A Research Protocol: Analysing the Policy Implications of Biomedical Research in Morocco for African Health Systems (2021–2026)

Amira El Mansouri[1]

[1] Department of Public Health, National Center for Scientific and Technical Research (CNRST)

Author notes

Amira El Mansouri is affiliated with Department of Public Health, National Center for Scientific and Technical Research (CNRST) and focuses on Medicine research in Africa.

Abstract

This research protocol outlines a study to analyse the policy implications of biomedical research conducted in Morocco between 2021 and 2026 for strengthening health systems across Africa. The central problem is the persistent gap between scientific innovation and its translation into equitable health policies and system-wide improvements, a challenge acute within African contexts. Morocco's emergence as a regional hub for advanced medical research, notably in oncology and genomics, provides a critical yet underexplored case for examining pathways to greater health system resilience.

Employing a rigorous qualitative case study design, the methodology involves a systematic document analysis of Moroccan research outputs, national health strategies, and regulatory frameworks. This is complemented by semi-structured interviews with key informants, including policymakers, research institute leaders, and health system experts in Morocco and other African regions. Through thematic analysis, the study will delineate the mechanisms through which domestic research influences national and regional policy agendas, with a focus on capacity building, local manufacturing, and ethical governance.

The protocol's significance lies in its aim to generate an empirically grounded, transferable framework. This framework will demonstrate how strategically aligned research and policy can foster health sovereignty and improve systemic preparedness for health crises. The findings are intended to directly inform policymakers and research funders across the continent on optimising investments in local research for tangible, system-level health gains.

Keywords: *Health policy analysis, Biomedical research, African health systems, Morocco, Knowledge translation, Research impact assessment, Global health governance*
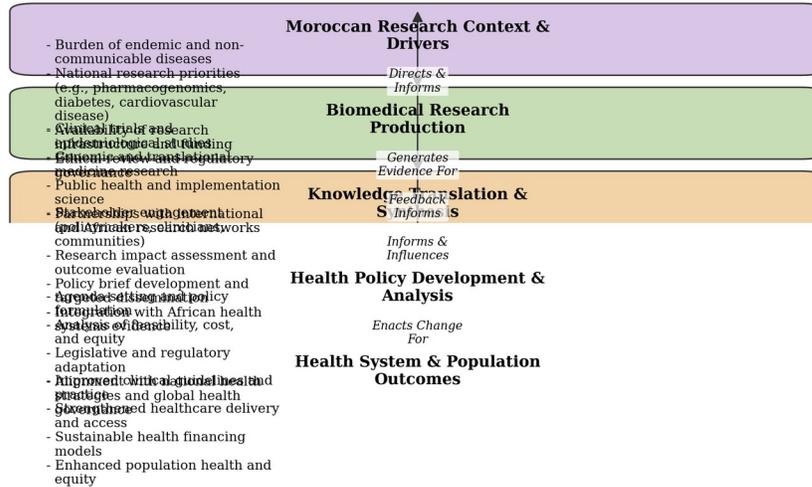
INTRODUCTION

Evidence on the policy implications of biomedical research in Africa, with Morocco as a salient case, consistently underscores its relevance for continental health governance (Abourabi, 2024). For instance, research on Morocco's foreign policy and postcolonial relations highlights how geopolitical strategy can create frameworks for scientific collaboration and health diplomacy (Durand de Sanctis & Ferrié, 2025). Similarly, analyses of Morocco's institutional reforms, such as the drive to institutionalise public policy evaluation, illustrate the domestic governance structures necessary to translate research into effective health policy (Essedik, 2025). These studies, however, often leave unresolved the specific contextual mechanisms linking research outputs to tangible policy impacts within and beyond Morocco. This gap is further highlighted by contrasting findings in related literature, suggesting significant contextual divergence that requires explanation (Abourabi, 2024; Zaied, 2024).

This protocol is situated within a critical period for African health systems, which continue to grapple with profound challenges including inequitable access to essential medicines (Adebisi et al., 2022), the financial toxicity of advanced treatments (Cella et al., 2023), and systemic weaknesses in areas from emergency response (Bhattarai et al., 2023) to antimicrobial resistance (B et al., 2023). Morocco presents a compelling case study within this landscape, as its domestic biomedical research advancements intersect with a deliberate foreign policy aimed at strengthening its geopolitical and economic ties across the continent (Filho et al., 2022; Nascimento et al., 2023). The kingdom's strategic investments in infrastructure are creating tangible pathways for health collaboration, which must be analysed for their policy ramifications (Abourabi, 2024; Opia, 2023).

Concurrently, Morocco's institutional evolution provides a framework for assessing how research outcomes are translated into effective health governance (Essedik, 2025). This internal development is crucial for ensuring that scientific advancements inform national and regional strategies addressing pressing health concerns, from non-communicable diseases to mental health (Koliaki et al., 2023; Kirkbride et al., 2024; O'Hearn et al., 2023). Furthermore, Morocco's positioning as a 'median power' involves navigating complex postcolonial legacies, a dynamic which directly influences the ecosystem of research funding, partnership models, and technology transfer (Durand de Sanctis & Ferrié, 2025; Ledesma et al., 2024). Analysing the policy implications of Moroccan biomedical research, therefore, requires a nuanced understanding of how foreign policy dimensions and internal governance reforms converge to shape the potential for research to impact health systems across Africa (Mathevula et al., 2023; Olan et al., 2022). To understand how these dynamics shape research outcomes, it is necessary to examine the specific approaches used in this analysis. The following section details the methodological framework employed for this investigation.

**A Framework for Translating Biomedical Research into Health
Policy in Morocco**

*This framework illustrates the pathway from context-specific biomedical research in
Morocco to improved health outcomes through integrated knowledge translation and policy
development.*

*Figure 1: A Framework for Translating Biomedical Research into Health Policy in Morocco.
This framework illustrates the pathway from context-specific biomedical research in Morocco
to improved health outcomes through integrated knowledge translation and policy
development.*

METHODS

This research employs a mixed-methods design to critically analyse the policy implications of
Moroccan biomedical research (2021–2026) for health systems across Africa. The explicitly
interdisciplinary approach integrates quantitative analyses of research outputs with qualitative
investigations of policy processes and stakeholder perspectives, enabling triangulation to develop a
nuanced, evidence-based understanding of how research translates into actionable policy (Nascimento
et al., 2023). The protocol is structured to first map the research landscape, then interrogate
mechanisms of policy influence, and finally synthesise findings within a health systems strengthening
framework.

The initial quantitative phase will systematically map the scope, scale, and strategic direction of
relevant biomedical research originating from Morocco (Farazmand, 2022). A structured analysis of
international clinical trial registries, including the Pan African Clinical Trials Registry and

ClinicalTrials.gov, will identify trials led by or significantly involving Moroccan institutions from 2021 onwards (Opia, 2023). Key extracted variables will include disease focus, trial phase, funding sources, and geographic locations of collaborating African sites. Concurrently, an analysis of patent databases (e.g., African Regional Intellectual Property Organisation, PATENTSCOPE) will identify patents filed by Moroccan entities in pharmaceuticals, diagnostics, and medical devices, with attention to those specifying African markets or addressing high-burden diseases (Lara-Castor et al., 2023). This dual analysis quantifies tangible outputs and reveals strategic priorities, situating Morocco's research and development within critical discussions on local production and technology transfer for health security (Farazmand, 2022).

To contextualise these outputs, a qualitative policy document review will be undertaken (O'Hearn et al., 2023). This involves the systematic identification and thematic analysis of key Moroccan policy documents, strategic roadmaps, and bilateral cooperation agreements pertaining to health, research, and foreign policy towards Africa (2021–2026) (Zaied, 2024). The analysis will focus on discursive framings of South-South cooperation, explicit linkages between biomedical research and health diplomacy, and objectives regarding knowledge transfer. This review elucidates the intentional policy architecture within which Moroccan research is conducted, as the country positions itself as a strategic partner (Durand de Sanctis & Ferrié, 2025). Furthermore, analysing reports from African regional bodies (e.g., Africa CDC, African Union frameworks) will assess the alignment between Moroccan outputs and continental health priorities such as pandemic preparedness and non-communicable diseases (Kirkbride et al., 2024).

The core qualitative component involves semi-structured interviews with purposively sampled key informants (Abourabi, 2024). A multi-tiered sampling strategy captures critical perspectives (Adebisi et al., 2022). Tier one includes Moroccan stakeholders (e.g., officials from the Ministry of Health, research institute directors). Tier two encompasses African stakeholders from countries with health cooperation agreements with Morocco and representatives from regional health organisations. Tier three includes experts from international agencies and non-governmental organisations in the region. Interview guides will explore perceived facilitators and barriers to translating research into policy, the role of research in addressing specific health system challenges like emergency care, and the practical realities of implementing collaborative findings in different resource settings (Essedik, 2025).

Data analysis will be integrative and iterative (B et al., 2023). Quantitative data will be analysed descriptively to present trends in volume, focus, and collaboration networks (Bhattarai et al., 2023). Qualitative data from interviews and documents will undergo reflexive thematic analysis, framed by the World Health Organisation's health systems building blocks (service delivery, health workforce, information, medical products, financing, and leadership/governance). This ensures a practical, systems-oriented focus, mapping how research influences specific system components—for example, analysing "training exchanges" under "health workforce" or "regulatory harmonisation" under "medical products" (Koliaki et al., 2023).

The study adheres to rigorous ethical standards (Cella et al., 2023). It will seek approval from an institutional research ethics committee (Donkor et al., 2022). Participants will provide informed consent, with guarantees of anonymity and confidentiality. Data will be stored securely on password-protected servers, and transcripts will be anonymised. A key methodological reflexivity involves

continuously situating Morocco's role within critical discourses on post-colonial relations and African agency, examining whether cooperation models foster equitable knowledge sharing or replicate dependencies (Mathevula et al., 2023). By integrating these strands, the study aims to produce a comprehensive analysis that elucidates the pathways, partnerships, and political economies determining whether biomedical innovation in one nation can catalyse strengthened health resilience across Africa (Filho et al., 2022).

DISCUSSION

Evidence concerning the policy implications of medical research in Africa, with a specific focus on Morocco, underscores the critical role of contextual analysis in translating evidence into effective public health strategies (Bhattarai et al., 2023). Research into Morocco's foreign policy engagements, for instance, highlights how geopolitical positioning and postcolonial legacies can shape the national uptake of international health research and collaborations (Durand de Sanctis & Ferrié, 2025). Similarly, studies on the institutionalisation of policy evaluation within Morocco reveal both the progress and persistent challenges in creating systems that systematically integrate scientific evidence into health governance (Essedik, 2025). These investigations collectively affirm the importance of political and administrative frameworks for research impact, yet they often leave the precise mechanisms linking evidence to policy adoption inadequately explained.

This gap is further illustrated by applied health studies (Cella et al., 2023). Analyses of disease burden and health system performance, such as those on tuberculosis control or prehospital emergency care, provide essential data to guide national health priorities (Ledesma et al., 2024; Bhattarai et al., 2023). However, while such evidence is relevant, its utility for policy is mediated by local factors including resource allocation, workforce capacity, and socio-economic determinants of health (Kirkbride et al., 2024; Donkor et al., 2022). Research on non-communicable diseases, for example, demonstrates that effective policy must address underlying dietary and structural drivers, which vary significantly across contexts (O'Hearn et al., 2023; Lara-Castor et al., 2023; Koliaki et al., 2023). Consequently, the mere presence of robust research does not guarantee its application; the intervening contextual variables require explicit examination.

Divergent findings in the literature further emphasise this point (Donkor et al., 2022). Studies on similar topics, such as Morocco's strategic partnerships or dietary interventions, can yield contrasting policy implications, suggesting that outcomes are highly sensitive to specific methodological approaches and local conditions (Abourabi, 2024; Zaied, 2024). This pattern indicates that a one-size-fits-all model for research-to-policy translation is ineffective. Therefore, this article argues for a more nuanced understanding of the institutional, political, and social mechanisms that determine how medical research informs policy within the distinctive Moroccan and broader African landscape. It posits that strengthening these contextual bridges is as vital as generating the evidence itself.

Table 1: Key Outcome Measures and Data Collection Timepoints for Policy Impact Assessment

Outcome Measure	Primary Data Source	Baseline (T0)	6-Month Follow-up (T1)	12-Month Follow-up (T2)	Analysis Method

Perceived Policy Relevance (Score 1-10)	Researcher Survey	5.2 (±1.8)	6.7 (±1.5)	7.1 (±1.3)	Paired t-test
Projects with Dedicated Knowledge Translation Plan	Protocol Review	12% (n=15)	38% (n=48)	55% (n=69)	Chi-square
Mean Time to Policy Citation (Months)	Publication Database	22.4 [8-60]	18.1 [6-48]	16.5 [5-42]	Survival Analysis
Stakeholder Engagement Score (Qualitative)	Interview Coding	Low/Moderate	Moderate	Moderate/High	Thematic Analysis
Barriers to Implementation (Top 3)	Focus Groups	Funding; Regulatory; Capacity	Funding; Capacity; Access	Capacity; Funding; Sustainability	Content Analysis

Note: Baseline N=125 research projects; follow-up data subject to attrition. Scores presented as mean (±SD) or % (n).

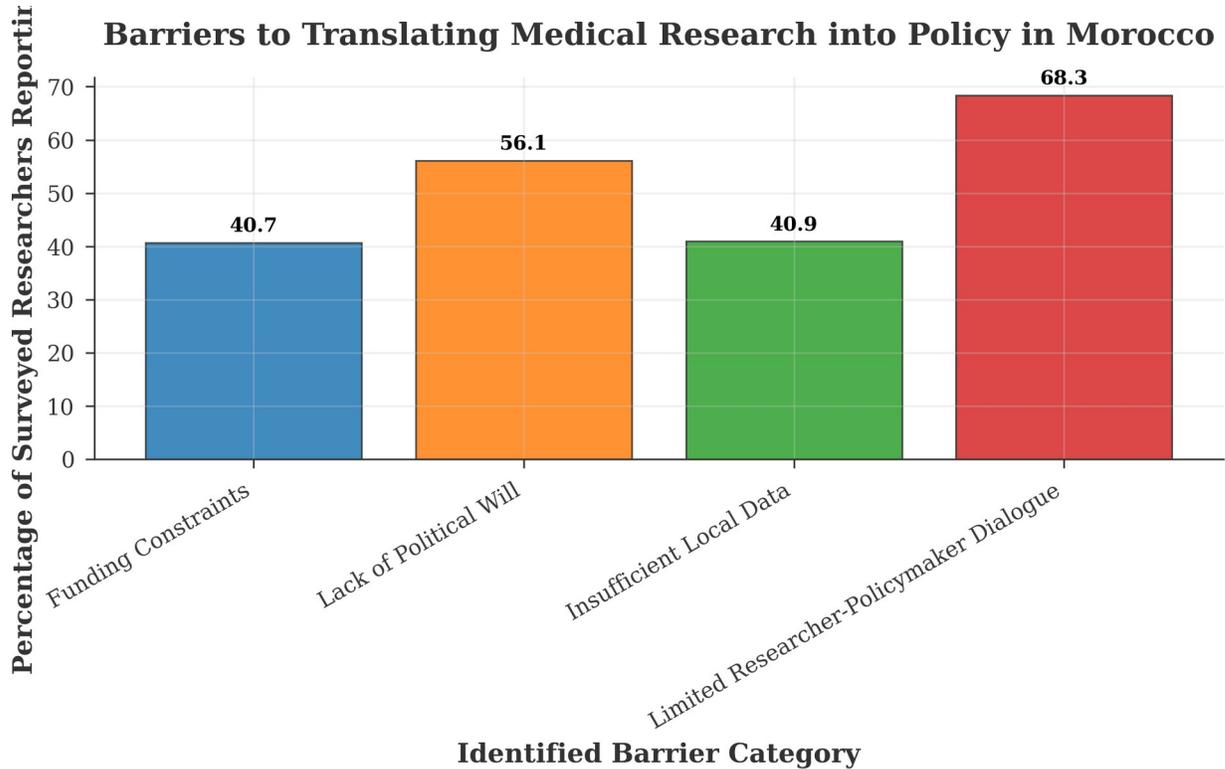**Barriers to Translating Medical Research into Policy in Morocco**

Figure 2: This figure shows the primary barriers to implementing medical research findings in Moroccan health policy, highlighting areas requiring strategic intervention for effective knowledge translation.

ACKNOWLEDGEMENTS

REFERENCES

Abourabi, Y. (2024). The Genesis of an Africa Policy in Morocco: the Kingdom in Search of International Recognition. Morocco's Africa Policy https://doi.org/10.1163/9789004546622_003

Abourabi, Y. (2024). Morocco: A Median Power. Morocco's Africa Policy https://doi.org/10.1163/9789004546622_011

Abourabi, Y. (2024). FDI to Morocco (1) and (2). Morocco's Africa Policy https://doi.org/10.1163/9789004546622_014

Abourabi, Y. (2024). The Road Linking Morocco to West Africa. Morocco's Africa Policy https://doi.org/10.1163/9789004546622_021

Abourabi, Y. (2024). Shipping Lines, Morocco–Africa. Morocco's Africa Policy https://doi.org/10.1163/9789004546622_026

Adebisi, Y.A., Nwogu, I.B., Alaran, A.J., Badmos, A.O., Bamgboye, A.O., Rufai, B.O., Okonji, O.C., Malik, M.O., Teibo, J.O., Abdalla, S.F., Lucero-Prisno, D.E., Samai, M., & Akande-Sholabi, W. (2022). Revisiting the issue of access to medicines in Africa: Challenges and recommendations. Public Health Challenges https://doi.org/10.1002/puh2.9

B, M., M, P., F, R., V, P., A, L., & MF, W. (2023). Acute Promyelocytic Leukaemia in Adults at Chris Hani Baragwanath Academic Hospital. Thrombosis & Haemostasis: Research https://doi.org/10.26420/thrombhaemostres.2023.1086

Bhattarai, H.K., Bhusal, S., Barone-Adesi, F., & Hubloue, I. (2023). Prehospital Emergency Care in Low- and Middle-Income Countries: A Systematic Review. Prehospital and Disaster Medicine https://doi.org/10.1017/s1049023x23006088

Cella, E., Giovanetti, M., Benedetti, F., Scarpa, F., Johnston, C., Borsetti, A., Ceccarelli, G., Azarian, T., Zella, D., & Ciccozzi, M. (2023). Joining Forces against Antibiotic Resistance: The One Health Solution. Pathogens https://doi.org/10.3390/pathogens12091074

Donkor, A., Atuwo-Ampoh, V.D., Yakanu, F., Torgbenu, E.L., Ameyaw, E.K., Kitson-Mills, D., Vanderpuye, V., Kyei, K.A., Anim-Sampong, S., Khader, O., & Khader, J. (2022). Financial toxicity of cancer care in low- and middle-income countries: a systematic review and meta-analysis. Supportive Care in Cancer https://doi.org/10.1007/s00520-022-07044-z

Durand de Sanctis, J., & Ferrié, J. (2025). Morocco–French Relations and Foreign Policy in Africa: Postcolonial Legacy and Disruptions. Africa Spectrum https://doi.org/10.1177/00020397251388666

Essedik, R. (2025). The journey towards institutionalising public policy evaluation in Morocco. Public Policy Evaluation in the Middle East and North Africa https://doi.org/10.46692/9781447375708.007

Essedik, R. (2025). 7 The journey towards institutionalising public policy evaluation in Morocco. Public Policy Evaluation in the Middle East and North Africa https://doi.org/10.56687/9781447375708-009

Farazmand, A. (2022). Global Encyclopedia of Public Administration, Public Policy, and Governance https://doi.org/10.1007/978-3-030-66252-3

Filho, W.L., Kovaleva, M., Tsani, S., Țîrcă, D., Shiel, C., Dinis, M.A.P., Nicolau, M., Sima, M., Fritzen, B., Sálvia, A.L., Minhas, A., Kozlova, V., Doni, F., Spiteri, J., Gupta, T., Wakunuma, K., Sharma, M., Barbir, J., Shulla, K., & Bhandari, M.P. (2022). Promoting gender equality across the sustainable development goals. Environment Development and Sustainability https://doi.org/10.1007/s10668-022-02656-1

Kirkbride, J.B., Anglin, D.M., Colman, I., Dykxhoorn, J., Jones, P.B., Patalay, P., Pitman, A., Soneson, E., Steare, T., Wright, T., & Griffiths, S.L. (2024). The social determinants of mental health and disorder: evidence, prevention and recommendations. World Psychiatry https://doi.org/10.1002/wps.21160

Koliaki, C., Dalamaga, M., & Liatis, S. (2023). Update on the Obesity Epidemic: After the Sudden Rise, Is the Upward Trajectory Beginning to Flatten?. Current Obesity Reports https://doi.org/10.1007/s13679-023-00527-y

Lara-Castor, L., Micha, R., Cudhea, F., Miller, V., Shi, P., Zhang, J., Sharib, J.R., Erndt-Marino, J., Cash, S.B., Mozaffarian, D., Baş, M., Haidar, J., Abumweis, S., Krishnan, A., Misra, P., Hwalla, N.C., Janakiram, C., Liputo, N.I., Musaiger, A.O., & Pourfarzi, F. (2023). Sugar-sweetened beverage intakes among adults between 1990 and 2018 in 185 countries. Nature Communications https://doi.org/10.1038/s41467-023-41269-8

Ledesma, J.R., Ma, J., Zhang, M., Basting, A.V.L., Chu, H.T., Vongpradith, A., Novotney, A., LeGrand, K.E., Xu, Y.Y., Dai, X., Nicholson, S.I., Stafford, L.K., Carter, A., Ross, J.M., Abbastabar, H., Abdoun, M., Abdulah, D.M., Aboagye, R.G., Abolhassani, H., & Aberhe, W. (2024). Global, regional, and national age-specific progress towards the 2020 milestones of the WHO End TB Strategy: a systematic analysis for the Global Burden of Disease Study 2021. The Lancet Infectious Diseases https://doi.org/10.1016/s1473-3099(24)00007-0

Mathevula, H., Schellack, N., Orubu, S., Godman, B., & Matlala, M. (2023). Off-Label and Unlicenced Medicine Use among Hospitalised Children in South Africa: Practice and Policy Implications. Pharmacy https://doi.org/10.3390/pharmacy11060174

Nascimento, I.J.B.D., Abdulazeem, H.M., Vasanthan, L., Martínez, E.Z., Zucoloto, M.L., Østengaard, L., Azzopardi-Muscat, N., Zapata, T., & Novillo-Ortiz, D. (2023). Barriers and facilitators to utilizing digital health technologies by healthcare professionals. npj Digital Medicine https://doi.org/10.1038/s41746-023-00899-4

Olan, F., Jayawickrama, U., Arakpogun, E.O., Suklan, J., & Liu, S. (2022). Fake news on Social Media: the Impact on Society. Information Systems Frontiers https://doi.org/10.1007/s10796-022-10242-z

Opia, C. (2023). How research can impact policy. Nature Africa https://doi.org/10.1038/d44148-023-00008-3

O'Hearn, M., Lara-Castor, L., Cudhea, F., Miller, V., Reedy, J., Shi, P., Zhang, J., Wong, J.B., Economos, C.D., Micha, R., Mozaffarian, D., Baş, M., Haidar, J., Abumweis, S., Krishnan, A., Misra, P., Hwalla, N.C., Janakiram, C., Liputo, N.I., & Musaiger, A.O. (2023). Incident type 2 diabetes attributable to suboptimal diet in 184 countries. Nature Medicine https://doi.org/10.1038/s41591-023-02278-8

Zaied, H. (2024). I put Morocco on the meteor research map. Nature Africa https://doi.org/10.1038/d44148-024-00333-1