

# INCREASING EFFICIENCY IN THE DRUG SUPPLY SYSTEM IN NIGERIA

Case study

## Contents

List of tables and figures .....	2
Acronyms and abbreviations .....	3
1. Introduction .....	4
2. Pre-intervention status of the drug supply system in Kano .....	5
3. The improved drug revolving funds approach.....	6
4. Impact and results.....	8
4.1 Procurement .....	8
4.2 Increasing number of DRF facilities .....	8
4.3 Availability.....	8
4.4 Expiry.....	9
4.5 Affordability .....	9
4.6 Access.....	9
5. Impact on drug system efficiency .....	10
6. Discussion.....	12
7. Discussion questions.....	12
Annex 1: Price comparison table .....	13
Annex 2: Key lessons.....	15

## List of tables and figures

### Table

Table 1: Number of facilities supporting DRF

Table 2: Drug availability at DRF facilities

Table 3: Change in average monthly patient attendance, PHC after capitalisation

### Figure

Figure 1: Kano State drug and medical supply logistics system

Figure 2: Procurement by Kano DMA in Naira

Figure 3: Percentage expiry level

## Acronyms and abbreviations

CMS	central medical store
DFID	Department for International Development
DMA	Drugs and Medical Consumables Supply Agency
DRF	drug revolving fund
FHC	facility health committee
FMCH	free maternal and child health
LGA	local government area
M&E	monitoring and evaluation
NGN	Nigerian Naira
PATHS	Partnership for Transforming Health Systems
PHC	primary healthcare
SDRF	state drug revolving fund
SDRF-C	state drug revolving fund committee
SDSS	sustainable drug supply system
SHC	secondary healthcare

## 1. Introduction

Kano State, Nigeria has about 1 400 public health facilities, of which 44 are secondary and 970 are primary healthcare facilities. One of the key challenges in the delivery of health services has been the lack of availability of drugs, and inefficiencies in the management of the drug supply system. This is problematic, as drugs and medical equipment and supplies, together with geographically accessible facilities and qualified staff, are all necessary ingredients of a functional healthcare service.

This case study describes how key ministries in Kano State can work together to increase the efficiency of the drug sector. This paper focuses on:

- the causes of inefficiency in the drug sector and its impact;
- what has been done to address these challenges; and
- the impact on service delivery and efficiency of the drug and medical supply system.

Section 2 provides a description of the pre-intervention status of the drug system in Kano State. Section 3 goes on to describe the main characteristics of the drug revolving fund (DRF) system, which has been set up to deal with the challenges. Section 4 discusses the impact of the intervention, while Section 5 looks into the impact on drug sector efficiency specifically. Section 6 concludes with a short discussion and Section 7 poses five discussion questions.

## 2. Pre-intervention status of the drug supply system in Kano

In 2008, the health services in Kano were close to dysfunctional, patients had stopped attending the public health facilities, members of staff were demotivated, and structures and systems were almost non-existent.

To address this situation the United Kingdom's Department for International Development (DFID), in collaboration with Kano State's department of health, designed and implemented the Partnership for Transforming Health Systems (PATHS) programme in Nigeria. One of the key objectives of this project was to improve the sustainable availability of health commodities at the health facilities, in parallel with other health system strengthening objectives. The approach integrated drug logistics system strengthening with other system and governance components such as health financing, public finance management and human resources for health. It also ensured the participation of communities in the management of the health commodities supply chain, as well as focusing on engaging citizens to make informed choices.

The initial situation was similar across all of Kano State's health facilities. The government was making a negligible investment in procuring and supplying health commodities. The supply chain system was inefficient, resulting in high expiry rates and expensive commodities.

Almost no primary and secondary health facility had essential drugs available, and health staff at facility level used to sell their own drugs to the patients at high margins.

The total annual cost of procurement of drugs by Kano State was NGN32 million. However, drugs procured were not in line with facilities' requirements and often their prices were higher than those on the open market. This resulted in non-utilisation or underutilisation of drugs, leading to inefficient use of the limited resources provided by the government.

Institutional capacity to efficiently manage logistics and the supply chain was inadequate. Kano State central medical store (CMS) operated primarily as the warehousing unit, while the state ministry of health was responsible for the procurement of health commodities.

Physical infrastructure was insufficient to meet the requirements for storage of health commodities across the state, and logistics record-keeping was sporadic. The community had no role to play in the management of the supply chain.

All of this resulted in patients not visiting the public facilities and having to access health services in the private sector. Thus, the supply and the demand sides fed off each other, leading to a virtual collapse

### 3. The improved drug revolving funds approach

The PATHS approach addressed the above challenges in an integrated and incremental manner to rebuild the logistics and supply chain system. In the absence of any foreseeable investment by the government to meet the requirement of free care for all, negligible coverage of health insurance and absence of other donors to invest the resources required to sustainably manage the provision of free essential drugs, the only way forward was to set up a patient-financed mechanism for the supply of drugs managed through DRFs.

However, the existing DRF models in Kano had mostly failed to deliver. On the basis of an assessment of the then current DRF models, a revised DRF approach – a sustainable drug supply system (SDSS) – was developed. Some of the key challenges that led to the failure of earlier models, and suggested solutions thereto, follow:

- *Value for money for patients:* Earlier models focused on ensuring the availability of drugs at facility level, and assumed that these would be bought by patients, without considering the reality that DRF products had to compete with open market products. The key components of value are price of the products, attitude of staff, time spent in buying products, and cash-constraints, which prevent patients (especially women) from accessing products sold in public health facilities, whereas they are extended credit by private facilities. Since most of these attributes favour private over public outlets, it was estimated that drugs at public health facilities needed to be at least 15–20 per cent cheaper than the market price.
- *Facility autonomy:* In the earlier DRF models, facilities had no control over what was supplied to them and in what quantity. This resulted in the procurement of commodities not required by the facilities, significant expiry and simultaneous stock-outs. There was a need, therefore, to ensure greater autonomy for facilities by granting them ownership of DRF funds in partnership with the community. This ensured that funds were available to procure drugs in the required quantities.
- *Autonomy of CMS:* In the earlier model, the CMS acted merely as a store, while procurement and key supply chain decisions were made at ministry level, resulting in an inefficient system. The new model ensured the autonomy of Kano CMS by having a law passed for the establishment of the Kano Drugs and Medical Consumables Supply Agency (DMA). The Kano DMA had the financial autonomy to ensure that funds were always available for the procurement of drugs and to meet the supply chain cost.
- *Engagement of all key stakeholders to ensure integrated decision-making:* Another key challenge was that the relevant decision-makers such as the ministry of finance, the ministry of local government, local government area (LGA) officials, the Pharmaceutical Council of Nigeria, and other departments in the ministry of health were not part of the decision-making body. The new approach addressed this by setting up a state drug revolving fund committee (SDRF-C) with representation of all the key stakeholders including traditional rulers (e.g. the Emir of Kano), and community and religious leaders. This helped in addressing most of the challenges including policy gaps, which required intervention at the political level.
- *Monitoring and evaluation (M&E):* The earlier DRF model also suffered from a lack of regular M&E, as well as an inability to take corrective measures to address failures. In the new approach, the SDRF-C became responsible for M&E. Kano State was supported in setting up a team that consisted solely of government staff responsible for all DRF-related activities such as facility assessment, selection, quantification, DRF set-up, training, mentoring and M&E. This team conducts quarterly M&E in all facilities and has proved to be one of the key success factors of the programme.
- *Government investment:* Earlier models also suffered from a lack of government ownership, resulting in a lack of government investment. With the new approach, the government became associated with each stage of the programme – annual procurement and DMA

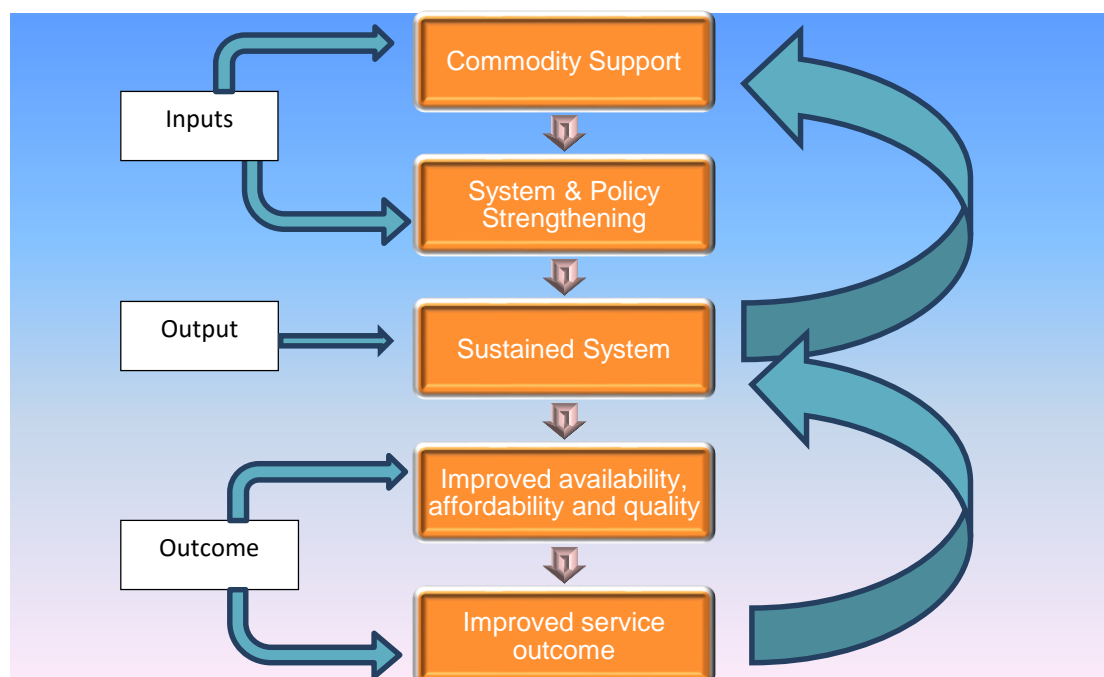
strategic planning to support evidence-based budgeting, negotiations with states to improve counterpart funding, and using policy documents to demonstrate the requirements of additional funding.

- *Government ownership*: Only government staff, institutions and systems were used to manage the project, supported by only two project staff.
- *Financial management*: Another major weakness of the earlier models was lack of focus on financial management. Earlier models focused mainly on the commodity cycle, without adequate focus on associated financial flows. The new model ensures that financial management is an integral part of commodity support, with a clear and transparent system that is easy to understand, implement and monitor.

The strategy to improve the drug sector as a whole, therefore, focused on reviewing key drug laws, policies and regulations, strengthening systems and institutions and improving community engagement to keep up with the demands of a growing system.

The Kano State logistics model is illustrated in Figure 1. Initially, commodity support was provided by PATHS2. Systems, institutions and policies were strengthened. This, in turn, resulted in a sustained system. The outcomes, including improved availability, accessibility and affordability of quality drugs, were welcomed and financially supported by the patients, which has led to improved service outcomes in respect of quality of health services and patient turnover. This system creates the requirements for the next round of reforms and commodity support, and the process is continuously being strengthened.

Figure 1: Kano State drug and medical supply logistics system





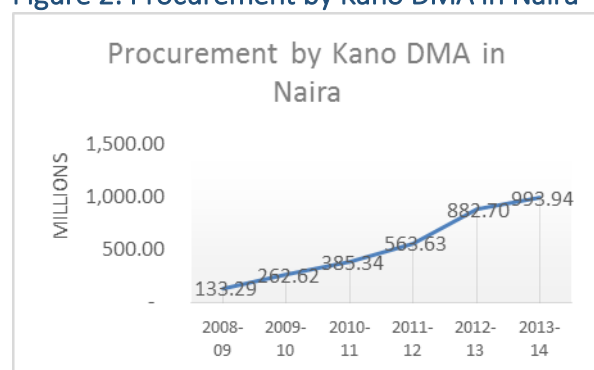
## 4. Impact and results

The approach is widely considered a success, with major improvements in drug procurement and availability, a replication of the DRF approach throughout Kano, reductions in drug expiry, increased government buy-in, affordability and access for patients.

### 4.1 Procurement

Procurement increased significantly from NGN133 million in 2008 to NGN1 billion 2013. Managed by its key institutions applying systems and processes that were transitioned by PATHS2, Kano State achieved this without additional financial support.

Figure 2: Procurement by Kano DMA in Naira



Source: PATHS 2 Logistics report, 2014

### 4.2 Increasing number of DRF facilities

The number of DRF facilities capitalised with drugs and having essential systems has grown substantially (as shown in Table 1), with a higher number of sales transactions (from 402 in 2008/09 to 2 081 in 2013/14). This implies that considerably more facilities are running sustainable drug supply systems.

Table 1: Number of facilities supporting DRF

	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
<b>Kano</b>	183	230	329	347	527	604	699

Source: PATHS 2 Logistics report, 2014

### 4.3 Availability

Facilities procured drugs worth NGN1.05 billion from the DMA. This has resulted in a significant increase in drug availability across 85 per cent of 699 DRF facilities as shown in Table 2. All of these facilities had more than 90 per cent drug availability at the time of the review. This is a significant improvement over the baseline.

Table 2: Drug availability at DRF facilities

Number of DRF facilities			Percentage Drug Availability			
Total	PHC	SHC	PHC		SHC	
			Baseline	Actual	Baseline	Actual
699	657	42	6.50%	84.95%	36%	92.31%

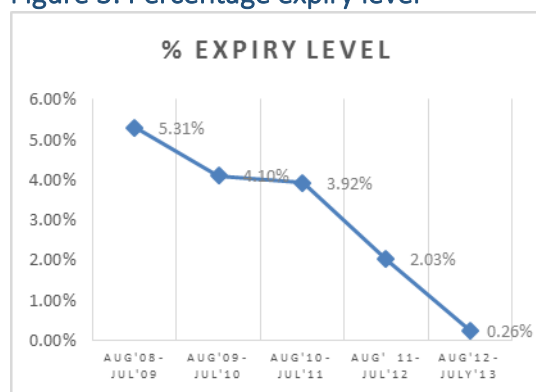
Source: PATHS 2 Logistics report, 2014

Note: PHC = primary healthcare; SHC = secondary healthcare

#### 4.4 Expiry

The expiry of drugs in Kano State as a whole has been reduced to 0.26 per cent of total procurement (see Figure 3), which is on a par with (or better than) the majority of the private sector supply chain for similar products. This is the result of improved logistics systems, in which key institutions at different levels work effectively together.

Figure 3: Percentage expiry level



Source: PATHS 2 Logistics report, 2014

#### 4.5 Affordability

Drug prices in government facilities have experienced a significant drop over time. Three successive annual rapid drug price surveys showed that prices in public health facilities in Kano were on average 63 per cent lower than in the private pharmacies. Annex 1 provides details for selected medicines.

#### 4.6 Access

A growing number of patients are buying drugs from government health facilities, as reflected in the increasing value of DRF sales by the CMS to facilities, which rose by almost 800 per cent over the period 2008–2013.

In addition to improving the availability and affordability of drugs, Kano State DRF also incorporates a deferral and exemption policy, whereby the poor can access care free of charge or with deferred payment.

Kano State has optimised the targeting of poor patients, and uses funds from charitable organisations in a co-ordinated way to improve access for the poor.

The reform of the drug system has also led to more patients accessing public health facilities. Under-5 outpatient care increased by more than 54 per cent in Kano State after the DRF was capitalised (see Table 3).

**Table 3: Change in average monthly patient attendance, PHC after capitalisation**

	<b>Pre-capitalisation</b>	<b>Post-capitalisation</b>	<b>Increase</b>
OPD	428	610	42.5%
<5 OPD	167	257	54.5%
Malaria patient	110	176	59.8%

Source: PATHS 2 Logistics report, 2014

Note: Outpatient department

## 5. Impact on drug system efficiency

Through a combination of interventions, the efficiency of the drug procurement, distribution and supply system increased significantly. The overall impact of the integrated approach was a significant reduction in the supply chain cost from more than 30 per cent in the standard public sector supply chain to 5 per cent in the Kano supply chain. The external evaluation of the intervention makes a further distinction between technical and productive efficiency measures. Technical efficiency was improved by way of the following action:

- tasks were redistributed to the level in the chain where they were most effective and cost-efficient;
- supply chain functions of primary and secondary healthcare facilities were integrated; and
- government institutions and staff that previously were underutilised saw their responsibilities for supply chain functions expanded.

Productive efficiency, in turn, was improved through measures in procurement, distribution and warehousing, and information management.

The procurement system was strengthened, leading to a reduction in cost of products and expiry, by:

- the Kano DMA migrating from the use of emergency procurement processes to using a competitive and transparent framework in line with the best practice;
- selecting products on the basis of an updated state essential medicines list and an increased use of generic drugs;
- selection and quantification being based on the requirements of the facilities as determined by a representative quantification committee;
- combining procurement for all health facilities of all essential medicines, thereby ensuring attainment of scale at each level of procurement; and
- engaging private sector manufacturers and first-line importers by sharing all key information regarding procurement, inspection, quality assurance and receiving process, historical procurement quantities, cost and payment terms, and future estimates of quantities in a transparent manner.

The distribution and warehousing system was enhanced, leading to better conditions for warehousing pharmaceuticals across health facilities and medical stores, through:

- innovations such as direct deliveries to large health facilities and distribution via zonal DMA warehouses to which drugs were delivered directly by the suppliers, thereby reducing the cost of distribution;
- improved availability of drugs and sharing of information with the facilities, reducing multiple collection/distribution and, thereby, cutting distribution costs; and
- reducing waiting time for orders to be filled by employing better processes.

Lastly, strengthened inventory management, logistics management, information systems and M&E led to further reductions in drug stock-outs, reduced wastage due to pilfering and expiry, and better decision-making.

## 6. Discussion

This case study provides detailed insight into the complexity involved in improving drug procurement and supply chain management. The intervention involved multiple stakeholders, at various levels, within a redesigned, sound financial and management model. Success at patient-level is measured by lower prices, increased drug availability at facility level and reduced drug stock-outs. This had a knock-on effect, and increased access to outpatient visits more broadly.

The ministries of health and finance played an important regulatory and financial oversight role. The ministry of finance signed off on the new DRF financial and management model, allowing the out-of-budget funding of drugs. The DRF receives money from patients, and reinvests such income, using clear rules, to replenish stocks. The ministry of health is involved in both oversight and implementation of the DRF system.

The new DRF system has had a remarkable impact on access to drugs and services, but remains essentially patient-funded at the point of service. While there has been an important improvement on the previous situation, drug cost recovery policies pose financial barriers to accessing care. This has been mitigated by a targeted exemption and deferral system; ultimately, however, larger public subsidies to decrease prices at the point of service are probably required for Nigeria to make progress towards universal health coverage.

## 7. Discussion questions

*Discussion Question 1:* Which aspects of the logistics supply chain strengthening had the greatest impact on improving efficiency?

*Discussion Question 2:* Which aspects of the programme were critical in ensuring sustainability?

*Discussion Question 3:* What was the role of the ministry of finance in ensuring sustained success of the programme?

*Discussion Question 4:* Do you face similar challenges in your countries? Please elaborate and discuss ways in which these issues can be resolved.

*Discussion Question 5:* Consider the two statements below. Which do you agree with and why?

- Statement 1: Drug sector reform is notoriously complex, yet there are obvious ways to make rapid improvement; and whole-of-sector effectiveness, efficiency and equity can be achieved in three years' time.
- Statement 2: Drug sector reform is notoriously complex, and barring some exceptions, whole-of-sector effectiveness, efficiency and equity take much longer than 3 years' time.

## Annex 1: Price comparison table

S/N	Drugs	Pack size	Average government health facility	Average private outlets
1	Albendazole 100mg/5ml	20ml	71.50	126.11
2	Albendazole tablet 200mg	2's	73.73	104.44
3	Amoxicillin trihydrate 250mg	10's	43.89	68.33
4	Ampicil 250mg+cloxacil 250mg	10's	71.33	96.11
5	Artemet 20mg/Lumef 120mg	24's	188.89	231.11
6	Bromhexine 4mg/5ml	100ml	166.67	211.11
7	Combine oral contraceptive	28's	0.00	70.00
8	Co-trimazole 240mg/5ml	50ml	75.23	136.11
9	Co-trimazole 480mg tablet	20's	24.89	51.67
10	Erythromycin 125mg/5ml	100ml	156.67	187.78
11	Tab Erythromycin 500mg	10's	155.36	241.67
12	Ferrous sulphate 200mg	10's	4.78	18.89
13	Injection Ergometrine	amp	29.25	56.67
14	Metronidazole 200mg/5ml	60ml	88.89	136.67
15	Metronidazole 200mg tablet	10's	7.95	13.33
16	Oral rehydration salt	sachet	31.05	51.39
17	Paracetamol 500mg	10's	7.68	13.89

	tablet			
18	Paracetamol 125/ml	60ml	53.74	111.67
19	Sulfadox+Pyrimeth susp	10ml	81.67	120.83
20	Sulfadox+Pyrimeth tablet	3's	65.09	98.89

## Annex 2: Key lessons

Some of the key lessons learnt in the process are described below.

1. **Political buy-in:** Commodity support affects various vested interests (e.g. parallel DRF, ghost-workers and procurement staff). This is a serious challenge, as such interests normally do not allow for a transparent and effective system. Setting up commodity supply chains requires clear policy guidelines and system strengthening. It also requires the reinforcement of institutions and the provision of necessary budgetary support. These cannot be achieved without appropriate political backing. Thus, it is crucial to effectively engage with political groups across the spectrum, including the governor, state house of assembly, LGA chairperson and the heads of local bodies, to ensure their continued support. It is important to demonstrate that strengthening commodity availability can also win votes by inviting politicians to various events that attract media attention (e.g. an initial roll-out at facility level, or the receipt of health commodities).
2. **Buy-in by higher-level bureaucracy:** The support of key stakeholders like the permanent secretary of health, various directorates of health, state primary health development agencies/boards, state ministries of health, LGA health and stores officers are crucial in ensuring not only the implementation of policies but also in the provision of support, monitoring of the implementation and undertaking of necessary corrective measures. Thus, their engagement at the beginning and throughout the programme's implementation is essential for ensuring the achievement of programme objectives.
3. **Clear policy guidelines:** To ensure the sustainability of support, it is necessary to secure some key policy changes – for example, the use of framework agreements for procurement, the autonomy of CMSs, accepting DRF revenue as independent from state revenue, accepting DRF policy as state policy, accepting community involvement in managing DRF at the facility level, and ensuring the autonomy of facilities (as well as higher-level stores) in managing DRF commodity flow, including the opening of bank accounts. These policies are crucial in ensuring the sustainability and effectiveness of the commodity supply chain.
4. **Sharing a vision:** One of the key challenges faced by public health system operators is that they have rarely seen a commodity supply chain system functioning, growing and becoming sustainable, so it is crucial to share with them our vision over the next year or two – to share what is expected, what is required to achieve it and what the potential challenges are. This helps in keeping them well prepared for what is to come, addressing any concerns and building their support
5. **Clear demarcation of support:** In Nigeria, the health system is supported by multiple partners, as well as by different tiers of government. This results in multiple supply chains providing commodities to health facilities. In some cases, similar commodities are provided by the different supply chains. In such a situation, it is necessary to map out these partners, the support they provide, and the future support to be provided by them in an effort to integrate the supply chains, as well as to avoid the situation of stock-outs or expiries due to incorrect demarcation; for example, during the initial stages of the free maternal and child health (FMCH) support programme, the government did not budget adequately for the provision of health commodities to support FMCH, and incorrect demarcation led to the use of DRF



commodities to support FMCH, resulting in stock-outs. This had two negative consequences: firstly, the government did not realise how low the budgetary provision was; and, secondly, patients lost confidence in both the DRF and the FMCH systems due to stock-outs.

6. **Clear identification of intervention model:** It is crucial to clearly identify the commodity support model the programme wants to follow. The possible routes can be free, partial subsidy (for commodities or for supply chain costs excluding human resources for health and/or infrastructure costs and equipment maintenance and/or replacement costs) or full cost recovery (for drugs, consumables, reagents, equipment maintenance and replacement). This needs to be done on the basis of the budgetary support provided by the government and future commitment on that front, support provided by other partners for similar commodities and their future plans, a project's own budget for health commodities, expected coverage of health facilities in terms of number of facilities to be covered, type (primary or secondary), and present and expected patient flows. Thus, it is critical to ensure that the resources available for the project are adequate not only to meet the requirements during the project period but also to ensure sustainability beyond the project's life cycle. Kano State opted for the full cost recovery model as the budget available for the project was not adequate to meet the resources required to provide free or partially subsidised health commodities.
7. **Programme list of commodities and specifications:** As a part of the clear demarcation of support and sharing the vision, it is crucial to clearly identify the list of commodities that the programme will support at various levels of facility, and to define the specifications, including the requirements for the use and installation of the commodities (e.g. temperature control, electricity, water and human resource requirements). It is crucial to manage expectations, to standardise and ensure the achievement of programme objectives. This also helps in harmonising supply chains. The commodity list must be based on the national essential lists and be in line with the national standard treatment guidelines.
8. **Demand-driven quantification:** One of the major challenges faced by the earlier DRF programme was the supply-driven quantification at each step of the process, which resulted in a situation in which products were being procured in quantities, at times and of types not required by the facilities. Consequently, there were massive levels of expiry and wastage of programme resources and simultaneous stock-outs of required products. Kano State's model ensures from the first stage that quantification is done by the facilities according to their needs. At subsequent stages, facilities procure from medical stores on a regular basis, and medical stores, in turn, procure the commodities on the basis of facilities' needs, ensuring a sustainable supply chain, low stock-outs and almost zero expiries
9. **Facility assessment and readiness:** It is crucial to conduct a complete assessment of the facility in terms of its readiness to accept the commodity support and also to define the scope of commodity support. The assessment covers human resource availability, infrastructure availability, patient attendance and catchment area. Any facility not ready immediately falls into one of two categories: it can be made ready by effecting basic changes, or it cannot be supported. Support is provided only to the facilities that can use it to ensure their sustainability.
10. **Price competitiveness:** Most of the earlier full/partial cost recovery model attempts failed to motivate patients to buy drugs from the facilities, because the price competitiveness of the products sold by the facilities could not be ensured. In the case of patients having to pay for the commodities, the facility competes with the open market and needs to consider the socio-

economic cost of buying from a facility (e.g. long waiting times). Kano State focused on this key aspect and has ensured that the price of drugs in facilities is significantly lower than on the open market, thereby ensuring the high demand for products at facilities.

11. **Strategic evolution and system strengthening:** It is essential to keep updating our strategies in line with the current and expected future growth of commodity flow. A static strategy cannot keep up with the changing requirements of the supply chain management system. Kano State reviewed its key strategies and systems like procurement, DRF, warehousing and distribution, and logistics management and information system at least three times, as the commodity flow increased from NGN130 million to NGN1 billion within the first six years of DFID support. This was required to ensure that the strategy is able to keep pace with the improvement in commodity flow, higher expectations and higher demand, while bearing in mind the constraints in terms of warehousing space, human resource availability and limiting the overall cost of the supply chain. Kano State, with the support of the programme, evolved its strategy from annual open procurement to framework agreements to ensure multiple deliveries in order to minimise warehousing space requirements, inventory costs and transportation costs by adopting direct deliveries. The state started annual procurement planning and progressed to a medium-term strategic plan to integrate it with the medium-term sector strategy process.
12. **Building institutions:** Strong and resilient institutions are vital in ensuring the sustainability and effectiveness of any supply chain. Kano State worked on building and strengthening key institutions like the SDRF-C, facility health committee, autonomous CMSs (DMA) and health facilities. Some of the institutions like the SDRF-C and autonomous DMA did not exist earlier. A strong, well-represented and autonomous SDRF-C backed by policy is key to the success of Kano State interventions, as it represents all the key stakeholders. Similarly, the autonomy of the CMS resulted in minimising outside influence. Facility health committees ensured effective community participation in the management of facilities, and addressed challenges like low attendance, staff attitude and lack of community awareness.
13. **Financial management:** In the full cost recovery model used by Kano State, it is crucial to manage both commodity and fund flow effectively. Lack of effective financial flow was one of the key reasons behind the failure of earlier DRF programmes. Kano State designed the model that ensured that financial management would be an integral part of commodity support with a clear and transparent system that is easy to understand, implement and monitor. It ensured that autonomy and oversight would be an integral part of the process of managing fund flows, ensuring, too, that adequate funds would always be available to meet not only the demand for products but also the cost of the supply chain.
14. **Improving budgetary support:** Ensuring effectiveness and sustainability of the supply chain requires major government commitment (even if the commodity and operational costs are met by the functioning supply chains) – for example, setting up new warehouses, hiring additional staff, equipment maintenance, distribution of commodities (as a part of the counterpart funding) and upgrading facilities. Kano State used various mechanisms, such as annual procurement and CMS strategic planning to support evidence-based budgeting, negotiations with states to improve counterpart funding and using policy documents to demonstrate the requirements for additional funding.
15. **Framework contract, open tendering and quality policy:** Some of the biggest challenges faced by public health supply chains are high inventory cost, high product cost, inadequate shelf life,

high expiry, high stock-outs, poor quality and lack of suppliers' confidence. One of the key causes of this is an inappropriate procurement system. Kano State strengthened procurement systems and processes by strengthening consumption-based quantification, appropriate specification, open tendering, framework contracts, inspection, timely payment, separation of authorities, transparent and predictive procurement processes, quality policy and suppliers assessment. This resulted in the engagement of reputable suppliers, better prices, better quality and improved responsiveness of suppliers and towards clients. Quality policy clearly defined what is expected at each stage of the process to ensure the quality of products throughout the supply chain.

16. **Community engagement:** Another major insight gained is the importance of community engagement in improving health commodity availability. Kano State has ensured that the community is an integral part of logistics decision-making. It supported setting up a DRF facility health committee (FHC) in each of the supported facilities. The chairperson of the committee is a community member who is one of the two signatories of the facility's DRF account, and who signs off each order and ensures that the facility operates effectively. The FHC also represents the community's view and, in many instances, has supported the facility's infrastructure upgrades, provision of security, provision of commodities, addressing challenges faced by the facility in providing effective services and engaging political leadership in supporting the commodity supply chain.
17. **Communicating with the community:** It is crucial to set up an effective communication mechanism with the community to ensure successful uptake of services provided by the facility, to build up patients' confidence, to understand the challenges faced by the community and to address access barriers. This model ensures such communication from the outset. Before capitalising any facility, an intensive community engagement activity takes place that informs the community about the support that is being given to the facility, the benefits that will accrue to patients and the availability of good quality and affordable services, as well as additional services that will be provided. The community is invited to the facility on the day that commodities are delivered so that they can not only see the various products that are available and know about the prices (which are attractive) but also view the upgraded facility. This addresses the image issue. In addition to this, the community is represented at various higher levels of decision-making, including the SDRF. The FHC also undertakes various community engagement processes to address socio-cultural barriers and, sometimes, even financial barriers (e.g. imparting information about the deferral and exemption scheme). Media are also used extensively.
18. **Engagement of the pharmaceutical sector:** A successful supply chain system can only be built on the foundation of a strong domestic pharmaceutical sector and its participation in the public health supply chain. Kano State ensured this by following transparent systems and processes, helping to increase capacity and engaging quality suppliers to ensure the sustainable availability of affordable and quality products. This has resulted in consistently improving affordability and quality, as higher levels of the supply chain started participating in the procurement processes. These suppliers even supported the public sector supply chain by providing equipment and vehicles
19. **Regular M&E:** This is the cornerstone of Kano State's success in improving sustainable availability of health commodities support. The state instituted a strong, regular, yet affordable monitoring and evaluation system. Each supported facility is monitored on a

quarterly basis. Challenges are identified and resolved at the appropriate level. It also supported the setting up of a system involving the state DRF committee and zonal committee so that the issues could be resolved at the appropriate level. This resulted in the quick addressing of challenges, and included the suspension of salaries of some of the erring staff.