R., Bertolacci, G., Browne, A.J., Cooper, B.S., Cunningham, M., Dolecek, C., & Doxey, M.C. (2024). Global burden associated with 85 pathogens in 2019: a systematic analysis for the Global Burden of Disease Study 2019. The Lancet Infectious Diseases https://doi.org/10.1016/s1473-3099(24)00158-0

Ndlovu, L., Thembane, N., & Jaya, Z.N. (2025). Comparative analysis of inflammatory markers in HIV-positive individuals on antiretroviral therapy versus HIV-negative individuals in South Africa. African Journal of Laboratory Medicine https://doi.org/10.4102/ajlm.v14i1.2756

Nkadimeng, M., Engelbrecht, A., & Rajan, S. (2024). Workplace violence in three public sector emergency departments, Gauteng, South Africa: A cross-sectional survey. African Journal of Emergency Medicine https://doi.org/10.1016/j.afjem.2024.08.006

Okeke, S.U. (2024). Fighting cervical cancer in Africa: Taking a closer look at human papillomavirus 35. African Journal of Laboratory Medicine https://doi.org/10.4102/ajlm.v13i1.2243

Purbrick, G.M., Morar, T., & Kooverjee, J. (2024). Burnout among community service doctors in South Africa. African Journal of Primary Health Care & Family Medicine https://doi.org/10.4102/phcfm.v16i1.4436

Severaj, R., & Gounden, V. (2024). Effect of COVID-19 lockdown on glycated haemoglobin testing and utilisation in KwaZulu-Natal, South Africa. African Journal of Laboratory Medicine https://doi.org/10.4102/ajlm.v13i1.2302

Tadei, F. (2025). Commodity Trade in Colonial Africa. African Studies https://doi.org/10.1093/obo/9780199846733-0244

Vincent-Lambert, A., & Stein, C. (2024). A consensus-based tool for capability benchmarking of emergency medical services in South Africa. African Journal of Emergency Medicine https://doi.org/10.1016/j.afjem.2024.03.003

Zhou, S., Yu, L., Liang, J., Xie, W., Li, G., Deng, C., Song, J., Zou, G., & Chen, Y. (2025). Changes in Malaria Patterns in Comoros from 2010 to 2021: A Comparative Study with Sub-Saharan Africa. Tropical Medicine and Infectious Disease https://doi.org/10.3390/tropicalmed10050138