

Policy Brief on the Use of

Public Health Analytics in Developing Nigeria's National Health Sector Strategy

Background

The demand for data-driven strategies and decision-making to support healthcare policy and planning and efficient resource allocation has never been more critical, particularly in the face of major gaps in global health funding left by the withdrawal of U.S. Government funders and technical partners from many LMICs, including Nigeria. Nigeria, as one of the largest recipients of aid from Washington, has lost a fifth of external support for health sector funding,¹ which primarily support efforts to prevent malaria, end HIV, and deliver vaccines.²

The Nigerian MOH and its affiliated agencies have acknowledged the importance of strengthening public health analytics, taking steps to integrate analytics in strategic planning and development of the National Strategic Health Development Plan II (NSHDP II),³ the National Malaria Strategic Plan (NMSP),⁴ and the new national healthcare strategic blueprint still underdevelopment. Policies and strategies implemented by the MOH including the Health Management Information System (HMIS) 2014 Policy⁵ and the Sector Wide Approach (SWAP)³ seek to strengthen health sector coordination and integration; however, despite these efforts, a recent landscape analysis on “the Use of Public Health Analytics in Developing Nigeria's National Health Sector Strategy,” conducted by Applied Health Analytics for Delivery and Innovation (AHADI) with implementing partner Centre for Global Health Intelligence and Innovation (CGHII), and supported by the Harvard T.H. Chan School of Public Health, reveals that Nigerian health data infrastructure remains underdeveloped and fragmented.⁶ The effective integration of public health analytics to support long-term health system strengthening faces several challenges, including sub-optimal data analytics infrastructure, fragmented data systems, insufficient investments and a shortage of skilled personnel.

Methods

The landscape analysis presented in this brief was conducted using a mixed methods approach. This

included qualitative field research conducted between June and August 2024 in Abuja, Nigeria and an extensive desktop literature review. The literature review systematically examined existing evidence (e.g., government reports, key health policy documents, peer-reviewed publications, etc.) to provide context and insight into the current state and use of public health analytics within Nigeria's health sector, particularly in informing health policy and strategic planning. The fieldwork consisted of six in-depth semi-structured interviews conducted among key informants, five in-person in Abuja and one virtually, representing various departments and agencies within the MOH, Nigeria Center for Disease Control (NCDC) and National Malaria Elimination Program (NMEP). Interviews sought to capture nuanced perspectives on key themes related to public health analytics infrastructure, capacity, data quality and timeliness, and partnerships and collaborations with donor agencies and technical partners.



OBJECTIVES OF THE LANDSCAPE ANALYSIS



EXAMINE the role and utilization of public health analytics in supporting the NHSSP, NMSP, etc.



EXPLORE the types of analysis and partnerships guiding planning processes and implementing public health analytics.



ASSESS the investments, processes, analysis methods, and support systems involved in public health analytics.



IDENTIFY the capacities, challenges, and information needs to effectively utilize analytics in designing the national health strategies.



RECOMMEND Nigeria provide actionable steps for enhancing public health analytics to improve healthcare service delivery.

Table 1. Donor Involvement within Public Health Analytics in the Development of Nigeria's NHSSP

	Data Collection	Data Storage	Data Analysis	Strategic Planning Integration of public health analytics into national planning processes
Ministry of Health (MOH) Structures	- Data is collected from different agencies and departments. - Transition from use of paper-based to electronic data collection processes. - Program-specific data collection processes contribute to fragmentation.	- National health data is managed and stored through Nigeria's HMIS, primarily relying on the DHIS2. - Data collected from different agencies and departments are often stored in program-specific data systems, with limited interoperability between systems. - Transition from paper-based to cloud-based data storage.	- Health analytics tends to fall on health workers, as the MOH and its agencies face a shortage of skilled personnel with expertise in data analytics. - There is a lack of comprehensive training programs and incentives to retain skilled professionals, limiting the ability to scale public health analytics across national and sub-national levels.	- Development and implementation of the NHSSP and disease-specific strategic plans (e.g., NMSP) are the responsibility of the MOH and its agencies. - Introduction of SWAP is designed to centralize health sector priorities and streamline collaboration within Nigeria's health system, by placing the Nigerian government at the forefront of health sector decision-making.
Donor Involvement		- Donor-driven vertical programs contribute to fragmented HMIS, inconsistencies and inefficiencies. - Heavy reliance on donor funding for supporting the development of digital platforms and technical infrastructure, including cloud storage through platforms like AWS.	- Heavy reliance on donor investment for analytical tools, human resources, and capacity-building programs. - For example, the NMEP and NCDC rely on donor-backed initiatives for their analytics systems.	- Donor partners actively participated in the planning process for the NHSSP and disease-specific plans e.g., the NMSP. - In the past, international partners have driven health initiatives independently, misaligning from country's actual needs. - Uncoordinated donor efforts have led to inefficiencies and duplication, highlighting the need for a unified approach.

Findings

Key Areas of Progress

The landscape analysis highlighted a variety of efforts that have been made to strengthen the use of public health analytics for effective health planning and decision-making. Key areas where the MOH is making progress include:

- Integration of analytics in strategic planning, including the development of the NSHDP II, the NMSP, and the blueprint still under development.**^{3,4} Analytics were primarily used for situational analyses and priority setting, leveraging data from multiple data sources to inform national-level health planning and resource allocation.
- Nigeria's HMIS 2014 Policy reveals a clear intent to establish a unified and sustainable health information system.**^{5,7} The policy and strategy highlight the importance of integrating diverse data sources across institutions and recommends at least 2% of the annual budget for health and related institutions at all levels should be dedicated to HMIS, with an additional 1% allocated specifically for data management governance.
- Strengthening health sector coordination through the Sector-Wide Approach (SWAP) unit.**³ Introduced by the current administration, SWAP reduces inefficiencies and duplication caused from uncoordinated and decentralized donor-driven efforts by centralizing health sector prioritization through the Nigerian government and enhancing

through the Nigerian government and enhancing coordination and resource allocation. SWAP also provides technical assistance to states in developing their Annual Operational Plans (AOPs), supporting state-level planning efforts and ensuring alignment with the broader national strategy.

Areas for Improvement

Despite these efforts, issues remain in the effective use of analytics in health policy, planning, and decision-making, and in the alignment of efforts within the MOH and across the health sector. The analysis highlighted the following:

- Dependence on international donor funding and technical support leaves critical public health analytics infrastructure and human resources vulnerable to external funding priorities and raises concerns about long-term sustainability.** International partners currently play a critical role in addressing capacity gaps by deploying skilled data analysts and supporting the development of digital platforms and technical infrastructure within the MOH, NCDC, and across disease-specific programs like NMEP. While this external support is critical, uncoordinated donor efforts create inefficiencies and duplication.^{8,9,10,11}
- Current analytics infrastructure remains underdeveloped, fragmented, and relies**

overwhelmingly on international donor funding.

While the DHIS2 remains a central hub for routine health data for the MOH and its agencies, disease-specific data repositories and collection processes have created data silos and led to inconsistent reporting and data management practices. Additionally, with platforms at varying levels of technological advancement, older systems often fail to integrate smoothly with newer, more advanced ones. The lack of integration and interoperability between key data systems complicates data sharing, analysis, and comprehensive analysis across the health sector.^{8,9,10}

- **Key informants also noted significant challenges in health data quality and timeliness.** Varied reporting standards and processes across systems, lack of reliable, timely data from health facilities, and reliance on outdated health survey data at the time of planning, as in both the NSHDP II and the blueprint, hinder the MOH's ability to gain a comprehensive health overview and limit the effectiveness of these analytics in providing real-time insights for strategic planning. The

current data infrastructure does not provide the level of granularity needed for nuanced decision-making, particularly at the subnational level, and limited digitization and data visualization tools further restrict decision-makers from effectively interpreting complex health data for informed decisions.^{12,8,9,13}

- **Findings also revealed significant capacity challenges in public health analytics within the MOH and related agencies.** Healthcare workers are often overburdened and overworked, split between their primary responsibility of service delivery and the expectation to also handle data collection, processing, and analysis. There is a significant shortage of skilled personnel focused on analytics across both the MOH and its agencies. Retention of skilled personnel poses an additional challenge, as the public sector struggles to offer competitive salaries compared to the private sector, which leads the MOH to rely heavily on external support from donors and technical partners. These capacity challenges are critical issues contributing to inconsistent data collection and poor data quality.^{8,9,11}

Policy Recommendations

Based on the findings of the landscape analysis, the following recommendations outline immediate-to-short-term and long-term actions to strengthen Nigeria's public health analytics capacity, improve data systems, and foster a more sustainable data-driven health sector.

Immediate to Short-Term Recommendations

Systemic	Update the HMIS Policy and Digitization Strategy Given that these were established a decade ago, a thorough revision is urgently needed to strengthen data infrastructure and improve the accuracy and timeliness of health data. The revised policy should prioritize creating a unified data management framework that integrates technological advancements and fosters interoperability across all health agencies while setting clear guidelines for data privacy, security and governance.
	Increase and Sustain Investment in Data Infrastructure Encourage the MOH to advocate for increased budget allocation to data analytics infrastructure and human resources. Securing a dedicated line item in the budget would support sustained development and reduce dependency on external donors.
	Define and Enforce a Unified National Partnership to Enhance Coordination Developing a partnership framework that aligns donor support with Nigeria's health priorities will ensure efficient use of resources and reduce duplication efforts. The MOH should work closely with international partners to harmonize support, thereby maximizing the impact of donor contributions.
Tactical	Conduct Regular Needs Assessments To ensure the MOH and affiliated agencies remains responsive to evolving health data requirements and emerging analytical tools it is necessary to integrate and conduct regular needs assessments throughout the strategic planning cycle. It would also provide insights into specific analytical tools, data systems, and training needs, informing strategic investments.
	Strengthen Data Integration and Visualization To drive informed, data-driven decision-making across the sector, expand the MSDAT dashboard to incorporate additional data sources, enabling real-time visualization and comprehensive trend analysis and equip staff at all levels with advanced data visualization techniques. Integrate key disease-specific databases, such as SORMAS and NLIMS, with the DHIS2 platform using standardized protocols and APIs to streamline data exchange and reduce fragmentation.

Long-Term Recommendations

Systemic

Institutionalize SWAP Across Political Administrations

To protect SWAP's impact from shifts in political priorities, formalize SWAP practices through regulatory or legislative support, ensuring its approach is embedded in Nigeria's health governance structure. Develop a roadmap to train subnational governments and build capacity for sustainable planning and decision-making, aligned with SWAP principles.

Expand Research Funding and Create a Medical Research Council (MRC)

To reduce reliance on donor funding, establish an MRC to secure direct government funding for health research and innovation. A dedicated MRC would enable MOH to prioritize and fund ethically sound, high-quality research that aligns with national health needs, building Nigeria's profile in global health research.

Enhance Digital Health Infrastructure and Data Security

To support data storage, management, and analysis, and ensure resilience against data loss and unauthorized access, invest in secure, scalable cloud infrastructure. Regularly update systems to ensure compatibility with evolving technologies, allowing for responsive, secure data handling in alignment with international health standards.

Tactical

Develop a Sustainable, Government-Funded Public Health Analytics Workforce

Establish a long-term strategy to attract, train, and retain skilled data analysts and biostatisticians within the public health sector, reducing dependency on external support. This should include competitive compensation packages, continuous training opportunities, and career development pathways to prevent the loss of skilled professionals to other sectors.

Establish a National Health Data Hub

Create a centralized, interoperable health data hub to enable standardized reporting, monitoring, and evaluation across all levels of the health system. This hub should serve as a "single source of truth" for health data, consolidating surveillance, laboratory, research, and logistics data into one unified system.

Develop a Legislative Framework for Health Data Governance

Enact legislation that clearly defines data governance responsibilities, standards, and privacy requirements across the health sector. Such a framework should support transparency, interoperability, and accountability, empowering the MOH to manage and protect health data effectively while fostering a culture of data-driven decision-making.

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