The Role of Policy in Scaling Nigeria's Pharmaceutical Supply Chain: A Policy Report

Health System: Nigeria

The Role of Policy in Scaling Nigeria's Pharmaceutical Supply Chain
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Abbreviations

APIs – Active Pharmaceutical Ingredients

EMVS – European Medicines Verification System

FMD – Falsified Medicines Directive

FDA – Food and Drug Administration (U.S. or Ghana, depending on context)

GMP – Good Manufacturing Practice

GPN – Global Policy Network

GS1 – Global Standards 1 (international supply chain standards body)

LMICs – Low- and Middle-Income Countries

LMIS – Logistics Management Information Systems

MAS – Mobile Authentication Service

NHIA – National Health Insurance Authority

NDP – National Drug Policy

NDDG – National Drug Distribution Guidelines

NAFDAC – National Agency for Food and Drug Administration and Control

NIPRD – National Institute of Pharmaceutical Research and Development

NMPA – National Medical Products Administration (China)

PCN – Pharmacy Council of Nigeria

PPPs – Public–Private Partnerships

PSC – Pharmaceutical Supply Chain

RMS – Rwanda Medical Supply (Ltd)

SAHPRA – South African Health Products Regulatory Authority

SON – Standards Organisation of Nigeria

USSD – Unstructured Supplementary Service Data

WHO – World Health Organization

About Global Policy Network

Global Policy Network (GPN) is an independent, global policy institute committed to advancing evidence-informed dialogue in global health, education, and sustainability. GPN combines research, stakeholder insight, and practical policy analysis to shape thoughtful, actionable conversations around some of today's most complex public policy challenges.

Through policy reports, forums, and collaborative programmes, GPN brings together voices from government, civil society, academia, and the private sector to identify solutions grounded in real-world experience. With a growing network of international practitioners and policymakers, the organisation works to bridge the gap between policy ideas and implementation, ensuring relevance, equity, and sustainability remain at the heart of systems change.

Roundtable one: The Role of Policy in Scaling Nigeria's Pharmaceutical Supply Chain

On 13 August 2025, the Global Policy Network (GPN) Nigeria convened its inaugural roundtable titled "The Role of Policy in Scaling Nigeria's Pharmaceutical Supply Chain". This event was organised in recognition of the complex dynamics affecting pharmaceutical supply chain performance in Nigeria, particularly how gaps in policy formulation and implementation continue to hinder efficiency, access to quality medicines, and system resilience. Empirical research has shown that governmental regulations significantly impact supply chain management effectiveness in Nigeria's pharmaceutical sector, though enforcement issues often impair outcomes. The roundtable aimed to bring together diverse stakeholders to discuss these challenges in depth and co-create pathways for robust, practical policy interventions.

The roundtable sought to achieve the following key objectives:

• **Diagnose policy gaps and enforcement weaknesses:** Participants identified the structural and operational barriers that have limited the effectiveness of Nigeria's pharmaceutical supply chain. These include fragmented regulations, inadequate financing mechanisms, and overlapping institutional mandates.

• **Foster multi-stakeholder dialogue:** The roundtable provided a platform for government representatives, academics, NGOs, and private sector actors to engage in constructive discussions. This inclusive dialogue ensured that diverse perspectives were heard and that proposed solutions reflected the realities of multiple stakeholders.

• **Identify practical, evidence-based recommendations:** Participants developed actionable strategies to strengthen regulatory frameworks, support domestic manufacturing, and enhance coordination among stakeholders. Special emphasis was placed on promoting local API production and incentivising investments in pharmaceutical infrastructure.

• **Catalyse collaborative action:** Beyond dialogue, the roundtable aimed to lay the foundation for follow-up mechanisms, partnerships, and shared accountability. Stakeholders committed to working together to implement agreed recommendations and to create monitoring systems that ensure sustained progress.

Acknowledgment

Foreword by Azuka Okeke, Chief Executive Officer Africa Resource Centre for Excellence in Supply Chain Management (ARC_ESM)

From Fragmentation to Ownership: A New Era for Nigeria's Supply Chain

At the Africa Resource Centre for Excellence in Supply Chain Management (ARC_ESM), our vision has always been clear: to ensure that every citizen, regardless of their location, has equitable access to affordable, quality medicines. For too long, the narrative of Africa's public health supply chain has been one of dependency and fragmentation, reliant on external donors and marred by parallel systems that fail to speak to one another.

This roundtable comes at a pivotal moment. As we witness the gradual transition of donor funding and the shifting landscape of global pharmaceutical markets, the "business as usual" model is no longer tenable. We are compelled to move from a donor-driven system to one that is government-led, private-sector enabled, and deeply rooted in local ownership.

The discussions captured in this report underscore a critical truth: we do not lack the expertise; we lack the integration. By strengthening the State Drug Management Agencies (DMAs) and fostering genuine Public-Private Partnerships (PPPs), we can harness the efficiency of the private sector to deliver public health goals. This is not just about logistics; it is about saving lives. It is about ensuring that the mother in a rural primary health centre finds the same quality of care as one in an urban tertiary hospital.

I commend the Global Policy Network for convening this timely dialogue. The roadmap presented here, focusing on pooled procurement, local manufacturing, and sustainable financing, is not just a policy wish list. It is a strategic imperative for achieving Universal Health Coverage in Nigeria. The time for parallel pilots is over; the time for a unified, resilient national system is now.

Foreword by Ameneh Ghazal Saatchi, Founder and CEO, Global Policy Network

Bridging the Gap: From Policy to Practice

At the Global Policy Network (GPN), our mission is founded on a singular, driving conviction: that effective policy is the bridge between human potential and human progress. However, a bridge that exists only on paper cannot carry the weight of a nation's needs. In Nigeria, the gap between the *intent* of pharmaceutical policy and the *reality* of medicine access has remained a persistent challenge, one that we are committed to closing.

We convened the *Nigeria Medicines Policy Series* at a defining moment in the nation's history. The recent exodus of multinational pharmaceutical giants, coupled with the looming transition away from donor-funded mechanisms, has created a crisis of supply. Yet, within this crisis lies a profound opportunity. It is the opportunity to transition from a system of dependence to one of sovereignty, resilience, and self-sufficiency.

This report, *The Role of Policy in Scaling Nigeria's Pharmaceutical Supply Chain*, encapsulates the outcomes of our inaugural Roundtable. It is not merely a summary of discussions; it is a testament to the power of multi-stakeholder dialogue. By bringing together the Federal Ministry of Health, State Drug Management Agencies, private sector manufacturers, and international development partners, we moved beyond the traditional "blame game" to co-create actionable solutions.

The purpose of this project aligns seamlessly with GPN's core mandate: to connect global best practices with local realities. Whether examining the interoperable tracking systems of the United States or the centralised digital oversight of China, our goal is to adapt, not just adopt, these benchmarks for the Nigerian context. The insights captured here regarding pooled procurement, ring-fenced financing, and the urgent need for local vaccine production are practical steps towards the Universal Health Coverage (UHC) goals that Nigeria has set for itself.

As we release this Policy Report, we acknowledge that policy is a journey, not a destination. This report marks only the beginning of that journey. GPN remains steadfast in its commitment to supporting Nigeria's policymakers and practitioners as they turn these recommendations into reforms that save lives.

Executive Summary

Nigeria's pharmaceutical supply chain is under significant strain, shaped by rising population needs, high dependence on imported medicines, governance fragmentation, and persistent risks related to counterfeit and substandard products. The withdrawal of several multinational manufacturers from the Nigerian market, combined with the gradual transition away from donor-funded procurement of essential commodities, has intensified supply vulnerabilities and increased pressure on affordability, availability, and system resilience. Strengthening the pharmaceutical supply chain is therefore essential to improving equitable access to essential medicines and advancing Nigeria's broader goals for Universal Health Coverage and national health security.

Nigeria's pharmaceutical system matters because a resilient pharmaceutical supply chain is the backbone of national health security. The current system in Nigeria is characterised by fragmentation, high import dependence (over 70%), and a proliferation of substandard medicines. These vulnerabilities do not just compromise healthcare delivery; they undermine economic stability and expose the population to severe health risks. Strengthening this sector is not merely a logistical challenge but a critical determinant of Nigeria's ability to achieve Universal Health Coverage (UHC) and protect its citizens from health emergencies.

The timing is critical, with Nigeria positioned at a pivotal fiscal and operational crossroads. The recent exit of major multinational pharmaceutical companies has caused medicine prices to surge by up to 1,100%, making essential treatments increasingly unaffordable. Simultaneously, the imminent transition away from donor-funded mechanisms for essential commodities, including vaccines (scheduled for 2028), demands an urgent shift towards domestic financing and self-reliance. The "business as usual" model of donor dependency is ending, creating a narrow window of opportunity to build a sustainable, government-led indigenous supply chain before critical funding cliffs are reached.

Four critical insights emerged from the discussion:

1. **Governance Fragmentation:** While the establishment of State Drug Management Agencies (DMAs) is a positive step, operations remain siloed. There is a critical lack of coordination between national and subnational entities, leading to inefficiencies and parallel supply chains.
2. **The Financing Crisis:** The impending withdrawal of donor support for vaccines and essential medicines threatens to leave a vacuum. Current domestic financing is insufficient and lacks the ring-fencing necessary to guarantee sustainable procurement.
3. **Local Production as Security:** Local manufacturing is no longer just an economic preference but a national security imperative. However, manufacturers face significant barriers, including high import tariffs on raw materials and a lack of guaranteed offtake agreements.

4. **Workforce Gaps:** There is a stark misalignment between current pharmacy education and the practical skills required for modern supply chain leadership and public policy implementation.

To address these challenges, this report proposes the following priority actions:

- **For National Government:** Mandate a harmonised National Quality Assurance Policy and institutionalise pooled procurement mechanisms to leverage economies of scale and ensure uniform quality standards across states.
- **For Subnational Governments:** Accelerate the maturation of Drug Management Agencies (DMAs) by integrating all health commodities under single state-led management structures and implementing performance-based financing.
- **For the Private Sector:** Commit to achieving WHO Prequalification and engage in long-term framework contracts with government bodies to stabilise demand for locally produced medicines.
- **For Development Partners:** Shift focus from parallel delivery systems to strengthening national institutions (DMAs and NAFDAC) and investing in long-term infrastructure such as quality control laboratories and digital supply chain visibility tools.

This policy report summarises the key insights and recommendations from the roundtable and provides a foundation for upcoming sessions in the Nigeria Medicines Policy Series. Future roundtables will focus on scaling local pharmaceuticals and vaccine production, and on technology-enabled solutions to improve last mile delivery across the country, reflecting the priorities identified by stakeholders during this first convening.

Introduction

Policies are at the heart of building a resilient pharmaceutical supply chain. A well-designed and effectively enforced policy framework ensures that medicines are available, affordable, safe, and of assured quality (Tucker et al., 2020). In Nigeria, several policy gaps and systemic weaknesses have historically undermined supply chain performance. Despite the presence of regulatory bodies such as the National Agency for Food and Drug Administration and Control (NAFDAC), the Pharmacy Council of Nigeria (PCN), and the Standards Organisation of Nigeria (SON), weak enforcement capacity and overlapping mandates often create regulatory inefficiencies.

A key challenge is overdependence on imported pharmaceuticals and raw materials, over 70% of finished medicines and active pharmaceutical ingredients (APIs) are imported, mostly from India and China (World Bank, 2023). This heavy reliance makes Nigeria's supply chain vulnerable to global disruptions, high freight costs, and foreign exchange volatility. The depreciation of the naira has further increased production costs for local manufacturers and strained medicine affordability.

Additionally, weak infrastructure, frequent stock-outs, counterfeit medicines, and fragmented distribution systems undermine equitable access to medicines (Aigbavboa and Mbohwa, 2020). These challenges highlight that, beyond regulation, Nigeria needs coherent industrial and trade policies that strengthen local manufacturing, incentivise API production, and promote technology transfer. Addressing workforce gaps is equally critical, ensuring that the current pharmacy curriculum has sufficient supply chain content, to better equip graduates for the roles they often assume. Also, ensuring practical expertise among lecturers teaching supply chain topics is equally important. Through the PCN and the National Universities Commission (NUC), targeted curriculum reform and practitioner-led training are therefore essential to build the skilled workforce required to support Nigeria's pharmaceutical industrialisation agenda. Evidence also shows that policy coherence across health, trade, and finance sectors is crucial for stabilising supply chains and ensuring equitable medicine distribution (WHO, 2021).

Therefore, policies are not just bureaucratic tools but strategic levers for national health security and economic resilience. Strengthening Nigeria's pharmaceutical policy framework will therefore play a decisive role in reducing systemic vulnerabilities and guaranteeing sustained access to essential medicines.

Importance of Stakeholder Engagement

Effective policymaking and implementation in pharmaceutical supply chains require inclusive stakeholder engagement. Studies emphasise that including a broad array of actors, from regulators and academia to private logistics providers and NGOs, is essential for crafting feasible policies and ensuring compliance (Bastani et al., 2021).

Government bodies such as NAFDAC, PCN, SON, and National Institute for Pharmaceutical Research and Development (NIPRD) play a critical role in shaping the pharmaceutical landscape by setting quality standards, monitoring compliance, and ensuring public safety. They provide the legal and institutional framework that guides manufacturing, distribution, and consumption of medicines. Without strong government oversight, regulatory loopholes may allow counterfeit drugs and poor-quality medicines to thrive, jeopardising national health security (Amadi & Tsui, 2019).

NGOs and international development partners often complement government efforts by providing technical assistance, funding, and policy advocacy. They serve as intermediaries that connect local realities with global best practices, ensuring that Nigeria benefits from innovations in supply chain management and gains support in addressing systemic weaknesses (Olutuase et al., 2022).

Academia serves as the knowledge hub for evidence-based policymaking. Through research, data collection, and policy analysis, academic institutions provide the empirical foundation for reforms. They also play a crucial role in training future professionals who will manage the pharmaceutical supply chain, thereby ensuring sustainability of improvements (Olutuase et al., 2022). This has further reiterated the

earlier assertion that reforms in pharmaceutical education are needed, given the limited supply chain training and practical exposure within current curricula. Addressing these gaps is critical for building a workforce capable of sustaining supply chain improvements.

Private sector actors, including pharmaceutical manufacturers, distributors, and logistics providers, bring operational expertise, infrastructure, and investment to the table. They drive innovation, efficiency, and responsiveness within the supply chain. Evidence from Nigerian experiences shows that well-structured public–private partnerships, where the government retains ownership while the private sector manages operations, can create a balance of accountability and efficiency (Okeke, 2025).

International Benchmarking and Policy Analysis

Globally, pharmaceutical supply chains are governed by robust policies and regulatory frameworks that emphasise traceability, serialisation, and transparency (Pezzola & Sweet, 2016). These systems are designed to combat the widespread issue of substandard and falsified medicines by ensuring that medicines are authenticated at every stage of the supply chain (Okereke et al., 2021). In the United States, the Drug Supply Chain Security Act (DSCSA), enacted in 2013, mandates sterilisation and electronic traceability for prescription medicines. The law requires interoperable electronic systems that allow medicines to be tracked from manufacturers to end-users, thereby enhancing transparency and minimising opportunities for counterfeit products to infiltrate the system (U.S. FDA, 2013). Nigeria should move beyond fragmented, paper-based tracking systems. The key takeaway is the requirement for interoperable systems, meaning different stakeholders such as importers, distributors, pharmacies must use digital systems that can "talk" to each other. This ensures seamless visibility across the entire value chain, preventing counterfeiters from exploiting gaps between stakeholders.

Similarly, in the European Union, the Falsified Medicines Directive (FMD), introduced in 2011 and enforced from 2019, mandates that all prescription medicine packs carry unique identifiers, such as 2D barcodes and anti-tampering devices. These identifiers are verified through the European Medicines Verification System (EMVS), a centralised database that enables real-time checks by pharmacists and wholesalers. The system has been credited with substantially reducing counterfeit penetration in European markets (European Commission, 2019). Nigeria can emulate the EMVS by establishing a national centralised database for verified medicines. Crucially, this system empowers the final link in the chain, pharmacists and patent medicine vendors, to verify authenticity in real-time before the product reaches the patient, acting as a final firewall against counterfeits.

In India, the government has mandated the use of GS1 (Global Standards 1 which is a non-profit international organisation that develops and maintains global standards for business communication, most notably the barcoding system used to uniquely identify products, locations, and assets across supply chains) barcoding standards for exported

medicines since 2011, enabling global buyers to verify authenticity through track-and-trace systems. More recently, the government has piloted QR code labelling on selected medicines sold domestically, demonstrating how phased implementation can allow resource-constrained countries to strengthen their pharmaceutical regulation without overwhelming existing systems (Government of India, 2019). As a resource-constrained nation similar to India, Nigeria should not attempt an overnight overhaul. Instead, Nigeria can adopt India's model of prioritizing high-risk categories (e.g., antimalarials or antibiotics) or imported goods for immediate serialisation, while gradually rolling out requirements for domestic manufacturers to allow them time to build capacity.

China has pursued a more centralised model. The National Medical Products Administration (NMPA) has developed a unified digital platform that integrates reporting, monitoring and traceability of pharmaceutical products. This model demonstrates how centralisation, when supported by strong digital infrastructure, can provide regulators with real-time oversight and early warning mechanisms for substandard medicines (NMPA, 2021). NAFDAC can learn from the NMPA's centralised model. By investing in a unified digital infrastructure, Nigerian regulators can gain real-time visibility into stock movements and rapid alert mechanisms for substandard medicines, moving from reactive recalls to proactive monitoring.

Ghana has adopted a Pharmaceutical Traceability Strategy aligned with GS1 global standards, with implementation guidance emerging through MOH/FDA and partner support. The 2025–2029 Health Supply Chain Master Plan references operationalising traceability protocols to fight counterfeits and improve visibility. Nigeria must align its traceability standards with Ghana (and other ECOWAS nations) by adopting GS1 standards. This alignment is critical for combating cross-border smuggling of fake medicines within West Africa. If Nigeria and Ghana use the same coding standards, intelligence sharing and cross-border enforcement become significantly more effective.

Rwanda leverages a centralised procurement and distribution agency (RMS Ltd) with digitized logistics management processes and training under national strategies, contributing to improved availability and oversight of health commodities. While Nigeria has a federal structure, the lesson from Rwanda is the efficiency gained by digitizing the procurement and distribution arm. Nigeria should push for the digitization of its public health supply chain (via agencies like NPSCMP) to reduce leakage and theft of subsidized commodities.

In South Africa, the South African Health Products Regulatory Authority (SAHPRA) is implementing progressive reforms, including the adoption of digital verification systems and phased barcoding requirements, while less centralised than China's system, these reforms represent an important step towards aligning with international standards while adapting to local infrastructural realities (SAHPRA, 2020). South Africa's approach highlights the importance of pragmatism. Nigeria faces similar infrastructural hurdles (e.g., erratic power supply, internet connectivity issues). Therefore, Nigeria's policy must design verification systems that can function offline or in low-bandwidth

environments, ensuring that international standards are adapted to work within Nigeria's specific "infrastructural realities.

These global examples highlight three core lessons for Nigeria:

1. The necessity of serialisation and electronic traceability (as in US and EU)
2. The value of phased rollouts in low and middle-income settings (India)
3. The effectiveness of centralised digital platforms for oversight and transparency (China).

Adopting a hybrid approach combining Nigeria's unique context with international best practices could significantly strengthen Nigeria's pharmaceutical supply chain and enhance public confidence in medicine quality.

Nigeria's Pharmaceutical Supply Chain

Current Situation

Access and Affordability

Access to quality medicines in Nigeria remains limited and inequitable. High purchase costs, compounded by economic pressures, prompt many Nigerians, especially those in rural areas, to seek cheaper alternatives from informal or unlicensed vendors (Olutuase et al., 2022a).

In addition to these informal outlets, open drug markets play a major role in medicine distribution, supplying both licensed retailers and end-users directly. These markets bypass formal regulatory channels and significantly increase the risk of exposure to substandard and falsified medical products, further exacerbating inequities in access to safe and effective medicines (Wagnild, 2025).

The situation deteriorated further in 2023 following the exit of several multinational pharmaceutical companies, including Pfizer, GlaxoSmithKline (GSK), and Sanofi. Their departure created market gaps, worsened shortages, and drove up prices, reports indicate that the cost of some medicines surged by as much as 1,100%, placing essential treatments out of reach for many households (Ezeagu et al., 2024).

These challenges underscore Nigeria's dependence on imports and highlight structural vulnerabilities in ensuring equitable and affordable access to medicines. Out-of-pocket spending continues to account for more than 70% of total health expenditure, reinforcing affordability barriers and widening inequities between urban and rural populations (World Bank, 2023).

Regulatory Frameworks

The NAFDAC, established in 1993, serves as Nigeria's principal regulator of pharmaceuticals, overseeing manufacturing, importation, distribution, marketing, and post-market surveillance. Over the years, NAFDAC has implemented significant

reforms, including restricting land-border drug imports and limiting entry points to specified ports, as well as requiring secure shipping documentation to reduce illegal imports and enhance monitoring (NAFDAC, 2020).

However, NAFDAC is not Nigeria's sole authority in pharmaceutical regulation. The PCN acts as the second principal regulator in the pharmaceutical sector. PCN regulates the education, training, and licensure of pharmaceutical personnel, as well as the registration and inspection of pharmaceutical premises including manufacturers, importers, distributors, and community/industrial pharmacies. Importantly, NAFDAC does not inspect or approve any proposed pharmaceutical manufacturing premises unless it is first licensed by the PCN. Similarly, NAFDAC does not grant importation permits unless the premises seeking such approval are licensed by the PCN (Oladejo, 2025).

Although the mandates are distinct, they overlap in several functional areas, such as manufacturing, importation, distribution, and marketing oversight. While PCN focuses primarily on regulating the human resource and practice environment (i.e., the people and the premises), NAFDAC regulates the products themselves across the value chain. This coordinated dual-regulator architecture is central to Nigeria's pharmaceutical governance (NAFDAC,2025).

In recent years, NAFDAC has collaborated with the National Health Insurance Authority (NHIA), particularly under Executive Order 3, to source and approve local manufacturers certified under Good Manufacturing Practice (GMP). Through this mechanism, NAFDAC and NHIA jointly ensure the supply of a branded list of 33 essential medicines, with objectives to: Foster local manufacturing capacity, improve affordability and availability, and reduce stockouts via coordinated post-market surveillance (Adminito, 2023).

Furthermore, Nigeria's attainment of WHO Maturity Level 3 (ML3) in regulatory strengthening was secured through the combined contributions of both NAFDAC and PCN, as neither agency alone fulfilled all requirements of the WHO Global Benchmarking Tool. For instance, while NAFDAC oversees product-related regulatory functions, it does not register or license Human Resources for Health, an essential regulatory benchmark fulfilled under PCN's mandate. This underscores the complementary roles of the two agencies and the importance of their strategic collaboration in strengthening Nigeria's regulatory system (NAFDAC, 2022).

Technological innovation also plays a crucial role in expanding regulatory reach. NAFDAC has implemented anti-counterfeit tools, including TruScan, Mobile Authentication Services (MAS/Sproxil), the GreenBook, and a traceability system, to identify substandard products and enable consumers to verify the authenticity of medicines (Olaniran, 2023a).

Taken together, these regulatory frameworks, anchored by the NHIA Act (2022) and the Pharmaceutical Products Traceability Regulations (2024), are important steps toward establishing visibility, accountability, and consumer protection within Nigeria's pharmaceutical supply chain (Ipinnimo et al., 2023).

Persistent Challenges

Weak Infrastructure and Fragmentation

Nigeria's Pharmaceutical Supply Chain is hampered by inadequate infrastructure, including poor road networks, erratic power supply, insufficient storage capacity, and inefficient inventory systems. These weaknesses frequently result in stockouts and distribution bottlenecks, challenges that were acutely exacerbated during the COVID-19 pandemic (Atanda et al., 2025).

Compounding the problem is a fragmentation of regulatory authority. Overlaps between NAFDAC, the PCN, and state or local agencies create inconsistent enforcement and compliance requirements, undermining regulatory efficiency (Oladejo, 2025).

Counterfeit and Substandard Medicines

Counterfeit and substandard medicines remain endemic. While NAFDAC estimates that about 17% of medicines are counterfeit, other reports suggest that as many as 70% may be substandard. Antimalarials, antibiotics, and antihypertensives are the most affected, with Nigeria losing an estimated ₦200 billion annually to counterfeit medicines alone (Amos, 2025). Recent reports have described the situation as a national public health emergency, with over 32% of sampled medicines failing safety tests, driven by weak institutions, porous borders, and political neglect.

Regulatory Weaknesses and Enforcement Gaps

The PCN plays a pivotal role in regulating pharmacy practice, ensuring quality standards in drug distribution, and overseeing community pharmacies and patent medicine vendors. However, multiple studies reveal that its operations are hampered by severe institutional, financial, and logistical constraints. For instance, Oseni (2019) conducted an in-depth evaluation of pharmacy practice regulations through the lens of PCN inspectors and found that *understaffing, inadequate logistics, and poor funding* significantly limit regulatory enforcement and monitoring. The inspectors highlighted that the lack of mobility, training, and digital record systems hinders compliance monitoring across Nigeria's vast and unregulated patent medicine sector (Oseni, 2019).

Similarly, Usar and Bukar (2020) identify PCN's weak operational capacity as a major contributor to the *chaotic drug distribution network* that undermines Nigeria's pharmaceutical system. Their study notes that limited coordination between PCN and NAFDAC leads to overlapping roles, fragmented enforcement, and inefficiencies in implementing national drug policies such as the National Drug Distribution Guidelines (NDDG). The situation is exacerbated by the PCN's reliance on internally generated revenue, which restricts its reach and ability to conduct nationwide inspections.

Building on these findings, Ioabanafo and Oluwakemi (2024) provide a comparative analysis between Nigeria's PCN and the U.S. Food and Drug Administration (FDA). They argue that PCN's enforcement model remains reactive rather than preventive, largely due to weak institutional autonomy and low technological adoption. Their study

underscores the need for *policy reform and digital integration* to enhance regulatory efficiency and transparency. Similarly, Eruaga (2024) highlights systemic regulatory gaps, including inconsistent enforcement, low inspector-to-facility ratios, and corruption, as root causes of poor medication quality control in Nigeria. They recommend *harmonisation between PCN and NAFDAC* and the establishment of *regional enforcement units* to strengthen compliance oversight.

From a historical and political perspective, Olugbenga (2013) traces PCN's weaknesses to institutional dependency and political interference, noting that frequent leadership changes and patronage appointments dilute the Council's regulatory independence. This political vulnerability allows unlicensed medicine vendors and distributors to thrive unchecked, undermining the authority of professional pharmacists. Complementing this, Onyebuchi (2016) argues that the *poor implementation of the National Drug Policy (NDP)* and the persistence of informal drug markets are direct consequences of PCN's inadequate enforcement capacity.

Recent evidence reinforces these challenges within the broader pharmaceutical ecosystem. Okereke et al. (2021) demonstrate that Nigeria's counterfeit medicine crisis is fuelled by weak interagency collaboration and enforcement inefficiencies, calling for a stronger regulatory partnership between PCN, NAFDAC, and law enforcement. Collectively, these studies reveal a pattern of *regulatory fragmentation, underfunding, political interference, and operational inefficiency* that continues to undermine PCN's mandate. Strengthening its autonomy, increasing federal funding, and leveraging digital inspection tools are consistently cited as urgent reforms needed to restore effective pharmaceutical regulation in Nigeria.

Human Resource Gaps

Human resource challenges further weaken Nigeria's PSC. Pharmacists report barriers such as weak legislation, poor collaboration across agencies, insufficient inspections, porous border control, and unchecked online drug sales (NCBI). Surveys indicate that over 30% of pharmacists feel underprepared to detect counterfeit medicines, highlighting skill gaps in regulatory science and enforcement (Mohammed et al., 2024).

Previous Interventions and Existing Gaps

Interventions

Nigeria has introduced several policy initiatives to strengthen its pharmaceutical supply chain, though their implementation has often been uneven. The NDP and the NDDG were designed to impose structure on a fragmented system, reduce reliance on open drug markets, and promote traceability. The NDDG specifically proposed a three-tier distribution framework, primary, secondary, and tertiary, to create order and improve oversight across the supply chain (Olutuase et al., 2022b). Complementing this, the NAFDAC implemented a series of reforms aimed at tightening import regulation. These measures included port consolidation, advanced manifest submission, and more

stringent oversight of imports, all of which contributed to reducing the inflow of substandard and falsified medical products (Olaniran, 2023b).

Technological innovations were also piloted to enhance consumer protection and regulatory monitoring. MAS/Sproxil platforms allowed end-users to verify medicines using scratch codes and USSD, while handheld TruScan devices enabled inspectors to authenticate products rapidly in the field. Initiatives such as the GreenBook and early traceability systems represented additional attempts to strengthen regulatory visibility and empower consumers (Eruaga et al., 2024a).

Public awareness campaigns were rolled out alongside these efforts. These programmes targeted both consumers and schools, with messages focused on the health risks of substandard medicines and the importance of purchasing from authorised outlets (Wagnild et al., 2025). Strategic partnerships also played a role, particularly through collaborations between the NHIA and NAFDAC under Executive Order 3 (EO3). These partnerships linked procurement strategies to quality assurance by prioritising GMP-certified local manufacturers (NAFDAC, 2024).

Surveillance campaigns combined regulatory enforcement with public–private collaborations. Consumer sensitisation drives, intelligence-led enforcement raids, and joint monitoring exercises sought to strengthen regulatory presence in both formal and informal markets (Eruaga et al., 2024b). While these interventions yielded important gains, challenges in enforcement, sustainability, and coordination have limited their overall impact.

Gaps and Shortfalls

Despite multiple reform efforts, significant gaps continue to undermine the resilience of Nigeria's pharmaceutical supply chain. Weak implementation and limited political will have stalled the execution of major policies such as the NDP and the NDDG, with distribution reform facing repeated delays (Olutuase et al., 2022b). Regulatory structures remain underfunded and fragmented, with key agencies such as NAFDAC and the PCN operating under overlapping mandates. This duplication of roles fosters inefficiencies, creates enforcement loopholes, and constrains regulatory effectiveness (Oladejo, 2025).

Technological tools, while promising, have not been fully leveraged. Consumer uptake of MAS platforms and other verification systems remains low, hampered by poor public awareness, unreliable power supply, and weak digital connectivity. These barriers limit the potential of technology to significantly curb counterfeiting and strengthen consumer protection (Justine & Ilomuanya, 2016).

The persistence of informal markets further exacerbates vulnerabilities. Open drug markets and unlicensed medicine outlets continue to dominate drug distribution channels, creating fertile ground for counterfeit and falsified products to flourish (BusinessDay NG; PMC). Alongside this structural weakness, human resource capacity gaps remain a major constraint. Many pharmacists and frontline health workers lack

adequate training in counterfeit detection and supply chain best practices, weakening the system's defences against substandard medicines (Okereke et al., 2021).

Role of Policy in Strengthening Supply Chains

Policy plays a pivotal, multi-faceted role in fortifying Nigeria's pharmaceutical supply chains by addressing systemic inefficiencies and building resilience. Evidence suggests that effective reform requires interventions across multiple interlinked domains. Full enforcement of the 2024 Traceability Regulations is essential, prioritising high-risk medicines such as antimicrobials and vaccines, and supported by risk-based inspections and rapid recall systems (NAFDAC, 2024). Clearer legislative mandates and streamlined agency responsibilities are required to eliminate overlaps among NAFDAC, the PCN, and local health authorities. The NDDG should also be fully implemented to establish a structured, traceable distribution network (The Guardian Nigeria).

The NHIA Act (2022) empowers the National Health Insurance Authority to consolidate demand and negotiate framework contracts tied to supply performance indicators, which can stabilize procurement and reduce volatility. Pooled procurement, if implemented effectively, has the potential to generate economies of scale and lower costs (NHIA, 2022). Alongside this, digital public infrastructure offers significant opportunities. Establishing a national interoperability layer that links NAFDAC traceability data, logistics management information systems (LMIS), NHIA claims, and customs information would enable real-time visibility and targeted interventions (Adeyeye et al., 2024) (Taylor & Francis Online, 2023). Beyond serialisation, digital innovations such as QR codes, blockchain verification, and shortage dashboards should be mainstreamed to enhance transparency (Shivale et al., 2025).

Nigeria's continued over-reliance on imported medicines highlights the need for strong local and regional manufacturing policies. Policy incentives, including tax breaks, preferential foreign exchange access, and procurement preferences under Executive Order 3 (EO3), can stimulate local production. Strengthening the NIPRD's mandate to advance drug development and enforce quality assurance would help reduce counterfeit entry points (Fatokun, 2020). At the regional level, pooled procurement through ECOWAS could stabilize production volumes and support compliant local manufacturers. Complementing this, investments in climate-resilient logistics and infrastructure remain critical. Procurement standards should mandate solar direct-drive refrigeration and continuous temperature monitoring, with implementation supported by public–private partnerships (PPPs) and climate financing models (Unya, 2022). Such measures can help mitigate distribution bottlenecks and minimise product spoilage.

Consumer protection and public awareness are equally vital. Serialisation systems must be combined with consumer-facing verification tools, such as USSD or QR-based mobile applications, alongside nationwide public awareness programmes. Expanding MAS/Sproxil into rural areas will empower consumers to detect falsified products (Olaniran, 2023b). Sustained progress also depends on human resource capacity and

governance. Professionalising the pharmaceutical supply chain workforce through continuous professional development for pharmacists, wholesalers, and inspectors is necessary, with a focus on counterfeit detection and digital traceability systems (Oladejo, 2025). Licensing databases, certification frameworks, and mentorship programmes would help reinforce ethical compliance. International models recommend embedding supply-chain leadership at both federal and state levels to ensure sustainability (WHO, 2019).

Reform requires cross-sector and multi-stakeholder collaboration. Coordinated action across ministries of health, trade, justice, and customs is needed to address smuggling and illicit distribution. Intelligence-sharing platforms can enable faster regulatory responses to emerging threats, while public–private partnerships can mobilize resources for surveillance infrastructure, demand forecasting, and emergency response capacity. Carefully governed pilots using artificial intelligence for demand forecasting and route optimization also offer promise in strengthening resilience, provided they adhere to robust data governance norms (WHO, 2023).

Research Gaps and Questions

Despite promising reforms, empirical evidence on their effectiveness remains limited. Several critical research gaps persist, highlighting the need for deeper analysis and targeted investigation. Key research questions include:

1. **Supply Chain and Policy Alignment**

    a. How can Nigeria's health supply chain landscape leverage existing national policies (e.g., NAFDAC regulations, National Drug Policy, National Vaccine Policy, PCN Regulations, and the National Health Products Supply Chain Strategy and Implementation Plan 2021-2025) to improve access and last-mile delivery of essential medicines and vaccines?

    b. What are the existing bottlenecks in logistics, distribution, and cold-chain systems that prevent effective policy implementation at the last mile?

2. **Local Manufacturing and Scale-Up Challenges**
    a. What key obstacles hinder the scale-up of local pharmaceutical and vaccine manufacturing (e.g., infrastructure, financing, technology transfer, regulatory barriers)?
    b. How can these obstacles be addressed through policy reform, public-private partnerships, and regional collaboration?

3. **Policy Support for Local Production**
    a. Do current policies sufficiently encourage and incentivize local pharmaceutical and vaccine production?
    b. To what extent are local manufacturers prepared to meet the increasing demand for medicines and vaccines in Nigeria, especially during public health emergencies?

4. **Sustainability and Self-Reliance in Vaccine Supply**

    a. What actionable steps can stakeholders (government, private sector, international partners) take to scale up vaccine production in Nigeria and reduce dependence on foreign supply?

    b. How can Nigeria leverage regional initiatives such as the African Vaccine Manufacturing Strategy to enhance resilience and self-sufficiency?

5. **Policy Linkages to Quality, Affordability, and Access**

    a. How do existing policies directly influence the quality assurance, affordability, and equitable access to essential medicines and vaccines in Nigeria?

    b. Are current regulatory and financing frameworks adequate to ensure both quality control and affordable pricing for end-users?

Current Landscape of Nigeria's Pharmaceutical Supply Chain

The roundtable discussion revealed a Nigerian pharmaceutical supply chain at a critical juncture, transitioning from a fragmented, donor-dependent model towards a more structured, government-led system. This transition is fraught with both significant progress and deep-seated challenges.

Existing Policies and Governance Structures

As highlighted in the opening remarks, the central policy guiding this transition is the National Health Product Supply Chain Strategy and Implementation Plan. During the roundtable's historical overview, participants emphasised the need for this strategy, noting that prior development:

"Almost all the supply chain systems in Nigeria were donor driven, donor managed, and donor coordinated... And they were all parallel with very little input from the government. And we thought that how can we bring the government in to start thinking about funding and owning the supply chain systems?"

The strategy therefore represents a deliberate move towards a government-led supply chain solution which aims to achieve an "all-inclusive, state-owned model for a resilient supply chain."

The key actors in this new structure are the Drug Management Agencies (DMAs) established at the state level. Participants noted that before the strategy was introduced, only six (6) States had DMAs with functional Drug Revolving Funds. Today, twenty-six (26) states have established DMAs, marking a significant expansion of governance structure across the country.

The governance maturity of these DMAs varies significantly across states, creating a heterogeneous landscape:

- **Emerging DMAs:** Twenty-one states are in the early stages of establishing their agencies.
- **Maturing DMAs:** Five states have agencies classified as "maturing and ready to integrate," characterized by lower risk, movement towards financial self-reliance, and efforts to integrate public health commodities.

- **Leading Example:** Kaduna State was specifically cited as being "100% ready to integrate," serving as a model for others. The state employs pharmacists with advanced qualifications, including diplomas in procurement from CIPS UK, and has successfully implemented ring-fenced funding for its DMA.

A key development is the formation of the Forum of Heads of Drug Management Agencies, which facilitates collaboration, resource pooling, and group procurement to achieve economies of scale.

Nigeria Supply Chain Performance Dashboard (Baseline 2023 – Targets 2025)

Indicator	Baseline (2023)	Target (2025)	Source
Stockout Rate (Tracer Medicines)	15–20% (varies by state)	<5%	NPSCMP Quarterly Logistics Report (2023); WHO Health Facility Assessment (2022)
Order Fill Rate	75–80%	>95%	DMA Procurement & Distribution Records; ARC_ESM Supply Chain Assessment (2023)
DMA Maturity (States with Full Integration)	5 states fully mature (Kaduna, Yobe, Kano, others)	All 36 states + FCT fully integrated	NPSCMP State Supply Chain Maturity Model (2023)
Pooled Procurement Participation	16 states in DMA consortium	100% state participation	Forum of DMA Heads Communiqué (July 2023)
Local Production Share of Essential Medicines	~30–35% of medicines sourced locally	≥60% (including vaccines & APIs)	PMG-MAN Market Outlook Report (2023); FMoH PIVAC Policy Brief
LMIS Reporting Rate	65–70% of facilities reporting via eLMIS	>90% reporting rate	NHLMIS Dashboard (2023)
On-Time In-Full (OTIF) Delivery Rate	70–75% of deliveries meet OTIF	>90% OTIF delivery	DMA Distribution KPIs; ARC_ESM Benchmarking Study
Quality Assurance Pass Rate	85–90% of batches pass QA testing	>98% pass rate	NAFDAC Quality Control Lab Report (2022); DMA QA Lab Data
Cold Chain Functionality (Uptime)	85–95% uptime of cold chain equipment	>98% uptime nationwide	NPHCDA* Cold Chain Equipment Inventory (2023); UNICEF EVM Assessment

*NPHCDA-National Primary Health Care Development Agency

International and Regional Context

Participants reflected on relevant global and regional models, noting lessons from Ghana's integrated supply chain reforms and Zambia's use of technology for last-mile

delivery. Ghana's Health Supply Chain Master Plan and its partnership with Zipline for drone-enabled distribution were highlighted as examples of effective public-private collaboration that Nigeria could adapt to its context.

Key Emerging Themes

The roundtable facilitated a candid and robust exchange, surfacing critical insights that pinpoint both the transformative progress and the profound challenges within Nigeria's pharmaceutical supply chain. The discussions coalesced around six pivotal themes, each underscored by direct testimony from field experts:

Governance and Coordination: The Imperative for Unified Systems

A central insight was the critical need to move from fragmented structures to an integrated, nationally aligned system. While the establishment of 26 State Drug Management Agencies (DMAs) was celebrated as a monumental leap from the previous 6, the reality on the ground remains one of siloed operations. The discussants succinctly captured the core governance failure to emphasize that there is need for more coordination. This internal fragmentation is exacerbated by external actors. Pharmacists from an International organisation highlighted how donor practices undermine systemic integrity, noting that *"every donor wants to bring in their product... parallel supply chain system?"* In response to these challenges, participants highlighted the emergence of a strengthened collaborative model. One participant explained the rationale behind coordinated procurement efforts:

"That's why we are pooling resources to procure for the states. We have a forum of heads of DMAs."

The Forum of Heads of DMA was therefore identified as a critical structure for pooling resources, harmonising approaches, improving bargaining power, and collectively engaging manufacturers and development partners. This move towards a joint procurement and shared system was seen as essential for the strengthening of national ownership and reducing fragmentation.

Financing Medicines Access: Confronting the End of the Donor Era

The discussion on financing was characterized by a stark recognition of a looming crisis and the urgent need for domestic solutions. The era of donor dependency was declared over. Participants emphasised that the long-standing era of donor dependency has effectively come to an end. As one delegate put it:
"Donor funding - the party is over. We must assert ourselves."
This sentiment was reinforced by what became the central question of the session raised by the chair: *"Post USAID, where do we go to find money?"*

The insight was not merely about identifying new funds but about fundamentally changing the financial architecture. The Basic Healthcare Provision Fund (BHCPF) was acknowledged, but participants stressed the need for smarter, more protected financing.

One participant highlighted the role of the DMA model in reinforcing financial discipline and transparency:

"Money is ringed-fenced in DMAs. In fact, that's one big advantage of DMAs."

The overarching conclusion was that sustainable health financing requires a significantly stronger government commitment. As another participant argued:

"Government must fund health expenditure to be greater than 15% - Abuja declaration."

Across the discussion, there was a consensus that Nigeria's future supply chain stability depends on decisive fiscal reforms, stronger political prioritisation, and institutionalisation of predictable, ring-fenced domestic financing.

Procurement Models & Supply Chain Reform: Quality at Scale

The roundtable strongly advocated for pooled procurement to achieve economies of scale, reduce costs, and strengthen the negotiating position against manufacturers. The strategy of DMAs procuring directly from local manufacturers was highlighted as a key method to shorten the supply chain, reduce the number of hands a product passes through (which compromises quality), and assure manufacturers of a safe pipeline.

However, a critical operational challenge was raised concerning how to ensure consistent quality standards across a decentralised system. One participant articulated this concern clearly:

"If pooled procurement involves different DMAs, each with their own quality lab, how do you agree upon the quality requirements that must apply to the manufacturer?"

This insight underscores that procurement reform cannot happen in a vacuum; it must be accompanied by a harmonised national quality assurance framework. Another participant offered a practical solution, stating:

"As we grow stronger, we will set up zonal quality assurance labs."

This reflects a vision for a regionalised approach to quality control that could reduce duplication, strengthen oversight, and support more uniform enforcement across the country.

Another key area of interest was the last mile delivery. The discussants pointed out that the supply chain remains weak beyond major hubs, with significant visibility gaps. A pharmacist from the National Primary Health Care Development Agency (NPHCDA) immunisation sector posed a question:

"Is there real time last mile visibility of the health products?"

The answer implied by the discussion was no. This lack of visibility and reliable logistics infrastructure prevents efficient distribution, especially to rural and underserved regions, compromising equitable access to medicines.

Local Production and Innovation: A National Security Imperative

There was resounding, unanimous agreement that local production is not just an economic activity but a matter of national health security. A senior representative of Nigeria's pharmaceutical manufacturing sector articulated this point clearly and powerfully:

"Until we are in the driver's seat to contribute to the production of medicines that we consume, if not, access to safe quality medicines is a mirage... Nigeria must take responsibility."

Participants acknowledged tangible progress in domestic manufacturing. One participant noted:

"Almost 200 companies are setting up in Nigeria" with the capacity to meet *"80-90% of drug needs."*

The discussion on vaccines brought an acute urgency to this point. An expert in vaccine regulation and manufacturing highlighted a critical upcoming challenge:

"2028... Nigeria to be removed from vaccine support," prompting the roundtable to question whether there is a *"government strategic exit plan on ground by the government for the 2028 deadline?"*

While recent agreements with local manufacturers were cited as positive steps, the collective insights was clear: a comprehensive, fully funded national roadmap is urgently required to make local vaccine production a reality before the donor transition deadline arrives.

Workforce and Leadership Development: Building a New Generation of Implementers

A key insight was that policies and infrastructure are futile without a skilled workforce to implement them. The role of the pharmacist is evolving from a clinical dispenser to a supply chain manager, policy advocate, and public health leader. One of the participants, a pharmacist serving within a DMA, highlighted a critical gap in current training systems:

"The training need is high and it has to do with tailoring the skills to Public Policy Implementation processes. Unfortunately, this is not yet documented for educational curriculum development."

This insight reveals that universities and training institutions are not yet producing graduates with the specific skills needed to manage state-level DMAs, navigate public procurement laws, and implement complex health policies. The need extends beyond technical skills to leadership, with calls for pharmacists to be champions in *"policy implementing of supply chain strategies"* and to develop a strong pipeline of leaders capable of managing the intersection of public health, logistics, and governance.

International Perspectives: Lessons from a Moving Train

Global and regional comparisons provided a crucial reality check, offering both models for emulation and a sense of competitive urgency. A participant from Ghana's national supply chain system shared insights into his country's integrated system and innovative public-private partnerships, including the use of Zipline for last-mile delivery. This example demonstrates how technology can enable countries to leapfrog persistent logistical barriers.

Perhaps one of the most motivating insights came from a participant with a regional pharmaceutical policy expertise, who emphasised how neighbouring countries have already advanced in local manufacturing:

"Uganda, Kenya, and S/A are already into ARV manufacturing!"

This highlighted that Nigeria is not leading but catching up, underscoring a competitive and innovative regional landscape. Participants also referenced the continental shift towards self-reliance. Drawing on recent high-level discussions at Africa Health Summit and the SUSTAIN initiative, where African leaders committed to taking ownership of their health agendas. The insight for Nigeria is clear: the continent is moving, and Nigeria must accelerate its efforts or risk being left behind.

Key Insights

While the roundtable distilled the path forward for Nigeria's pharmaceutical supply chain into six critical, interdependent themes essential for transitioning from donor reliance to self-sufficiency, the following insights can be derived from the discussion:

1. **Strengthening Medicines Governance**

Fragmentation remains a primary obstacle. Despite progress in establishing DMAs, siloed operations and parallel donor systems persist. Effective governance requires stronger national-subnational alignment and empowered coordination bodies like the Forum of Heads of DMAs.

2. **Financing Reforms for Equitable Access**

The end of donor dependency presents a fiscal crisis and an opportunity. Ring-fenced funding through mechanisms like the BHCPF and DMA structures was highlighted, alongside the urgent need to meet the Abuja Declaration target of 15% health budget allocation.

3. **Aligning Procurement with Sustainability Goals**

Strategic procurement is key to sustainability. Pooled state procurement and buying from local manufacturers can achieve economies of scale and assure quality. However, divergent quality standards across states pose a risk, underscoring the need for a harmonized national quality framework and zonal testing labs.

4. **Scaling Local Production Capacity**

Local production is a strategic imperative for health security. With nearly 200 manufacturers able to meet most drug needs, the focus must shift to vaccines and complex medicines. The 2028 deadline for withdrawal of vaccine support makes a credible government exit plan and production roadmap urgent.

5. **Building a Resilient Workforce and Leadership**

System transformation requires a new kind of workforce. Current training does not equip professionals for the demands of public policy implementation and supply chain leadership. A deliberate strategy is needed to build skills in policy analysis, data-driven management, and cross-sector leadership.

6. **Harnessing Partnerships for Innovation**

Collaboration is non-negotiable. Trust-based public-private partnerships are essential to engage local industry. Learning from regional peers such as Ghana's drone delivery or East Africa's ARV production, and aligning with continental initiatives like the SUSTAIN program can accelerate innovation and efficiency.

Policy Recommendations

The following recommendations are derived from the roundtable deliberations and are targeted at key stakeholders to accelerate the transformation of Nigeria's pharmaceutical supply chain into a resilient, self-sustaining system.

For National Government: Reforms in Procurement, Financing, Governance

- **Mandate Harmonized Procurement & Quality Standards:** Establish and enforce a national framework for pooled procurement to leverage economies of scale. Simultaneously, develop a mandatory National Quality Assurance Policy to standardize testing protocols across all DMAs, ensuring medicine quality irrespective of the state of purchase.
- **Institutionalize Sustainable & Ring-Fenced Financing:** Transition from donor funding by legally mandating the timely release and transparent management of the BHCPF. Prioritize and protect funding for essential medicines and vaccines within national and state budgets, moving towards a model of full government ownership as envisioned in the NPSCMP.
- **Lead Coordinated Governance:** Assert strong leadership to dismantle parallel supply chains and ensure all partners align with the national strategy. Formalize the role of the Forum of Heads of DMAs as an advisory body to the National Council on Health to drive policy coherence and system integration.
- Pharmaceutical regulators and policymakers should encourage to establish distributors in tier 3 territories to strengthen the supply of last-mile medications.
- Licensing policies should be rebalanced by restricting the concentration of distributor licenses in big cities while actively supporting the issue of new licenses in tier-3 areas. The implementation of a centralised, transparent

licensing and monitoring system could aid in this transition by improving oversight, planning, and equitable distribution.

For Subnational Governments: Role of DMAs in Policy Implementation

- **Accelerate DMA Maturation and Integration:** All states, especially the 21 with emerging agencies, must prioritize achieving operational and financial maturity for their DMAs. This includes integrating the management of all health commodities (essential medicines and public health drugs) under a single, streamlined authority to eliminate fragmentation.
- **Implement Performance-Based Financing:** DMAs should adopt transparent, data-driven models for fund allocation and management. Demonstrate accountability by implementing robust LMIS reporting and showcasing how ring-fenced funding directly improves medicine availability and health outcomes.
- **ChampFor Private Sector & Manufacturers: Fostering Local Production and Innovation**
- **ion Local Procurement:** State governments should direct their DMAs to prioritize procurement from pre-qualified local manufacturers. This stimulates the local economy, shortens the supply chain, enhances security of supply, and aligns with the national goal of self-reliance.
- Non-governmental and philanthropic organisations may be able to assist with the distribution of medications in rural and small towns, especially in places with few commercial incentives. The viability, sustainability, and regulatory framework of incorporating such groups in pharmaceutical supply chains need to be further evaluated.

For Development Partners: Technical and Financial Support Priorities

- **Align with National Systems:** Shift support from creating parallel project-specific supply chains to technically and financially strengthening existing government structures, particularly the DMAs and the national regulatory authority. Support must be directed through national systems to build enduring capacity.
- **Fund Enabling Infrastructure:** Move beyond commodity procurement to invest in the critical infrastructure required for sustainability. Priorities include co-investing in zonal quality control laboratories, supply chain technology (e.g., e-LMIS for real-time visibility), and leadership development programs.
- **Facilitate Knowledge Transfer:** Provide technical assistance focused on transferring skills for long-term system management, including advanced supply chain analytics, strategic policy planning, and effective public-private partnership negotiation.

- **Commit to Quality and Scale:** Invest in achieving WHO prequalification (WHO PQ) and GMP standards to meet the quality requirements of government procurement. Scale up production capacity to reliably fulfill large-volume contracts from pooled procurement initiatives.

- **Engage in Strategic Partnerships:** Proactively collaborate with government and DMAs through long-term contracts and framework agreements. This provides the market predictability needed to justify investments in expansion and new product development, including complex generics and vaccines.
- **Drive Innovation and R&D:** Invest in research and development for local production of priority products, including vaccines, ARVs, and insulin. Collaborate with academia and international partners to access technology transfers and develop a robust pipeline of locally manufactured essential medicines.

For Academia & Workforce Institutions: Training and Leadership Development Pathways

- **Revise Curriculum for Public Health Supply Chains:** Immediately update pharmacy, public health, and business curricula to include dedicated modules on public policy implementation, health supply chain management, logistics, data analytics, and procurement. This addresses the critical skills gap identified in the workforce.
- **Create Executive Leadership Programs:** Develop certified executive education and continuous professional development (CPD) programs in collaboration with organizations like ARC-ESM. These programs should target current and emerging DMA leaders, focusing on strategic leadership, financial management, and governance.
- **Foster a Culture of Evidence and Implementation Research:** Incentivize research that addresses practical supply chain challenges in the Nigerian context. Bridge the gap between theory and practice by creating fellowships and partnerships that place graduates within DMAs to work on real-world problems.

Strategic Direction for the Series

This policy report and its recommendations are the first output in a sustained effort to analyse and support Nigeria's medicines policy landscape. The findings presented here will directly shape the focus and direction of the subsequent engagements in this series, ensuring a coherent, evidence-driven, and actionable dialogue across all roundtables.

How recommendations will feed into subsequent policy briefs in the series: The themes and concrete proposals outlined in this report form the foundational agenda for the entire Nigeria Medicines Policy Series. Each upcoming Roundtable will build on the insights presented here, deepening analysis and driving practical action.

Roundtable Two will delve deeper into the specific challenges and opportunities related to local production and vaccine sovereignty, building directly on the recommendations for the private sector and national government. Roundtable Three will focus on the implementation bottleneck of last-mile delivery and technology integration, using the workforce and governance recommendations from this brief as a starting point. Each subsequent report will not exist in isolation but will function as a sequential chapter,

with progress on prior recommendations being assessed and new, more granular proposals being developed.

Planned engagements with policymakers and partners

To ensure these insights translate into meaningful action, GPN will initiate targeted engagements at national, subnational and partners level:

National Level: Formal dissemination of this brief to the Federal Ministry of Health, National Assembly Committee on Health, and the NPHCDA to inform the ongoing implementation of the National Pharmaceutical Supply Chain Master Plan and the BHCPF framework.

Subnational Level: Direct collaboration with the Forum of Heads of DMAs to present these findings and co-develop tailored workshops for states in the "emerging" and "maturing" categories, focusing on practical skills for achieving operational maturity and financial sustainability.

Development Partners: Briefing sessions with key partners (e.g., USAID, The Global Fund, WHO, UNICEF) to align future technical assistance and funding with the prioritized needs identified in this report, particularly regarding infrastructure for quality assurance and system integration.

Follow-up roundtables in the series

The series will continue with a focused agenda designed to drive progress on the most critical levers for change:
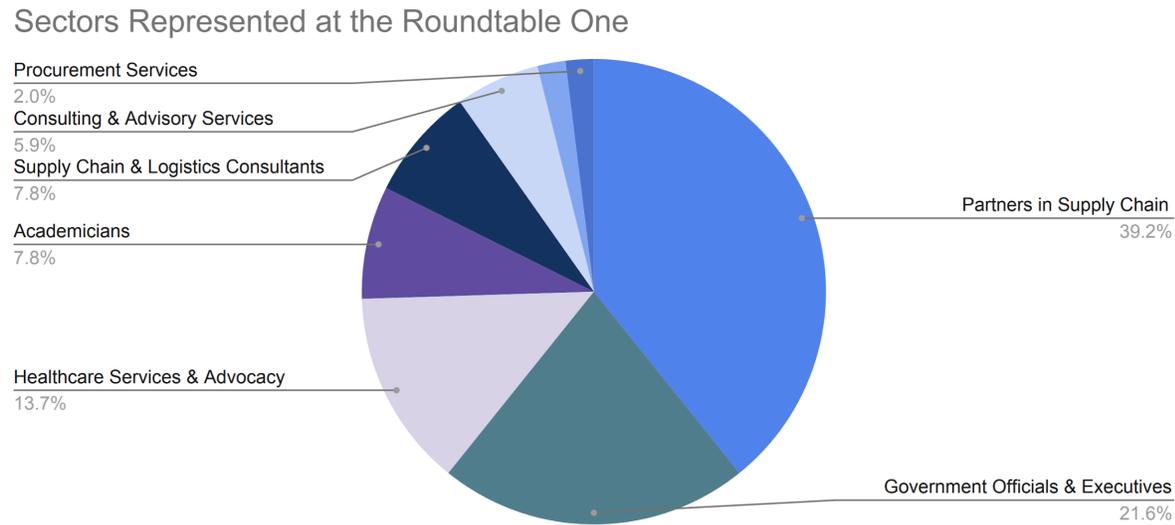
- **Roundtable Two: Scaling Local Production for Health Security (Q4 2025).** This session will convene manufacturers, regulators, investors, and policymakers to address the roadmap for local vaccine production, API manufacturing, and creating a sustainable market for locally produced essential medicines. It will tackle the financing, regulatory, and policy incentives needed to achieve the goals set out in this brief.
- **Roundtable Three: Achieving Last-Mile Delivery through Technology & Data (Q1 2026).** Focusing on the final frontier of the supply chain, this roundtable will bring together tech innovators, logistics experts, state health teams, and community practitioners. The discourse will centre on deploying scalable digital solutions for inventory management, real-time tracking, and data-driven decision-making to ensure equity and efficiency in medicine availability across all communities.
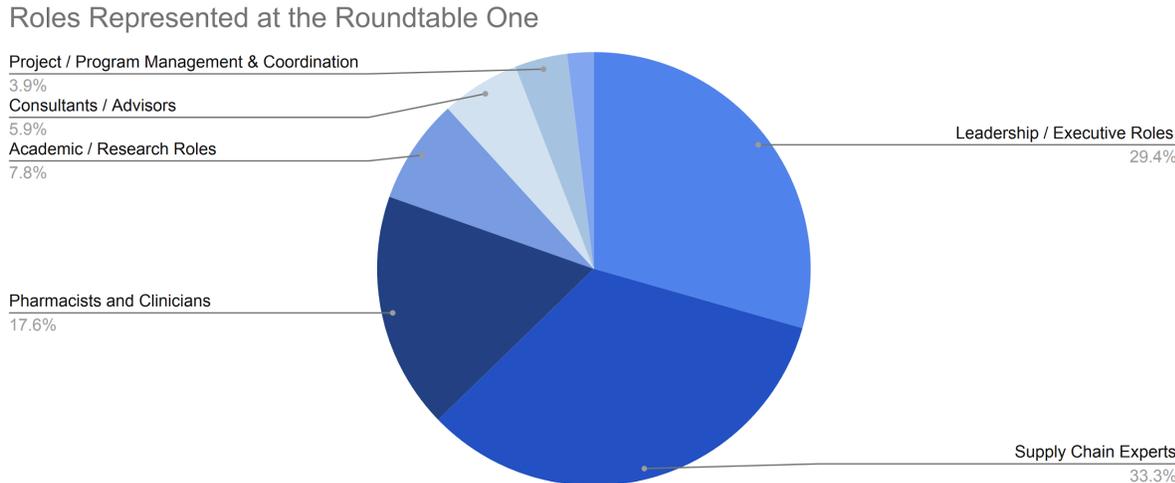
Attendees of Roundtable One

On August 13, 2025, the Global Policy Network convened 65 experts from across the pharmaceutical value chain to move beyond diagnosis to solution design. Participants

included leadership from the Federal Ministry of Health, NAFDAC, and private manufacturers, alongside supply chain consultants and academics. The expertise shared by this diverse group was instrumental in shaping the actionable pathways for self-sufficiency and financing outlined in this policy report.

Figure 1: Sectors represented in Roundtable 1

Sectors Represented at the Roundtable One

Procurement Services
2.0%
Consulting & Advisory Services
5.9%
Supply Chain & Logistics Consultants
7.8%
Academicians
7.8%
Healthcare Services & Advocacy
13.7%
Partners in Supply Chain
39.2%
Government Officials & Executives
21.6%

Figure 2: Roles represented in Roundtable

Roles Represented at the Roundtable One

Project / Program Management & Coordination
3.9%
Consultants / Advisors
5.9%
Academic / Research Roles
7.8%
Pharmacists and Clinicians
17.6%
Leadership / Executive Roles
29.4%
Supply Chain Experts
33.3%

During the roundtable a poll was conducted, where participants were asked to share perspectives on key enablers for Nigeria's pharmaceutical supply chain.

1. National or Regional Procurement Lead/Budget
2. National Laboratory for Testing Efficacy of Drugs
3. High Taxes for Importing Medicines into Nigeria
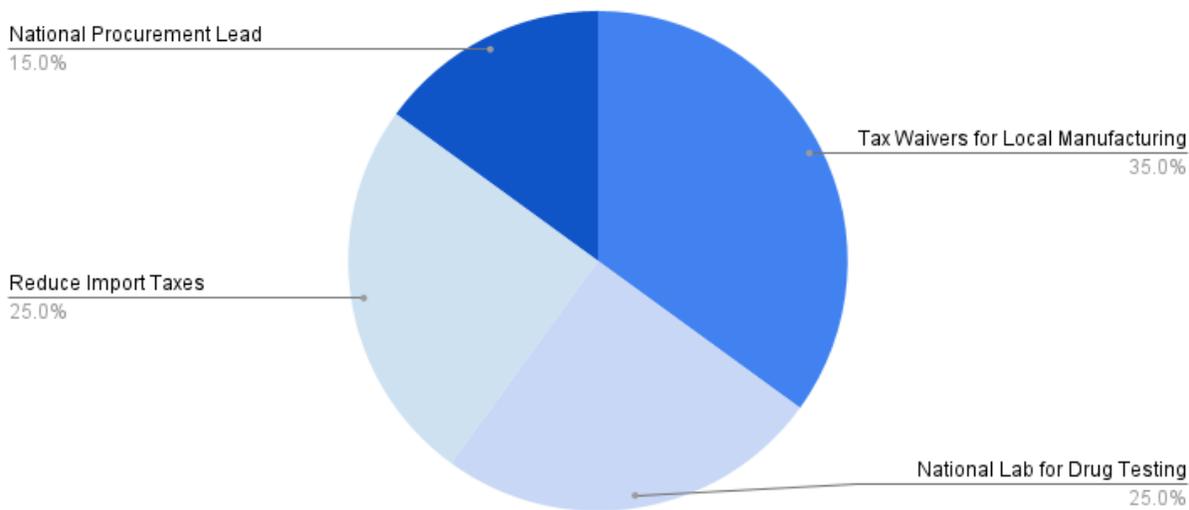4. Tax Waiver/Financial Support for Setting up Pharmaceutical Manufacturing in Nigeria

Insight:
Strongest support was for incentives and tax waivers to encourage local pharmaceutical manufacturing, followed by interest in strengthening regulatory testing capacity.

The chart below illustrates a clear consensus on the most critical policy issues discussed during the roundtable. It reflects the collective perspectives of a broad and diverse group of participants.

Figure 3: Poll Results and Key Policy Priorities

Poll Results: Key Policy Priorities

National Procurement Lead
15.0%

Tax Waivers for Local Manufacturing
35.0%

Reduce Import Taxes
25.0%

National Lab for Drug Testing
25.0%

Key Insight: Feedback from more than 50 delegates indicates strong and consistent support for policies that enable and incentivise local pharmaceutical manufacturing. Participants placed equal emphasis on strengthening regulatory quality control through a more capable National Laboratory and improving medicine affordability by reducing import taxes.

Roles represented at the Roundtable:

List of Reviewers

- **Dr. Ukamaka Okafor** – Associate Professor, Department of Global Health and Bioethics, Euclid University, Bangui, Central African Republic
- **Pharm Olufunto Olude** – Senior Associate, SCIDaR

Executive Roles in healthcare facilities

- **Azuka Okeke** – CEO, ARC_ESM
- **Dr Obiora Madu** – Director General, African Centre for Supply Chain
- **Tony Anammah** – Project Director, MEBS Global Reach LC
- **Dr Ndagi Umar** – Executive Secretary, NSDHCMA
- **Pharm Elizabeth Olufunke Oyeneye** – Executive Secretary, OGDSMCMA
- **Timi Omole** – Co-Founder & Principal Advisor, Pejuan Integrated Services
- **Douglas Anthony** – Director, PWS
- **Frank Muonemeh** – Executive Secretary/CEO, PMGMAN
- **Prof. Chimezie Anyakora** – CEO, Afriserve Milestone
- **Onunkwo Celine** – National Coordinator, NPSCMP
- **Kim Bot** – Executive Secretary, Plateau State Drugs and Medical Consumables Management Agency
- **Aisha Isyaku Tukur** – KADSHMA

Project / Program Management & Coordination

- **Ahmed Haruna Danjuma** – Project Supply Chain and Logistic Advisor, Society for Family Health
- **Dr. Bashir Elegbede** – Health Officer, Northeast Nigeria, UNICEF Nigeria

Supply Chain Consultants

- **Stephen Adeloro** – Supply Chain Consultant, Adelst Ventures Limited
- **Pharm Rahman Kelani** – Consultant, McKing Consulting Corporation
- **Dr Sani Iliya** – Supply Chain Consultant, USAID Nigeria

Pharmacists and Clinicians

- **Pharm Musa Hassan** – NPHCDA
- **Pharm Obianuju Ugwumgbor** – South East Zonal Logistics Officer / Data Analyst, Ministry of Health, Enugu State
- **Osagie Adun** – Pharmacist, Trumax Pharmacy
- **Pharm Saheed Olanrewaju Adewale** – OSDMSMA
- **Pharm Lukman Jibril Aliyu** – Fulfilment Operations, Zipline Nigeria
- **Joy Bathram** – Federal Teaching Hospital Gombe

Academic / Research Roles

- **Dr Kenneth Ngwoke** – Lecturer, Nnamdi Azikiwe University
- **Prof Festus Okoye** – Professor, Nnamdi Azikiwe University

- **Prof Sunday Nduka** – Professor, Nnamdi Azikiwe University
- **Adanu Donald Ogwuche** – University of Nigeria Nsukka

Supply Chain Experts

- **Joseph Omokhapue** – National Procurement Specialist, CIPS - The Chartered Institute of Procurement & Supply
- **Judith Effiong** – Consultant, ARC_ESM
- **Ozioma Mgbemena** – Consultant, ARC_ESM
- **Pharm Linus Odoemena** – Project Lead, Thought Leadership, ARC_ESM
- **Pharm Moukhtar Karofi** – Senior Project Officer, Thought Leadership, ARC_ESM
- **Chinyere Ezikpe** – ARC ESM
- **Grace Ogwuche** – ARC
- **Ajileye Alfred** – ARC ESM
- **Halima Baba** – Project Manager, Africa Resource Center for Excellence in Supply Chain Management (ARC_ESM)
- **Pinkai Aloysius** – ARC ESM
- **Wakeel** – ARC ESM
- **Jeff Ogbe** – ARC ESM
- **Chukwudi Uche** – ARC ESM
- **Amazon Herbal** – ARC ESM
- **Paul Kamai** – ARC ESM
- **Nafisa Abubakar** – ARC ESM

Senior Healthcare Leaders from NHS

- **Preety Ramdut** – Regional AMS Lead, NHS
- **Bisola Sonoiki** – Clinical Pharmacist Primary Care Independent Prescribing Pharmacist, Dabeez Healthcare Solutions LTD
- **Uzo Ibechukwu** – Director of Pharmacy, RUH Bath NHS Trust
- **Stephen Riley** – Deputy Regional Chief Pharmacist for NHS England for the Northwest of England
- **Juliana Jaff** – UK-NHS

Fellows

- **Abdulshakur Abubakar** – Fellow, National Health Fellow

International Ministries of Health

- **Andrew Nii Ofori Annan** – CEO/Advocacy Lead, Early Career Pharmaceutical Group/Hewale Lifestyle, Pharmaceutical Society of Ghana
- **Sekyi Brown Reginald** – Franchise Manager, Early Career Pharmaceutical Group/Pharmasymbiosis, Pharmaceutical Society of Ghana

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