

Implementing National Policies in Decentralized Health Systems: A Case Study of an Integrated Primary Healthcare Planning and Performance Improvement Initiative in Nigeria

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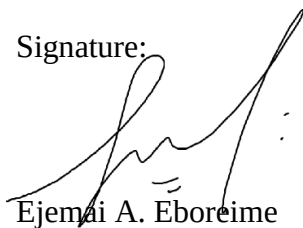
DECLARATION

This thesis is submitted in the integrating narrative format, approved by the Faculty of Health Sciences, of published work.

I, Ejemai A. Eboreime, declare that this thesis is my original work. It is being submitted for the degree of Doctor of Philosophy in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other University. I am aware that plagiarism (the use of someone else's work without their permission and/or without acknowledging the original source) is wrong. I confirm that the work submitted for assessment for the above degree is my own unaided work except where I have explicitly indicated otherwise.

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Signature:

A handwritten signature in black ink, appearing to be 'Ejemai A. Eboreime', written over a horizontal line.

Ejemai A. Eboreime

On this 3rd Day of March, 2019

DEDICATION

In honour of my parents Dr Joseph and Martha Eboreime. You have been my support and light throughout my life. The seeds you sowed in me are reflecting in my past, present and future accomplishments. Words fail me to express my deepest thoughts and appreciation. I cannot repay you but I know that your names will be forever engraved in my skies.

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This thesis consists of four academic papers, listed below:

1. **Ejemai A. Eboreime;** Seye Abimbola; Felix Abrahams Obi; Obinna Ebirim; Olalekan Olubajo; John D. Eyles, Nonhlanhla L. Nxumalo; Faith N. Mambulu . Evaluating the Sub-National Fidelity of National Initiatives in Decentralized Health Systems: Integrated Primary Health Care Governance in Nigeria. *BMC Health Services Research*. 2017 17: 227. DOI:10.1186/s12913-017-2179-2
2. **Ejemai A Eboreime;** John Eyles; Nonhlanhla Nxumalo; Oghenekome Eboreime; Rohit Ramaswamy. Implementation process and quality of a primary healthcare system improvement initiative in a decentralized context: A retrospective appraisal using the Quality Implementation Framework. *Int J Health Plann Mgmt*. 2018 DOI: <http://dx.doi.org/10.1002/hpm.2655>
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ABSTRACT

Implementing policies in decentralized health systems is complex as numerous actors attempt to influence policy formulation, deployment and execution across tiers of multi-level governance systems. Consequently, policy processes commonly suffer misalignment between design and real-world implementation. Thus, examining policy processes across the design-deployment-implementation continuum is important to identify and address implementation bottlenecks and improve health system performance and outcomes. This research tested the use of multiple frameworks, drawn from implementation science and health policy and systems research, to assess implementation of a complex intervention in Nigeria.

The intervention to improve local primary healthcare planning used a quality improvement model known as Diagnose-Intervene-Verify-Adjust (DIVA) developed nationally and deployed to subnational levels. Uptake of DIVA has been poor, and implementation not sustained. Data on implementation were collected through key informant interviews, document and routine data as well as structured questionnaires. Overall, 242 respondents were interviewed from each layer of the health system as well as from the various spectrum of actors involved in the interventions (government and non-government). Further, 39 policy documents were analyzed. Both deductive and inductive analytic approaches were employed. Meyer's Quality Implementation Framework was used to identify gaps between the national design of DIVA and its local deployment. Contextual factors affecting deployment were identified using Kaplan's Model for Understanding Success in Quality.

Interpretation of results was conducted through an inductive synthesis that categorized emergent themes across four elements (what, why, who and how) informed by Walt and Gilson's health policy triangle. The results are presented in 4 published papers. Papers 1 and 2 examined the formulation processes and translation of national policy initiatives to subnational implementers. Papers 3 and 4 mostly examined implementation quality and effectiveness at subnational levels (state and LGA) as well as their determinants. Potentially effective interventions were found to be commonly constrained by poor implementation fidelity, occasioned by political and administrative bottlenecks. Sub-national leadership and management have the most significant impact on implementation outcomes. Rather than implementing to improve health outcomes, findings suggest that national financial/political incentives were better motivators of subnational adherence to national guidelines. Sub-national governments' exercise of discretionary power compromised implementation quality of PHC strengthening initiatives in Nigeria. Understanding and engaging the various interests across the governance spectrum is key to improving quality and sustainability

ABBREVIATIONS

ACT	Artemisinin-Based Combination Therapy
ANC	Ante-Natal Care
DIVA	Diagnose-Intervene-Verify-Adjust
HRIS	Human Resource Information System
IMCI	Integrated Management of Childhood Illnesses
LGA	Local Government Area/Authority
LMIC	Low and Middle-Income Countries
MSP	Minimum Service Package
NCH	National Council on Health
NPHCDA	National Primary Health Care Development Agency
PDSA	Plan-Do-Study-Act
PHC	Primary Health Care
PHCUOR	Primary Health Care Under One Roof
QIF	Quality Implementation Framework
RDT	Rapid Diagnostic Test
SEC	State Executive Council
SMOH	State Ministry of Health
SPHCDA	State Primary Health Care Development Agency
SURE-P MCH	Subsidy Reinvestment Programme for Maternal and Child Health
UHC	Universal Health Coverage
UNICEF	United Nations Children's Fund
WHO	World Health Organization

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CHAPTER 1

“If we keep on doing what we have been doing, we are going to keep on getting what we have been getting”

-Abraham Wandersman(1)

1.1 Background

Attaining Universal Health Coverage (UHC) requires systems capable of ensuring that required interventions and services are effectively delivered to populations in need. Primary Health Care (PHC) provides an appropriate platform for integrating health system components towards UHC(2). However, the impact of interventions depends on the extent to which these interventions are effectively delivered within the complexity of PHC systems(3). Whereas causes of ill-health alongside interventions to tackle them are well known, how to implement these interventions effectively is less understood(4). Traditional linear approaches, based on evidence of efficacy from controlled experiments, have not been effective in achieving the desired outcomes in the real world due to differences in context(5). Results tend to vary across settings. Consequently, rather than focus on whether interventions work, recent paradigms in implementation science attempt to understand why, when, and where they work most effectively(6).

Planning and implementing health interventions in Low and Middle-Income Countries (LMICs) has been a subject of debate among sector stakeholders. Planning defines roadmaps, timelines, and resources for turning policy into tangible activities. It provides the framework through which government agenda for health can be delivered to most of the populace. Notwithstanding, many LMICs suffer misalignment between policy, planning and implementing(7). This is largely due to the complexity of health systems, which is characterized by many actors (state and non-state) and interests operating at different levels of the health system(8). Attaining UHC in such settings, thus, requires context-specific evidence which considers policy actors and interests. Hence the recent advocacy for more innovative approaches to health systems strengthening (9-11).

In last 20 years, there has been a global call for evidence-informed policy and decision-making. This implies translation of empirical evidence into policy processes(11). Various scholars have described models through which this can be achieved. One school of thought assumes that policymaking should follow a rational, linear approach whereby policymaking is the direct

result of research evidence, i.e. the ‘Engineering model’(12).However, this is hardly the case in practice. The association between evidence and policy is not always rational or sequential. The linkage is rather complex given that policymakers may not be inclined to take evidence-informed action, or may choose to use evidence in ways unacceptable to researchers. This opinion forms the basis of what Weiss identifies as the ‘Enlightenment model’ where concepts and outputs from research sieve into policy networks, indirectly influencing the policy process (12, 13). Weiss further described a ‘Strategic Model’ where research is used as “political ammunition” to support predetermined positions or obstruct politically uncomfortable decisions(12, 13). Implicit within these models are ‘two communities’ (Research and Policy) with intrinsically different worldviews and priorities. Recent strategies towards evidence-informed policy aim at improving the relationship between the research and the policymaking communities towards improving the extent to which evidence is considered in the policy planning and implementation processes(12, 14). However, considering the nature of health systems, such interactions are not always between “two communities” as multiple players are involved in health sector planning at different levels, particularly in decentralized systems. The recent World Report on Health Policy and Systems Research notes that the evidence-policy-implementation continuum is quite fragmented as practitioners operate across various paradigms and organizational structures and tiers(15).

1.1.1 Decentralization of health systems

Decentralization has been described in three forms: deconcentration, delegation and devolution,(16). Deconcentration redistributes administrative power across different levels of a central authority (e.g. moving some central decision-makers to become sub-national representatives in regions and/or sub-regions). Delegation transfers authority to accountable semi-autonomous institutions, whereas in devolution, decision-making powers are ceded to autonomous sub-national (local) governments(12, 16, 17).

Decentralization is commonly considered as a political reform designed to decrease central influence and promote local autonomy, based on the philosophy that well structured smaller organizations with good management are intrinsically more effective than larger organizations(16, 18). Although decentralization rarely aims at directly improving health services, it could have significant impact on health system performance (efficiency and quality of services) by virtue of changes it engenders on authority and financial responsibility for health services. Specifically, proponents argue that decentralization can improve local cost consciousness (technical efficiency) as well as allocative efficiency through effective tailoring

of health investments to local needs and preferences. Quality of service is further enhanced given that local communities are able to participate in decision-making processes and hold policymakers to account for their actions(16, 19, 20). Despite these, a study of decentralization in Ghana, Uganda, Zambia and the Philippines concluded that there is insufficient evidence to demonstrate the impact of decentralization on health system performance. Some constraints on impact include information asymmetry between the national Ministry of Health and subnational agencies, local politics, and capabilities of the subnational agents(16, 20).

1.1.2 Primary healthcare and decentralization

It is about 40 years since the 1978 Alma Ata declaration which identified PHC as the key to the attainment of the goal of Health for All(21). PHC is acknowledged as the appropriate and cost-effective vehicle to drive current UHC initiatives(2). If properly implemented, PHC ensures a focus on equity, accessibility and quality of healthcare. PHC is best implemented in a decentralized context. This context aligns with its principles, such as community ownership, equity, and focus on local ailments(22, 23). PHC decentralization refers to *“a system of governance in which the power, authority, resources, and responsibility for PHC service delivery are transferred from a central government to actors and institutions at the periphery”*(17).

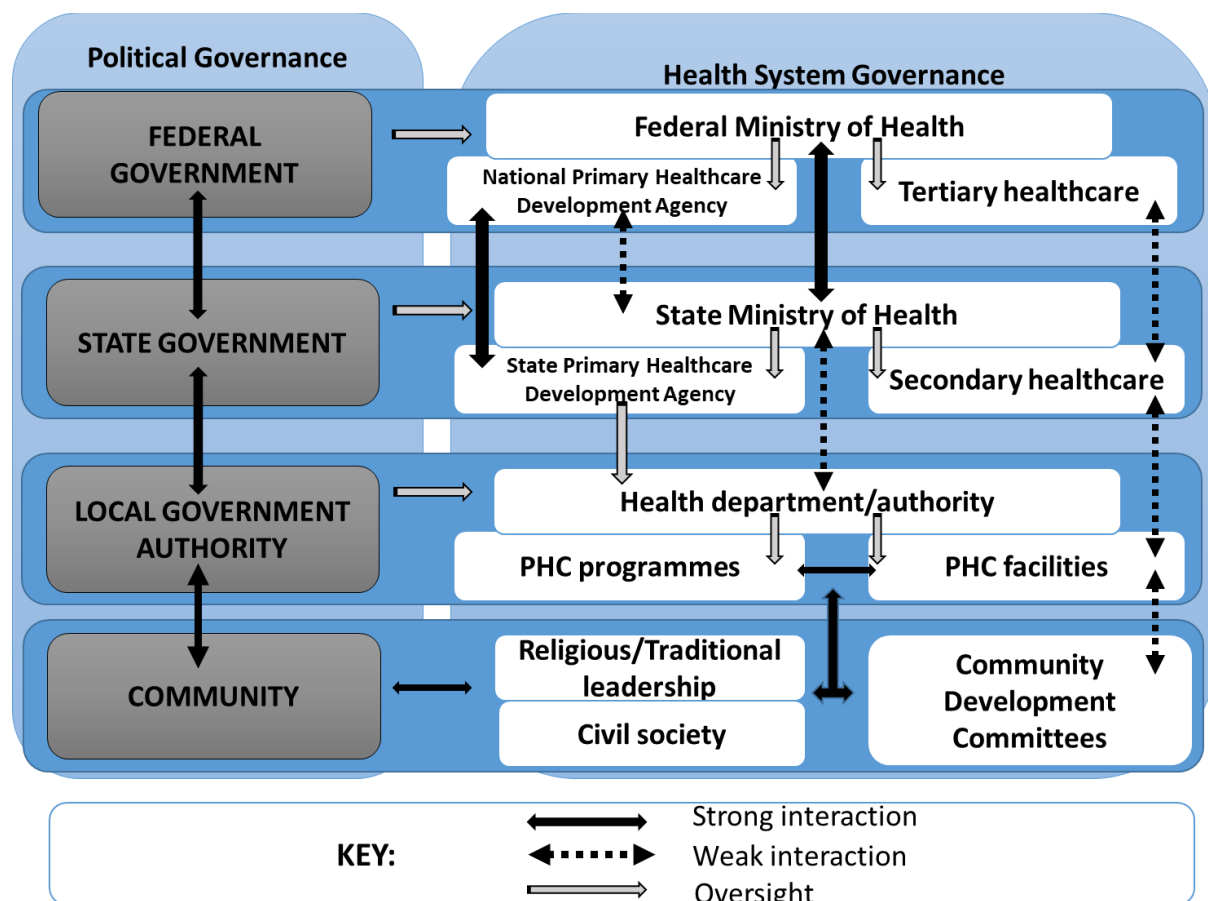
Lately, many LMICs are reorganizing their health systems towards decentralization (devolution and deconcentration) with implications for planning and implementation of PHC initiatives(3). The aim is to bring health services closer to beneficiaries by involving communities in healthcare planning and decision-making consistent with the 1978 Alma Ata PHC Declaration(21). A bottom-up approach to planning better addresses issues of equity, quality and accountability. Consequently, the World Health Organization recommended the District Health System (DHS) as a model for governance in decentralized LMIC health systems(24, 25). Countries have adapted models of the DHS to their own contexts(3). For example, Nigeria operates the Ward Health System which is, in theory, deconcentrated to political wards, the smallest units of the political system(26). However, ongoing governance reforms aim to integrate PHC decision making at the state level towards improved performance(3).

1.1.3 Health System Governance in Nigeria

Nigeria operates a federal system of government with considerable political and fiscal decentralization. Governance is structured into 36 states and the Federal Capital Territory,

which also comprise of 774 Local Government Areas/Authorities (LGAs)(27). Figure 1 attempts to simplify the complex interactions between the various tiers of political governance and the health system. PHC is under the jurisdiction of LGAs while secondary and tertiary health care services are the responsibilities (administrative and financial) of the state and federal governments respectively (28). However, all tiers of government have some degree of influence on PHC even though such interactions vary in terms of administrative control. The lowest (often unrecognized) governance structures lie within the communities. Traditional/religious leaderships and community development committees, though represent the demand-side of the system, also interact with, and influence, the various tiers of government.

Figure 1: Interactions between tiers of government in relation to PHC policy implementation in Nigeria



1.1.4 Financing of the Different Tiers of Government

Nigeria's constitution mandates the Federal and State governments to operate respective Consolidated Revenue Funds (CRFs). Funds from the CRFs are financed by all revenues or other monies received by the Federation and States respectively (with some exceptions). The Federation Account is the domicile for the revenues collected by the Government of the

Federation which is distributed to the three tiers of government by a formula prescribed by the National Assembly upon the recommendation of the Revenue Mobilisation Allocation and Fiscal Commission (RMAFC). The states and LGAs also receive taxes on certain items/services into the state CRFs as provided by the constitution. Each state maintains a ‘State Joint LGA Account’ into which is paid the LGA allocations from the Federal and State governments as prescribed by the National and State legislatures respectively. The bulk of state revenue is derived from Personal Income Taxes while Company Income Taxes, Excise Duties, Import and Export taxes and all derivations from Solid Minerals, Oil and Gas are paid directly into the Federation Account(29-32).

Table 1: Nigeria's Revenue Allocation Formula History

Year	Allocation of Federation Account (%)			
	Federal	States ¹	Local Government ²	Derivation Formula ³
1958	40	60	0	50
1968	80	20	0	10
1977	75	22	3	10
1982	55	32.5	10	10
1989	50	24	15	10
1995	48.5	24	20	13
2000	52.6	26.72	20.60	13

This formula has continued to change over the years, reflecting the associated controversies and persistent agitations by different tiers of government, as well as the different regions, sub-regions and ethnicities, for a fairer system of revenue allocation (table 2). The Federal Government, as a single entity, receives the bulk of allocations leaving the 36 states and 774 LGAs (which bear the brunt of majority of direct social interventions to the populace, including health) to share the smaller portions of the “national cake”. Furthermore, the huge gap between gap between allocations and internally generated revenue by the lower tiers of government reveals a situation where states (except Lagos, which is Nigeria’s commercial nerve) cannot generate enough revenue to pay its workers and thus depend on the Federal Government’s allocation and/or bail-out interventions. This “Father Christmas” role of the Federal

¹ The portion of the Federation Account allocated to the states is based on five criteria: equality (equal shares for all states); population; social development; land mass and terrain; and internal revenue generation.

² Nigeria’s current Local Government System commenced in 1976 with the creation of 301 LGAs

³ The derivation formula is the percentage of the revenue states retain from taxes on oil and other natural resources produced in the state.

Sources: (30, 31)

Government has significantly weakened the autonomy of states within Nigeria's federal system of governance(33, 34).

1.1.4.1 Health Financing

Nigeria's health financing revenue is generated from both pooled and un-pooled sources with the latter accounting for over 70% of Total Health Expenditure (THE). Pooled sources include budgetary allocation, direct and indirect taxation as well as donor funding while Out-Of-Pocket payments in the form of service fees account for the vast majority of un-pooled sources(35). Nigeria has operated a National Health Insurance Scheme (NHIS) since 2004, which is designed to be a social health insurance programme with contributions from government and workers. However, acceptance of this scheme has been poor such that the NHIS is estimated to cover only about 3% of Nigeria's population, mostly Federal Civil Servants(36). This situation is complicated by Nigeria's federal system and constitutional lacuna relating to responsibility for health. Consequently, the various state governments are not compelled to key into the NHIS. Advocacy efforts are ongoing, however, towards ensuring states domesticate the national social insurance programme by establishing state driven insurance schemes but the buy-in has been low(35).

Nigeria has also piloted community-based insurance programmes involving contributions from workers from the informal sector. Again, this has also witnessed low enrolment rates(35).

1.1.4.2 The Basic Health Care Provision Fund (BHCPF)

Nigeria, as part of ongoing health reforms to address health system weaknesses, enacted its first ever National Health Act (NHAct) in October 2014. The NHAct, in respect to financing PHC, makes provision for the BHCPF which comprises of not less than 1% of the Consolidated Revenue Fund (CRF) of the federation as well as grants from international donors and funds from other sources(37). The disbursement of the BHCPF is prescribed by the NHAct as follows: 50% of the fund to be used for the provision of basic minimum package of health services to all citizens, in eligible PHC facilities through the NHIS; 25% of the fund to be used to provide essential drugs for primary healthcare; 15% of the fund to be used for the provision and maintenance of facilities, equipment and transport for primary healthcare; 5% of the fund for the development of human resources for eligible PHC facilities; and 5% of the fund for emergency medical treatment to be administered by a Committee appointed by the National Council on Health(37).

1.1.5 Political economy and health policy environment

Nigeria's health system has been described as weak and poorly coordinated(38). This is partly the result of the perennial absence of provision for health in all Nigeria's constitutions since independence(28). The fluctuating political structure characterized by unstable governance over the years has further compounded the complexities of the health system. During the military era, Nigeria operated a unitary system of Government. It was during this era that most of Nigeria's foundational principles for its health system were developed, particularly the devolution of health responsibilities to the various tiers of government as well as anchoring the health system on Primary Health Care. These principles were retained in the 2004 Health Policy(28).

Nigeria's highest performance in health indices (e.g. immunization coverage, maternal and child mortality) was also recorded during one of the military regimes(28, 39). However, with the advent of democracy and the operationalization of a federal system, the implications of the constitutional silence as regards the health system governance became more apparent. The overarching policy-making body for health in Nigeria is the National Council on Health (NCH), which comprises of all 36 state commissioners for health including the secretary for health of the Federal capital territory and is chaired by the minister for health. The Council deliberates on, and approves, national policies to be adopted by all tiers of government.

Like most LMICs, Nigeria continues to evolve its health system towards the 1978 'Alma Ata Declaration' of 'Health for All' and Universal Health Coverage (40, 41). This results in frequent policy shifts with varying impact on health outcomes. In 1988, Nigeria formulated a National Health Policy adopting Primary Healthcare (PHC) as its health system's cornerstone. The Policy devolved PHC management to the LGAs; the lowest tier of government closest to citizens.(34, 42). Even though this resulted in improved service statistics initially, poor ownership by government and communities; weak policy/programme planning and implementation; etc. afterwards resulted in an observed decline in health outcomes such as infant and maternal mortality(43). The National Health Policy was revised in 2004 to address these challenges.(28).

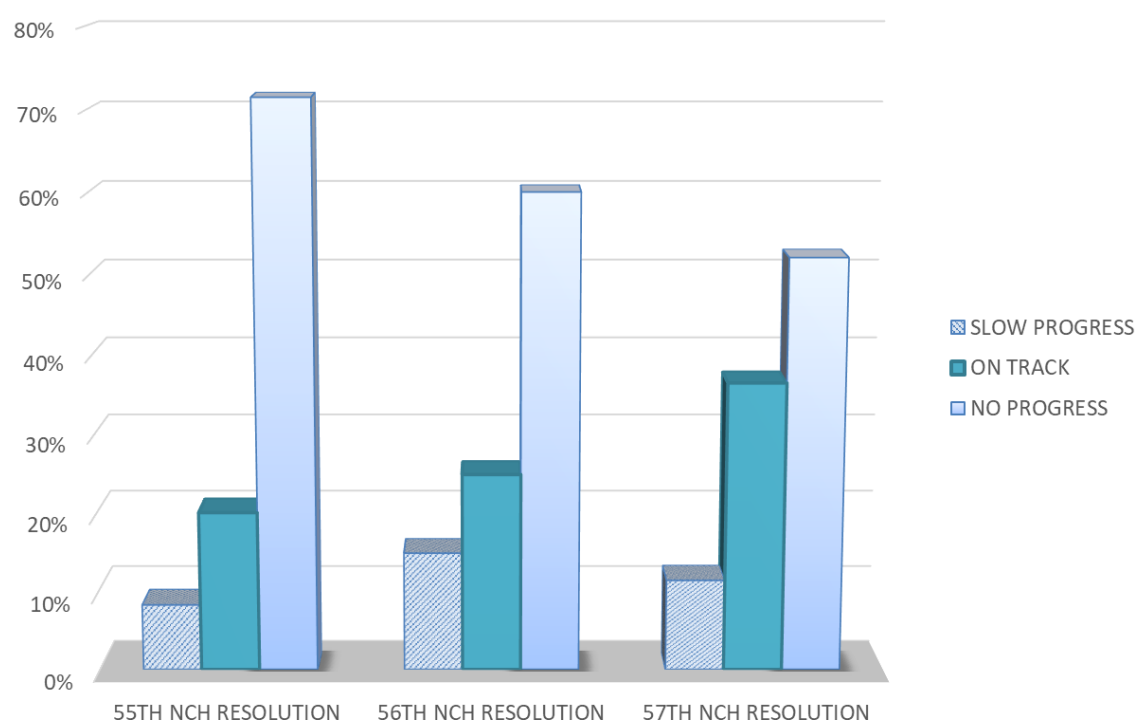
Nigeria, moreover, developed an overarching framework for operationalizing the Policy: The National Strategic Health Development Plan (NSHDP). The NSHDP identifies four approaches for delivering a minimum healthcare package: community participation; inter-sectorial collaboration; functional integration at all levels; and managerial process

strengthening for health development(44).The policy further prescribes integrated governance and service delivery for primary healthcare.

1.1.6 Policy implementation gaps

A recent evaluation of subnational implementation of policies revealed that, although the proportion of implementation gaps decreased between 2013 and 2015, over 50% of policies approved by the National Council of Health remained unimplemented at subnational levels (Figure 2)(45). Further, prior to this research, little was known about the quality of implementation of policies which were assessed as being on track. This implementation research contributes to filling this gap using the “PHC Review” initiative, one of the policies approved by the NCH, as a case study of policy implementation in Nigeria’s decentralized system.

Figure 2: Status of subnational implementation of NCH Resolutions as reported by the States (2013-2015)



1.1.7 Primary Healthcare Reviews and the DIVA Performance Improvement Framework

In keeping with the NSHDP, Nigeria’s National PHC Development Agency (NPHCDA) initiated PHC Reviews to monitor and evaluate implementation as well as utilize programme (particularly routine) data for evidence-based planning by LGAs towards improving ‘effective

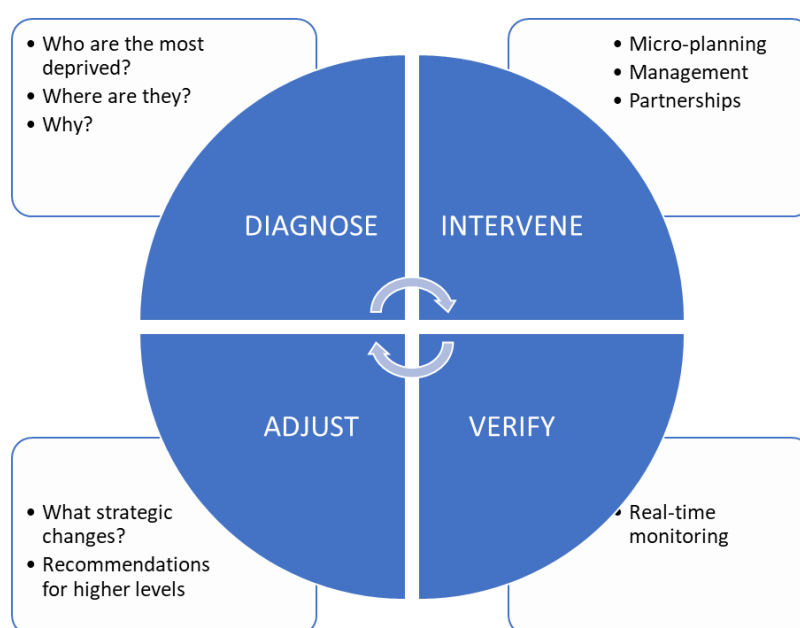
coverage’ of interventions(46). Effective coverage is ‘coverage of sufficient quality to achieve desired health impact’(47, 48). NPHCDA adopted effective coverage indicators for PHC tracer interventions which include PMTCT, Routine Immunization, Antenatal Care, Skilled Birth Attendance, Vitamin A Supplementation, Infant and Young Child Feeding, and Community Management of Acute Malnutrition(49). These indicators were drawn from existing local and international programme indicators (Paper 3).

PHC reviews are implemented through a 4-step quality improvement cycle known as ‘Diagnose-Intervene-Verify-Adjust (DIVA)’. ‘Diagnose’ identifies constraints to effective coverage. ‘Intervene’ develops and implements action plans addressing identified constraints. ‘Verify/Adjust’ monitor performance and revise action plans.(50).

1.1.8 The DIVA Model

DIVA is a variant of the Plan-Do-Study-Act (PDSA) cycle designed to improve performance in decentralized health systems; especially those modelled after the District Health System(50, 51). DIVA builds the capacity of LGA level managers to evaluate, act and be accountable for equitable service delivery. DIVA is anchored on the following principles- ‘strong government leadership and ownership; flexibility and adaptability to local programmes, building on what exists (i.e. not creating a parallel system for DIVA); community involvement and engagement; and supportive (technical and financial) process from civil society, private sector and development partners’(50). The phases of DIVA are described below (Figure 3) (52).

Figure 3: The DIVA model (Adapted from UNICEF).



Diagnose Phase: In the ‘Diagnose’ phase, an adapted Tanahashi model is used to evaluate health systems bottlenecks at the LGA level(47, 48). The original Tanahashi describes a relationship between five measures of coverage (Availability coverage, Accessibility coverage, Acceptability coverage, Contact coverage and Effectiveness coverage) for the assessment of the capacity of a health system to achieve effective coverage of interventions(47, 48). The adaptation used in Nigeria measures six determinants of quality or “effective coverage” of interventions: Availability of essential health commodities; Availability of trained human resources and Physical/geographical accessibility services; Initial Utilization (acceptability); Continuous utilization (contact); Impact/quality of interventions delivered. Bottlenecks are identified as gaps in optimal coverage of each determinant, i.e the difference between the observed coverage and full target population coverage(47). The initial three (Availability of health commodities, human resources and geographical accessibility) are on the supply-side while the remaining represent demand. Bottlenecks are identified as constraints to optimal performance of each determinant. Thus, each determinant is analogous to a Tanahashi measure with the “availability” measure divided into two determinants: availability of commodities and availability of human resources.

The management teams identify health system constraints with respect to each tracer intervention using routine data analysed on an MS-Excel based Bottleneck Analysis tool(52). Thereafter techniques and tools such as brainstorming, root cause analysis techniques(53) such as affinity and driver diagrams are used to causes of identified bottlenecks. Figure 4 shows the overarching framework for the ‘Diagnose’ phase.

The diagram illustrates the Health System Analysis Framework, a four-step process for identifying and addressing health system bottlenecks.

STEP 1: Identify bottlenecks

Inputs: Health Management Information System, Programme Data, Surveys.

Process: Equity and Bottleneck Analysis using Tanahashi Model for Health System Analysis.

STEP 2: Analyse root causes

Process: Demand Side Analysis, Supply Side Analysis, Quality Analysis.

STEP 3: Identify solutions and strategies

Process: Management Analysis, Identify/prioritize solutions and develop implementation strategies/operational plans.

STEP 4: Consult stakeholders

Process: Consult Stakeholders to validate findings and solutions.

Tools and Methods:

- Bottleneck Analysis Tool (used in Step 1)
- Causal Analysis Tool (used in Step 2)
- Brainstorming (used in Step 3)
- Operational Planning Tools (used in Step 3)

Verify Phase: This involves regular supportive supervision, monitoring and evaluating the implementation of planned activities.

The National Council on Health (NCH) in 2012 approved DIVA as a model for planning, monitoring/evaluating and improving quality of PHC interventions. The Council further acknowledged the potential of the PHC reviews to strengthen the PHC system towards Universal Health Coverage(52). The NCH is Nigeria's highest policymaking body responsible for setting national visions and goals for health to be implemented across all tiers of government. The NCH consists of all State Ministries of Health (represented by their commissioners) under the chairmanship of the national Minister for Health(28, 37).

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unassessed. Effective coverage of interventions remained sub-optimal(49). The purpose of this research, therefore, is to fill this gap by identifying sustainable approaches to implementing effective evidence-informed PHC operational planning in Nigeria.

1.2 Aims and Objectives of the Study

To identify implementation gaps, and effective strategies to improve subnational PHC policy implementation outcomes in Nigeria, using the PHC reviews as a case-study

1.2.1 Research Questions

The research explored the contextual policy environment, the mechanism of implementation of this policy as well as outcomes in an attempt to answer the following research questions:

1. What factors influence sub-national absorption and implementation of national PHC policies in Nigeria?
2. How is DIVA being adapted and implemented at sub-national levels?
3. Is DIVA effective in strengthening PHC and improving coverage of interventions in Nigeria's decentralized context as compared to theoretical expectations?
4. How do policy actors interact to influence adaptation and implementation of PHC policies at sub-national levels?

1.2.2 Objectives

1. To identify contextual factors influencing PHC policy implementation at sub-national levels in Nigeria
2. To assess the implementation fidelity of the processes of DIVA at the sub-national level
3. To evaluate the effectiveness of DIVA in improving effective coverage of PHC in an implementing state
4. To examine the interactions and influence of various actors in implementing PHC related policies at sub-national levels.

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CHAPTER 2

2.1 Literature Review

2.1.1 Theoretical Approach

Analyzing public health policy is complex as approaches vary widely with perspectives. Viewpoints may range from economic and management to medical views of health policy among others(48). An overarching influence on all these perspectives is the role of politics, which cannot be separated from decision-making processes(12). The purpose of analysis also determines scope and perspective. Generally, Analysis of Policy is carried out retrospectively to understand a policy initiative, while Analysis for Policy is a prospective study into the policy environment to predetermine possible policy outcomes so as to plan effective implementation strategies(12). The series of studies was both retrospective (looking at the processes and outcomes of the policy) and prospective (using findings to inform more effective and sustainable policy).

Various scholars have described policy processes using different approaches, models, theories and frameworks (49, 50). Policy theories have evolved in complexity over time from simple models such as the “stages heuristics model”, which describes policymaking process as a cycle of stages which include agenda setting, policy formation, decision making/policy adoption, implementation, and evaluation, to more complex models which seek to explore the interactions of influences and determinants of policy processes and outcomes. Although critiques of linear models like the stages heuristics view the model as outdated, some policy researchers opine that it is still useful in modern policy analysis given that it could shed light on gaps in specific stages of interests at different times (49, 51-54).

Policy processes in LMICs have been described as very fluid thus requiring complex approaches to analysis. This often implies adaptation and integration of theories and frameworks from various disciplines and paradigms(52, 55-57). A critical realist paradigm aims to generate theories that explain real-world implementation (as against controlled settings). Principally, it attempts to identify the mechanisms that explain the outcomes of interventions(58, 59). Realist evaluation is a theory-driven evaluation which examines ‘what works in which circumstances and for whom?’, as against ‘does the intervention work?’(59). Thus, the underpinning philosophy of this study is to understand the role of contexts and actors in implementation outcomes of PHC policy interventions in Nigeria. This research, though

multidisciplinary in approach, applies implementation science concepts largely within the context of health policy analysis using a critical realist paradigm(58), thus presenting a novel conceptual approach to understanding policy implementation.

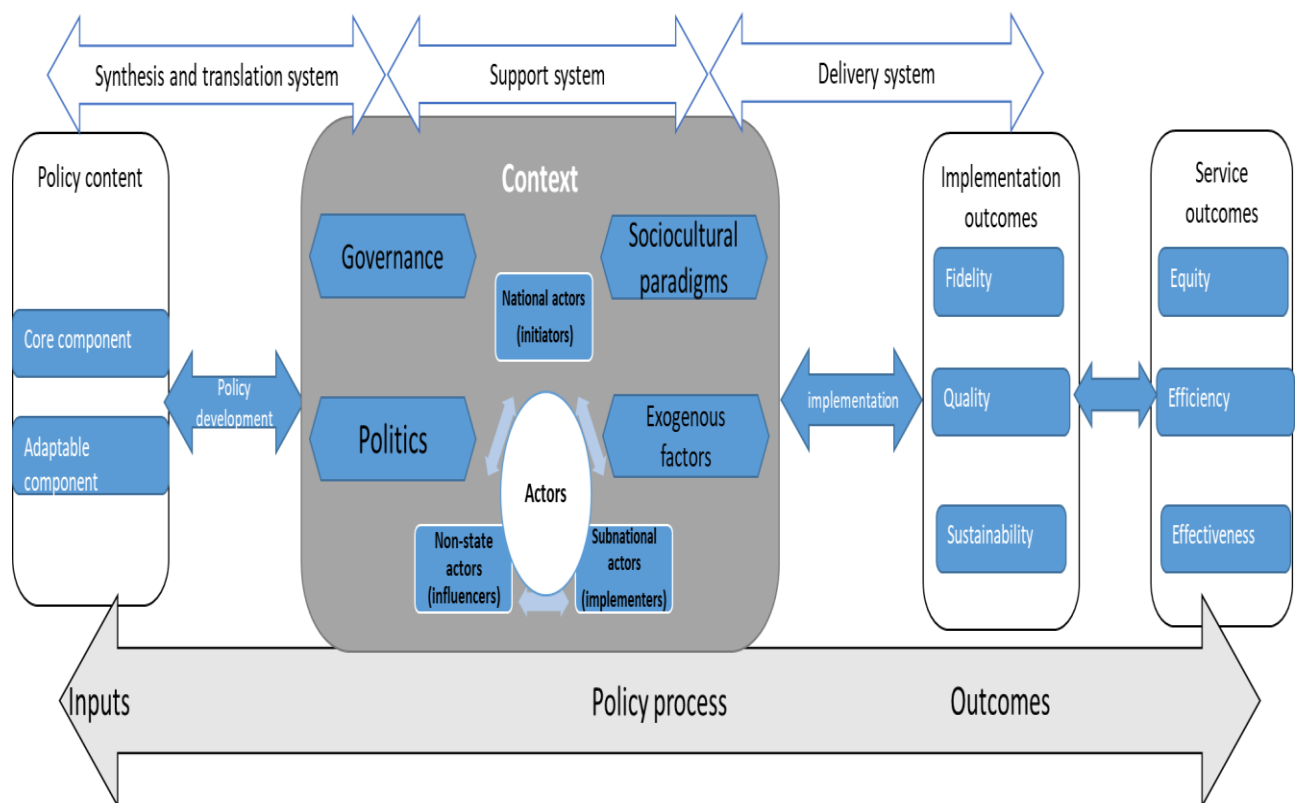
Implementation science is a growing discipline, so is its application in health. Generally, it aims to improve the translation and use of evidence in healthcare as well as the implementation process of evidence-based interventions(60, 61). Principles, paradigms and methods are multidisciplinary and vary widely from knowledge/ evidence synthesis, knowledge translation to quality improvement, realist evaluation, etc.(61). Application of its principles also varies widely across the spectrum of health systems (clinical, organizational, macrosystems and policy)(3, 62).

There are various definitions of implementation in the literature. Damschroder and Hagedom define implementation as ‘efforts designed to get evidence-based programmes or practices of known dimensions into use via effective change strategies’(63) while DeLeon, from the policy perspective, refers to implementation as ‘what happens between policy expectations and (perceived) policy results’(64). Implementation variance or gap is the difference between the design/ expectation of policy and observed delivery (5, 12). Implementation quality reflects the extent to which policy execution meets the necessary standards to achieve the desired outcomes(65). Implementation fidelity has been described within the following domains: adherence, exposure, quality of delivery, participant responsiveness, and programme differentiation(66-69). This thesis focuses on “adherence”. Thus, it examines how implementation of the core components of policies adhere to the initial policy design in Nigeria’s multi-level governance context as they are transmitted across tiers of government and are adapted to subnational contexts (66, 70). Further, the “implementation outcomes” of policy are assessed in relation to the afore mentioned processes. Proctor and colleagues distinguished implementation outcomes from service outcomes by identifying implementation outcomes as “the effects of deliberate and purposive actions to implement new treatments, practices, and services”. They outlined implementation outcomes such as acceptability, adoption, appropriateness, cost, feasibility, fidelity, penetration and sustainability, while positing that service outcomes include,among others, equity, efficiency and effectiveness of interventions(71).

2.1.2 Conceptual Framework

Wandersman et al's Interactive Systems Framework (ISF) for dissemination and implementation(1), Walt and Gilson's policy analysis triangle(72) informed the conceptual framework for this research (Figure 4). Whereas the Walt and Gilson framework focuses on how policy actors, content, context and processes interact, the ISF describes three systems in which these processes occur (synthesis and translation, support and delivery systems) and how they interphase to determine implementation outcomes. These frameworks are important in systematically examining the role of politics in formulation and implementation of policy initiatives, particularly in LMICs(12, 72).

Figure 5: Conceptual Framework



Inputs into the policy process involve the actors, policy contents and contexts. This research explored how these interact within the policy black box to affect the outcomes of the policy.

Actors denote individuals, groups or organizations which make or influence policy. They are at the centre of the of the policy framework. Generally, actors are classified into state and non-state. State actors refer to government-owned organizations or offices. Within the context of this study, state actors are classified according to the levels of political governance in which they operate. Federal level actors include but are not limited to the Federal Ministry of Health

(FMOH) and its parastatals, State level actors include the State Ministries of Health (SMOH), State Ministry of Local Government (SMOLG), the Local Government Service Commission (LGSC) and the State Primary Health Care Development Agency (SPHCDA). Governmental actors at the Local Government Level include the Local Government offices and officials that influence health directly or indirectly.

Non-state actors are different from government actors in that they do not usually seek formal political power for themselves, even though they may seek to influence those with formal political powers. They are sometimes called Interest or Pressure Groups(12). According to Buse, Mays and Walt (2012), generally acceptable characteristics of non-state actors include that they are voluntary (people or organizations may choose to join them), they aim to achieve some desired goal, and they usually do not attempt formally infiltrating decision-making processes as part of government machinery. They are broadly classified into Sectional Groups (promote interests of members or affiliates) and Cause Groups (promote specific causes, membership is usually open to like minds)(12). Sectional groups in the context of this study will include community development committees, etc. Cause groups will include some non-governmental; intergovernmental organizations and civil society organizations working along different layers of the health system. Further to these, Sabatier and Jenkins-Smith described the organization of actors into smaller groups known as 'Advocacy Coalitions' each distinguished by a distinct set of norms, ideas and resources. These Advocacy Coalitions are usually in conflict with one another as they compete for influence over government institutions, each advocating its solutions to policy problems(73).

Contextual factors influencing policy are classified by Leichter into situational, structural, cultural and exogenous factors(74). Situational factors, sometimes called 'focusing events', are usually transient or idiosyncratic events (e.g. the Ebola outbreak) which may influence policy. Structural factors may include political systems, laws, etc., which are relatively inflexible societal elements. Culture refers to ideas, customs, and social behaviour of the society. The role of exogenous or international factors cannot be overlooked particularly with the advent of globalization and interdependence between states and consequently, the increasing role of international donors in policy processes in LMICs(12). With respect to quality improvement initiatives like DIVA, Kaplan et al (2012) broadly categorized contextual factors into those relating to the team working on the project, the microsystem in which they function, local QI support and capacity, the organization in which they work, and the external

environment. The effect of these contextual factors on outcomes will vary depending the policy or intervention designed and implementation process (75, 76)

The Content of the Policy includes features of the problems it aims to address as well as effective interventions to address them. This research examined the policy content using document analysis and key informant interviews. The core and adaptable policy components were identified. Furthermore, the implementation fidelity of the DIVA adaptations was benchmarked against the intervention theory, guidelines and policy prescriptions.

2.2 Conclusion

The process of policymaking and implementation occurs across three systems which interact with each other to determine outcomes. The synthesis and translation system refines information about innovations and translates it into user-friendly formats; the support system includes technical assistance, political and other forms of support to actors at various levels; and the delivery system is responsible for implementing the initiative in the world of practice(1). In practice, these systems, not only interact but also overlap. Knowledge synthesis and translation, for example, occurs also in the support and delivery systems with actors interpreting and implementing policies in ways that may suit local interests (even if significantly different from the original intent).

With respect to PHC interventions in Nigeria, the synthesis, translation and support systems cut across the three tiers of government, whereas the delivery system in practice, these systems, not only interact but also overlap. Knowledge synthesis and translation, for example, occurs also in the support and delivery systems with actors interpreting and implementing policies in ways that may suit local interests (even if significantly different from the original intent). is largely domiciled at the LGA level, even though secondary and tertiary delivery systems exist. Meyer's Quality Implementation Framework was used to appraise policy development and translation across these tiers(65).

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CHAPTER 3

3.1 Methods

This chapter describes the overall methodological approach for the four inter-linked studies. Details on the specific methods are provided in the published papers (chapters 4-7).

3.1.1 Overview and summary of research methods

This PhD employed a mixed-method approach which involved the following:

1. Desk/Literature Reviews of technical reports and published articles relating to PHC Operational Planning in Nigeria. Reports from relevant government and non-governmental organizations were identified for review through Subject-Matter Expert recommendations.
2. Secondary Analysis of National PHC Review Data (most of which originated from the Health Management Information System) was conducted comparing implementation outcomes of DIVA at the state and LGA levels. Outcome measures used for comparison were performance indicators already defined for tracer PHC interventions by the Government of Nigeria in the policy documents(1).
3. Key Informant Interviews were conducted to collect data on perceptions and constraints of PHC reviews from the government (Federal, State, and LGA), and other interest groups.

3.1.2 Sampling and participants

The research used different sampling techniques for each sub-study as detailed in respective research papers. Overall, 242 respondents were selected representing each layer of the health system (Federal, state, and LGA) as well as from the various spectrum of actors involved in the interventions (government and non-government). Further, 39 policy documents were analyzed (Tables 1 and 2). Paper 1 was a national survey in which questionnaires were administered to 222 respondents (4 state-level policymakers and 2 LGA-level PHC managers from each state in Nigeria). Paper 2 involved individual interviews of 15 federal policymakers, development partners, civil society, state and local government level actors. Paper 3 utilized health system and programme data from all 23 LGAs in Kaduna, the only state that has sustained implementation of the PHC reviews. Paper 4 purposively selects 2 LGAs in Kaduna

(high and low-performing according to specified criteria) for contextual comparison. Table 1 summarizes the characteristics of respondents.

Table 2: Summary of study respondents

Respondent	Number	Level of operation
NPHCDA (Senior manager)	3	National
NPHCDA (Middle level manager)	2	National
National Consultant (PHC Reviews)	2	National /Sub-
Development partners	7	International/National
State Ministry of Health/ State Primary Healthcare Development Agency (Managers)	148	Subnational (state)
LGA health manager	80	Subnational (LGA)
Total	242	

Table 3: Documents analyzed

Document	Status	Source
Integrating Primary Health Care Governance in Nigeria (2013)	Published	NPHCDA
Institutionalization of the Primary Health Care Reviews in Nigeria: Status and Progress (2013)	Published	NPHCDA
Revised National Health Policy (2008)	Published	FMOH
Guidelines for the Training of Resource Persons and Implementation of Quarterly Primary Health Care Planning & Implementation Review: Bottleneck Analysis Methodology (2012)	Published	NPHCDA
Primary Health Care Under One Roof Implementation Scorecard III Report (2016)	Published	NPHCDA
National Strategic Health Development Plan 2010-2015.	Published	FMOH
National Guidelines for the Development of PHC System in Nigeria (2012)	Published	NPHCDA
NPHCDA annual reports: 2010-2014 (5 documents)	Published	NPHCDA
Assessment of NSHDP Progress, Status and Indicators through PHC Reviews: Missions Report (2012)	Unpublished	
Presentations and minutes of stakeholder meeting on PHC reviews (27 documents)	Unpublished	NPHCDA

3.1.3 Methods for achieving each specific objective

Objective 1: To identify contextual factors influencing PHC policy implementation in Nigeria

This was achieved through a review of technical reports and published documents (2010-2017) relating to health system governance in Nigeria. Key Informant Interviews were also conducted among policy makers and implementers in line with the conceptual framework of this research. Thus, the interviews sort to explore issues such as the role of situational, structural and exogenous factors in the implementation quality of PHC interventions. In assessing the contextual environment, this research further examined the currently evolving policy and

governance reforms upon which DIVA is hinged, using government documents and a policy implementation survey. The outputs are presented in papers 1 and 2.

Objective 2: To assess the implementation quality of DIVA at the sub-national level

Implementation of the four stages of DIVA was assessed qualitatively in comparison with the guidelines using a theoretical framework of the model for improvement as well as the Quality Implementation Framework developed by Meyers et al(2).

Objective 3: To evaluate the effectiveness of DIVA in improving effective coverage of PHC in Kaduna

This involved a mixed method approach. Data from the PHC reviews were used to quantify the outcome of the DIVA process in Kaduna state over a period of time (2013-2016). These were analyzed on run charts designed to identify the possible influence of DIVA on the outcome measures. The run charts were used to understand variations in monthly data patterns while bar charts were used to analyze changes in implementation bottlenecks of the tracer interventions. Outcome measures were the ‘effective coverage’ indicators defined for tracer PHC interventions by the Government of Nigeria in the policy documents(1).

Using a Participatory Action Research (PAR) approach, we supported programme managers in both LGAs to conduct bottleneck analysis (Diagnose and Intervene phases) on each tracer intervention using a modified Tanahashi model and develop plans to address them. PAR facilitates action through a reflective cycle. Thus, enabling participants to collect and analyse data in real-world contexts and determine actions to be taken. Further, it blurs the line between researchers and research subjects by empowering participants to become partner researchers as against being mere objects of research (respondents)(3). Work plan implementation fidelity (which is an intermediate process of DIVA) was assessed by describing and quantifying implementation patterns (proportion of activities implemented) on pie and Pareto charts for each tracer intervention.

Objective 4: To examine the interactions and influence of various actors in subnational implementation of PHC interventions

This was achieved by conducting a interviews in selected LGAs to determine the interactions and influence of various actors in implementing the PHC reviews. Review of documents (government reports, policies and guidelines) was conducted to identify perspectives and roles of different actors as relates to PHC planning and implementation. Documents dating from

2010 when the PHC review was conceived were identified and analyzed qualitatively using a framework analyses approach.

Tables 3 presents a summary of the methods used to answer each question while Table 4 disaggregates these into the various sub-studies in the series.

Table 4: Summary of Research questions, objectives and methods employed

Objectives	Methods	Output
To identify contextual factors influencing subnational PHC policy implementation in Nigeria	Reviewed technical reports and published articles/ documents relating to health system governance. Conducted Key Informant Interviews.	Papers I and 2
To assess the implementation quality of DIVA at the sub-national level	Mixed method: Qualitative (conducted interviews and document content analyses), quantitative scorecard	Paper 2
To evaluate the effectiveness of DIVA in improving coverage of PHC interventions in an implementing state	Mixed method: Evaluated the outcome of DIVA using multiple time series and run charts; Qualitative assessment of planning processes and output documents of PHC reviews at LGAs.	Paper 3
To examine the interactions and influence of various actors in implementing PHC related policies	Conducted stakeholder Analysis using qualitative methods (Interviews and document analysis)	Paper 4

Table 5: An Overview of measurement and analysis methods used in each paper

	Study 1	Study 2	Study 3	Study 4
Issues analysed	Subnational implementation fidelity of a national health initiative	Implementation quality of DIVA as it was translated from national to subnational levels	Evaluated effectiveness of DIVA as an approach to identify and improve on health system bottlenecks in a real-world Nigerian context	Evaluated contextual influences on DIVA implementation in two LGAs
Data collection	2015-2017	2017	2013-2017	2017
Data sources	148 state-level and 74 LGA-level PHC actors across all 37 states in Nigeria surveyed by 58 data collectors	15 key informant interviews and 39 document analyses.	Programme data, health management information system, observation, programme reports from 23 LGAs in Kaduna	15 key informant interviews 10 policy document analyses
Analytical approach	Scorecard: Measured the extent to which states complied to core domains of policy guidelines	Quantitative (Scorecard) and Qualitative: Based on Meyer's Quality Implementation Framework	Participatory Action Research, Quantitative evaluations	Walt & Gilson Policy analyses triangle and Kaplan's Model for Understanding Success In Quality were used as framework for qualitative and quantitative analyses

3.1.4 Ethical considerations

Ethics approval was obtained from the National Health Research Ethics Committee of Nigeria (NHREC/01/01/2007-13/08/2016) and the Human Research Health Ethics Committee of the University of the Witwatersrand, South Africa (M161122). Informed consent was received from all respondents. Permissions were obtained from the NPHCDA for use of data not in public domain.

3.1.5 Candidate's role in the study

It is important to note my positionality within this research. More so because I am aware that as a researcher my pre-conceived assumptions may influence how I perceive and interpret the data including the approach to the analysis (4). Prior to commencing the PhD I occupied the position of senior medical officer (policy and planning) at the National PHC Development Agency (NPHCDA), Nigeria where I worked since 2011. Some aspects of this study (data collection) was carried out as part of my work at the NPHCDA (embedded research). This specifically applies to papers 1 and aspects of paper 2 prior to 2016. Paper 1 contained data from a national evaluation which involved a large number of data from Nigeria's 36 states. The study involved 25 analysts from various stakeholder organizations including the NPHCDA, UNICEF, WHO and the Health Sector Reform Coalition of Nigeria. The large and diverse nature of the analysts was due to the large quantity of data to be extracted from documents retrieved, the sensitive nature of the documents, and the need to ensure interagency transparency in the evaluation. In paper 2, the intervention was implemented with me being an embedded researcher. However, that was prior to the PhD. The PhD on the other hand involved a retrospective effectiveness analysis of the intervention using data which derived from the programme implementation. Thus the intervention was carried out as part of my work, whereas the retrospective evaluation was carried out as a full time PhD candidate.

The researcher proceeded on study leave to commence the full-time PhD in 2016. My position in the NPHCDA aided my research by creating easy access to national and subnational participants/respondents. 5 directors at the NPHCDA were interviewed as part of my research. No peer or subordinate staff members were interviewed. While my position may potentially result in some interviewer/ interpreter bias, it allowed for extraction of information which may not have been easily volunteered to external interviewers. Potential bias was mitigated by having co-authors external to the Nigerian health system context to provide alternative perspectives. Statements on the limitations and potential influence of this embedded research

are contained in the respective publications. All aspects of study was designed in entirety by me. I also conducted data analysis with the aid of research assistants as stated in the various papers. In summary, face to face and phone call interviews were conducted by me. Fieldnotes were taken by an assistant. Interviews were converted into transcripts and compared with fieldnotes to ensure reliability of transcripts. Further, two assistants listened separately to audio recordings and crosschecked against transcripts and fieldnotes.

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CHAPTER 4

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RESEARCH ARTICLE

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Evaluating the sub-national fidelity of national Initiatives in decentralized health systems: Integrated Primary Health Care Governance in Nigeria

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Abstract

Background: Policy making, translation and implementation in politically and administratively decentralized systems can be challenging. Beyond the mere sub-national acceptance of national initiatives, adherence to policy implementation processes is often poor, particularly in low and middle-income countries. In this study, we explore the implementation fidelity of integrated PHC governance policy in Nigeria's decentralized governance system and its implications on closing implementation gaps with respect to other top-down health policies and initiatives.

Methods: Having engaged policy makers, we identified 9 core components of the policy (Governance, Legislation, Minimum Service Package, Repositioning, Systems Development, Operational Guidelines, Human Resources, Funding Structure, and Office Establishment). We evaluated the level and pattern of implementation at state level as compared to the national guidelines using a scorecard approach.

Results: Contrary to national government's assessment of level of compliance, we found that sub-national governments exercised significant discretion with respect to the implementation of core components of the policy. Whereas 35 and 32% of states fully met national criteria for the structural domains of "Office Establishment" and "Legislation" respectively, no state was fully compliant to "Human Resource Management" and "Funding" requirements, which are more indicative of functionality. The pattern of implementation suggests that, rather than implementing to improve outcomes, state governments may be more interested in executing low hanging fruits in order to access national incentives.

Conclusions: Our study highlights the importance of evaluating implementation fidelity in providing evidence of implementation gaps towards improving policy execution, particularly in decentralized health systems. This approach will help national policy makers identify more effective ways of supporting lower tiers of governance towards improvement of health systems and outcomes.

Keywords: Primary healthcare, Implementation fidelity, Decentralization, Nigeria, Health policy

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Background

Introduction

Effective implementation processes are important for achieving the outcomes of complex health system interventions [1] and traditional linear approaches have not been effective in achieving the desired outcomes of such interventions. When evidence-based initiatives are introduced to new settings, they do not automatically get implemented as designed due to differences in context [2]. It is therefore necessary not only to focus on executing the intervention but to also ensure fidelity and quality in implementation. Implementation here refers to “efforts designed to get evidence-based programs or practices of known dimensions into use via effective change strategies” [2]. Given that investments in evidence-based interventions often fail to achieve expected results particularly in low- and middle-income countries (LMICs), there are ongoing debates and discussions on how to evaluate health system interventions to understand the mechanisms and elements that influence their execution and outcomes [3]. Batalden’s observation that “every system is perfectly designed to get the results it gets”, has become associated with improving the implementation of health system strengthening initiatives [4]. To ensure effective implementation, it is important to understand the systems in which interventions are implemented.

Generally, government systems are designed as multi-level structures [5]. While in unitary systems, there is a clear chain of command between national and sub-national levels of government, federal (decentralized) systems are characterized by sharing of authority across the various tiers of government [5]. However, the delineation between both systems is not clear cut, as “unitary” does not indicate that all decision making is done at the national level. Neither do politically decentralized systems confer all decisions-making powers to sub-national government structures. Rather, classification is with regards to the tier at which sovereignty lies [6]. But policy making in unitary systems is largely central, thus implementation can be more efficient than in decentralized systems, given the reduction in bureaucratic bottlenecks (common in decentralized systems) between policymaking and execution [5]. For example, a recent study found that African countries operating federal (decentralised) system of government consistently performed lower in vaccination coverage than the continent’s average [7]. Notably, with the propagation of democracy (particularly in Africa), decentralization is increasingly adopted even in constitutionally centralized countries [6]. Consequently, understanding how this system affects the health policy chain becomes important to ensure optimal benefits of decentralization while minimizing its untoward effects.

Administrative decentralization manifests in three forms: deconcentration, delegation and devolution, [8].

Considered the weakest form of decentralization (and a characteristic of unitary systems), deconcentration redistributes decision-making power across different levels of the central governance authority, by moving its actors from the centre to act as sub-national representatives in regions and/or sub-regions. Delegation, transfers decision-making power from the central authority to semi-autonomous institutions accountable, but not fully subservient to it. Devolution occurs when central government transfers decision-making powers to autonomous sub-national (local) institutions which have independent administrative systems from the central administration. These local governments have legally defined geographical boundaries as well as independent financial management systems. Decentralized (federal) political governance is characterized by devolution of powers [5, 8, 9]. Abimbola et al. described decentralisation in relation to primary health care (PHC) as “a system of governance in which the power, authority, resources, and responsibility for PHC service delivery are transferred from a central government to actors and institutions at the periphery”.

In this paper, we explore the implementation fidelity of integrated PHC governance policy in Nigeria’s decentralized governance system and its implications on closing implementation gaps with respect to other nationally initiated health policies and programmes. Fidelity has been described in 5 dimensions: adherence, exposure, quality of delivery, participant responsiveness, and programme differentiation [3, 10–12]. We focus on the “adherence” dimension that reflect the extent to which policy components are implemented by lower levels of the health system as prescribed by policy guidelines [3, 13].

Study context

Since independence from British colonial rule in 1960, Nigeria has fluctuated between democratic federal systems, unitary military autocracies and hybrid (a mix of autocratic central government and pseudo-democratic sub-national governments) governance systems [14]. Much of the principles underpinning the current structure of the health system were developed during military and hybrid eras; particularly the devolution of responsibility for health to the various tiers of government. While Nigeria regained democratic rule in 1999, these principles of decentralisation were retained in the 2004 national health policy [15]. Nigeria operates a three-tier federal system of government comprising the federal government, 36 states and 1 territory (the Federal Capital Territory), which in turn consist of Local Government Areas (LGAs) totalling 774 nationally. The states are semi-formally clustered into six geopolitical zones, each with an average of 6 states having comparable sociocultural characteristics, without any administrative structure [16].

While it has led to a considerably decentralized governance system, Nigeria's constitution is silent on the functions and responsibilities of each tier of government in the provision and oversight of health services [17]. Nevertheless, the National Health Policy prescribes a system in which PHC is under the purview of local governments while the state and federal governments are responsible for the management (administrative and financial) of secondary and tertiary health care services respectively [15]. One of the consequences of PHC being the least resourced (technically and financially) level of government in Nigeria (i.e. Local Governments) is that other levels of government have had to assume a level of responsibility for PHC as well. This system in which functions, structures and human resources for PHC are managed by different tiers and organs of government is poorly coordinated and lacks defined accountability mechanisms. Many services are organised along vertical lines with poor integration and limited co-ordination. Referrals across levels of care are dysfunctional. Diverse management structures co-exist with duplicated or poorly defined roles and responsibilities within and between the three tiers of government [18–20].

One strategy Nigeria adopted for central coordination of the health sector within its decentralized system is the National Council on Health (NCH). The NCH is recognized as the highest policy making body for health in Nigeria, tasked with the responsibility of setting national visions and goals for health to be implemented across the various levels of government. The NCH consists of all state ministries of health, represented by their commissioners, and is chaired by the national minister for health [15, 21]. This composition assumes that decisions taken by the NCH should find easy implementation at sub-national levels, given that the commissioners for health are the highest authority figures for health at the state government level. Another strategy to improve co-ordination within the health system is the Integrated Primary Health Care Governance initiative, also called

“Primary Health Care Under One Roof (PHCUOR)” – the focus of this study. The aim is to improve uniformity in access and quality of care for the majority of the population [22, 23]. This policy was introduced in 2010 by the Federal Ministry of Health through the National Primary Health Care Development Agency (NPHCDA), in response to the challenge of weak governance at the lower levels of the health system [18]. The NCH approved PHCUOR as a national policy in its 54th session, May 2011.

The PHCUOR policy prescribes that a state level management agency, commonly referred to as the State PHC Development Agency (SPHCDA) should be established by each state government to govern all aspects of PHC thus eliminating the problem of fragmented governance. The PHCUOR reforms are hinged on the core principles of “One Management, One Plan, One Monitoring and Evaluation System” thus integrating PHC governance at the state level within an organizational system administered by the SPHCDA. To stimulate compliance to the policy by sub-national governments, the national government included a provision in the 2014 National Health Act known as the Basic Health Care Provision Fund [21]. This fund comprises of not less than 1% of the Consolidated Revenue of the Federation as well as grants from international donors and funds from other sources. States can only access the funds through their respective SPHCDAs after fulfilling requirements stipulated in guidelines developed by the NPHCDA [21]. Many donors now require states to have set up SPHCDAs as a part of requirements for receiving grants for PHC development.

In its ideal form, the SPHCDA is expected to absorb all PHC staff who were hitherto employees of the other ministries, departments, and agencies of both state governments and LGAs. The deconcentrated LGA arm of the SPHCDAs is to be known as the Local Government Health Authorities (LGHAs) and should report to the Chief Executive of the SPHCDA (Fig. 1). This is a radical transition from the existing system in which the LGA

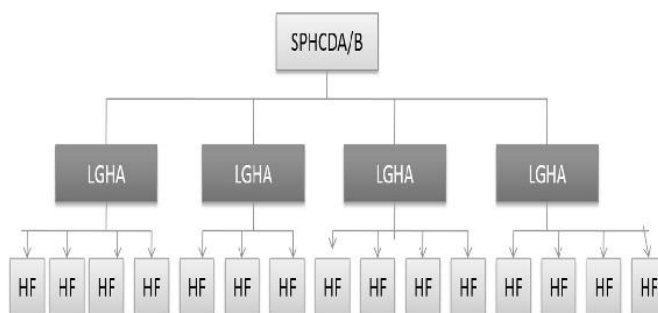


Fig. 1 Organizational Structure of Primary Health Care Under One Roof (Source: [18])

department of health answers to the LGA Chairman (an elective political position in government). Expected to be autonomous of the State Ministries of Health and to only report to the State Governors through the State Commissioners for Health [18], the SPHCDA is to be the sole employers of all human resources for PHC, and managers of all PHC-related financial resources, programmes and facilities in a state [18, 19]. The policy is an adaptation of World Health Organization's District Health System [19, 24].

The government of Nigeria currently reports that 28 out of 37 states "now have State Primary Health Care Development Agencies or equivalent institutions with 26 of them having a legal basis for establishment" [13], thus implying that over 70% of states have complied with the national policy. This assumption, however, does not consider the degree of implementation or operationality of these SPHCDA as defined by national guidelines. In this study, we evaluate the implementation fidelity of PHCUOR in Nigeria to understand how the intervention was executed and adapted at the sub-national level. While there are many studies on implementation fidelity at the micro (clinical) and meso (organizational) levels of the health system, little has work has been done in evaluating implementation fidelity at the macro level of health systems, particularly as relates to translation of national policies to lower levels.

Methods

This PHCUOR implementation fidelity assessment was part of a larger health system reform project which also included developing and enacting the National Health Act, and institutionalizing systems level quality improvement through quarterly PHC reviews [18, 21, 23]. To drive the implementation, a team (the National Steering Committee) was set up, consisting of representatives of government (NPHCDA and Federal Ministry of Health) as well as about 30 inter- and non-government organizations including the Nigeria Governors Forum, UNICEF, WHO, CDC, Health Reform Foundation of Nigeria, etc. The team developed implementation guidelines for the implementation of PHCUOR at sub-national levels. In 2013, the NPHCDA finalized the framework and guidelines to ensure implementation harmony across all states. These were validated by key stakeholders represented in the National Steering Committee and approved by the National Council on Health the same year and disseminated to all key policy actors [13]. The PHCUOR guidelines identify 9 domains which must be strengthened at the state level for full implementation [18]. While some aspects of the policy were considered adaptable to context, these 9 domains are considered the core components of the policy which every state was expected to implement (Table 1). A scorecard approach was adopted to evaluate fidelity of state adaptations to the policy with respect to these domains [13].

Implementation scorecard development

The PHCUOR implementation fidelity scorecard was introduced in 2012 to assist states identify, in a systematic manner, areas within the PHCUOR framework in which support may be provided towards effective implementation. The scorecard also serves as peer review mechanism as well as an advocacy tool to the various states and non-governmental stakeholders to facilitate uniform implementation of the policy nationwide [13]. Since 2012, three scorecards (ours being the third) have been developed to monitor the absorption of the policy. We limit the scope of this paper to findings from the third scorecard in 2015, which included an iterative quality improvement to improve the validity and reliability of the scorecard.

Development of assessment tools

Drawing lessons from strengths and limitations of the earlier two scorecard development processes [13], we sought to develop a scorecard (see Additional file 1) with high validity, reliability and acceptability to stakeholders. We consulted widely with stakeholders and subject matter experts in developing the fidelity assessment tool to gain national consensus and eliminate bias. We conducted a content analysis of the policy document and implementation guidelines, identified key components (Table 1) and developed questionnaires to measure essential milestones in each domain. We also developed semi-structured questionnaires to help explain processes and constraints in implementing the policy (Additional file 2). These tools were distributed to key stakeholders who were later invited to a consensus conference during which the tools were finalized and adopted. Further, we pilot-tested the assessment tools in the Federal Capital Territory to ensure their face and content validity. This paper utilizes findings from the quantitative assessment only.

Data collection

To ensure quality of the process, we primarily recruited data collectors from the pool of those involved in the initial two assessments of PHCUOR implementation, and remaining gaps were filled by 12 new data collectors. We conducted a two-day training for all data collectors (total of 58). The training included assessment of data collectors' understanding of the content of the tools. This was done through pre- and post-tests as well as practical demonstrations at plenary sessions thus reducing interviewer bias and checking reliability of the tools. We dispatched data collectors to the states in pairs (one being resident and the other non-resident to the state of assignment). This was done to improve ease of access and while also reducing interviewer bias. Data collection was carried out in all states between 28 August and 5 September, 2015. Prior to the deployment of data collectors, states were notified in writing about

Table 1 Brief description of the PHCUOR framework and Fidelity Assessment Criteria

Domain	Brief Description	Fidelity Assessment Criteria
1. Governance and Ownership	State governments are required to appoint governing bodies and establish organizational leadership structure for the SPHCDA. The governing body is crucial for setting the PHC vision, winning resources, and holding implementers to account.	Available organogram, appointed chief executive with management team distinct from governing board, accountability mechanism evidenced by periodic report and established reporting lines through the commissioner for health
2. Legislation	The Policy requires that state governments enact laws and regulations for the establishment and functioning of the SPHCDA. Legislation provides the legal framework while regulations are more specific, containing the enabling language and details of actions needed.	Gazetted law in place having undergone stakeholder consultation, passage by legislature and assent by the governor
3. Minimum Service Package (MSP)	The MSP allows states to classify their facilities according to the adopted system and then determine resource needs for each facility. This approach provides evidence for effective, equitable planning and resource allocation for health	Costed MSP developed, adopted and funded. Health facilities classified and service delivery planning and funding done using the costed MSP
4. Repositioning	Managing organizational change, re-orientation, capacity building and mentoring of managers in the new and old structures to align with new roles and responsibilities	Agency law transfers all PHC structures and functions to the SPHCDA. Stakeholders engaged to create awareness and buy-in to the implications of reforms. Re-orientation plan for staff available and being implemented
5. Systems Development	Establishing state & sub-state structures with one management, one plan, one M&E system; ensuring an appropriate governing board oversees the management team	SPHCDA strategic plan available. Operational plans for state and LGAs available. Financial management policy in place. Guidelines and procedures for recruitment of staff into state and sub-state level structures available. Integrated Supportive Supervision plans implemented quarterly as planned. Clinical guidelines for various interventions available at service delivery level
6. Operational Guidelines	Developing policies, procedures and regulations for HR, procurement/supply chain, accounting/financial management and monitoring & evaluation aligned with national and state policies	PHCUOR implementation guidelines and regulations adapted and operational
7. Human Resources	Effective system for managing human resource issues such as appointment of management staff at state and sub-state levels, addressing mal-distribution of staff, ghost workers and cadre imbalance and plans to train, attract, incentivise and retain staff in unattractive postings.	Committee to implement transfer of all PHC human resources from parallel structures to the Agency established and transfer completed. Human resource audit conducted and operational Human Resource Information System available. Job descriptions available for facility managers and all health workers. Costed Human Resource capacity building plan available. Clear staff recruitment procedures available for all levels of governance
8. Funding Sources and Structure	Developing financial management systems, budget processes, audits, pooled funding and take off-grant	Dedicated budgeting and fund release system for the Agency operational. Integrated PHC (basket) funding system operational. LGA financial contributions deducted at source. Payment of salaries of all health workers at service delivery level, as well as benefits and pensions, fully the responsibility of SPHCDA.
9. Office Establishment	Provision for physical structures, infrastructure and equipment to enable the SPHCDA function	Agency offices established at state and sub-state levels

Sources: [13, 18]

the exercise by NPHCDA. The notification explained that this was a national assignment aimed at monitoring implementation of the policy as well as identifying areas in which each state required support, and that feedback will be communicated to them by the National Council on Health.

A list of required items and documents for verification was sent to each state two weeks ahead of the data collection exercise. These were to be provided in either digital format (where available) or hard copies signed by the Chief Executive of the State PHC Agency (SPHCDA), permanent secretary of the State Ministry of

Health (SMOH) or their representatives. Semi-structured questionnaires were also dispatched to the states ahead of the field visits. The management team of the SPHCDA (or SMOH in states yet to establish SPHCDA) was interviewed as a group (all team members were present together during interviews and consensus was reached on responses). Further, management teams were requested to provide responses on behalf of the state government. A minimum of two weeks was given to each state for consultation. Interviews were only carried out after states indicated readiness by fixing the dates for the interviews. Thus, the responses obtained

represented the state government position rather than individual position of interviewees. The teams were instructed to collect evidence for affirmative responses and pay verification visits to three LGAs per state. Verbal affirmative responses without accompanying evidence were recorded as negative responses. We received responses from the health management team of all 36 states and the Federal capital territory.

Data processing and analysis

An Excel based data-analysis tool was developed for the analysis of the data. Data entry was done independently by two persons, thereafter comparison and harmonization was done to avoid errors. A 4-day evidence review with content analysis of documents received from each state was carried out to validate responses; and 25 analysts drawn from both government and non-governmental interest groups were involved in the data analysis to ensure transparency and reduce bias. Validation process and rules were agreed upon. Analysts were divided into teams tasked to conduct content analysis of the documents. Group findings were subsequently presented at plenary sessions to develop consensus. As a rule, any affirmative answer to the questionnaire which was not backed by documentary evidence was changed to a negative response. And only evidence available at the time of data collection and analysis was accepted. Any progress made by states outside the period of review was excluded from the process. Every positive answer received a score of "1" while negative responses scored "0".

Domain weighted averages

To build consensus on the validity of the results as well as assign weights to each of the nine domains, the results of this initial analysis was presented to another group; a group of 9 Subject Matter Experts consisting of high-ranking health sector government policy makers (e.g. directors in the NPHCDA and Federal Ministry of Health), chief executives and senior representatives of selected stakeholder organizations (e.g. Health Reform Foundation of Nigeria, Johns Hopkins University International Vaccine Access Centre and representatives of the National Steering Committee). The weighted averages for each domain were agreed on by these Subject Matter Experts using a modified Nominal Group Technique. We asked each of them to rank each of the 9 domains in order of perceived importance with "1" representing the highest and "9" representing the least important. The results were displayed in plenary with the mean and mode for each domain. Final rankings and weights were assigned through consensus informed by the measures of central tendency. The weighted scores for each state were determined by multiplying domain scores with corresponding weights. Overall score for each state was calculated as the mean of

weighted domain scores. The weighted scores for each state is beyond the scope of this paper and discussed in another report [13].

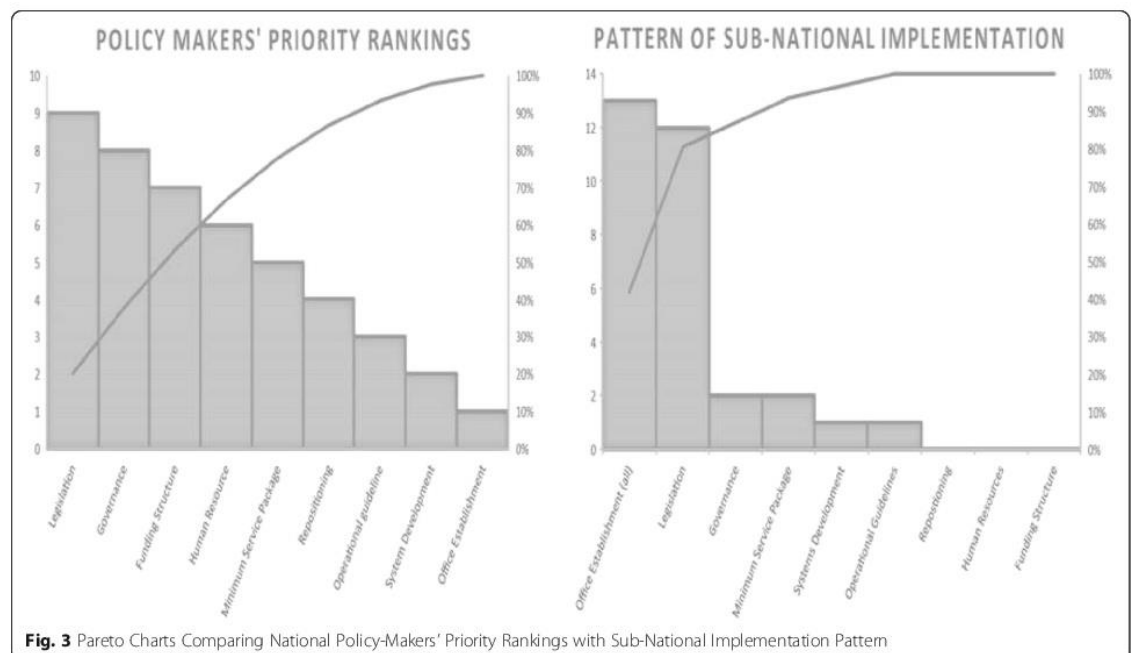
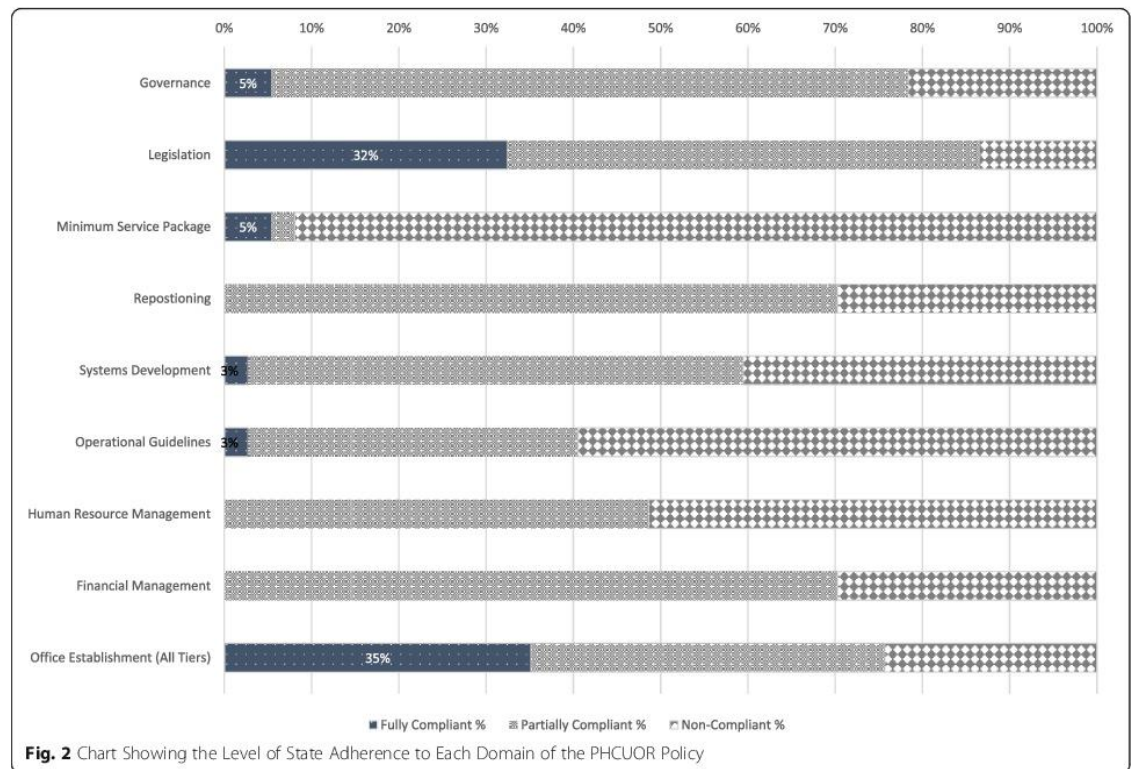
Results

The results from this assessment represent cross-sectional findings from all 37 states and territory (i.e. including the Federal Capital Territory) of Nigeria. Following the criteria spelt out in the policy guidelines, we found 25 (68%) states had met the criteria for having established State Primary Health Care Development Agencies (SPHCDA) or equivalent structures. No state met all the stipulated criteria for having a functional SPHCDA or PHCUOR system (Fig. 2). Furthermore, Fig. 3 shows that states were disposed to prioritizing domains that were structural, easily verifiable or politically significant (e.g. Acquisition of office space and passage of enabling laws) as opposed to the more functional domains (e.g. Systems Development, Human resources and Financial management). There was a disparity in compliance levels among the six geopolitical zones of Nigeria (Fig. 4), with the northern states more compliant than southern states.

In addition, none of the SPHCDA's adhered completely to the core principles of "One Management, One Plan, One Monitoring and Evaluation System" as the management of PHC was still fragmented across various government agencies. Only 16 (43%) and 9 (24%) states had available operational plans for PHC at the state and LGA levels respectively for the year in reference. No state had a functional integrated operational planning and financing mechanisms for all PHC programmes and interventions. Contrary to the core principles, only 4 (11%) states had financially autonomous SPHCDA's, and 11 (35%) states were managerially autonomous from the State Ministry of Health or other parallel structures. Integration (managerial and financial) of PHC functions was poor, management deconcentration was also weak as only 11(30%) SPHCDA's had functional offices in the LGAs (Fig. 5). In the remainder of the results segment, we present our findings on each of the 9 domains highlighted in Table 1.

Findings on each of domain

1. **Governance:** Governance was weak in most of the states. Reporting structures were often undefined. Whereas only 15 (60%) SPHCDA's had the roles of the management board being distinct from the governing boards as prescribed by the policy, the others had the Chief Executive of the Agency's management team doubling as the Chairperson of the governing board. This structure does not appear to allow for transparency and accountability.



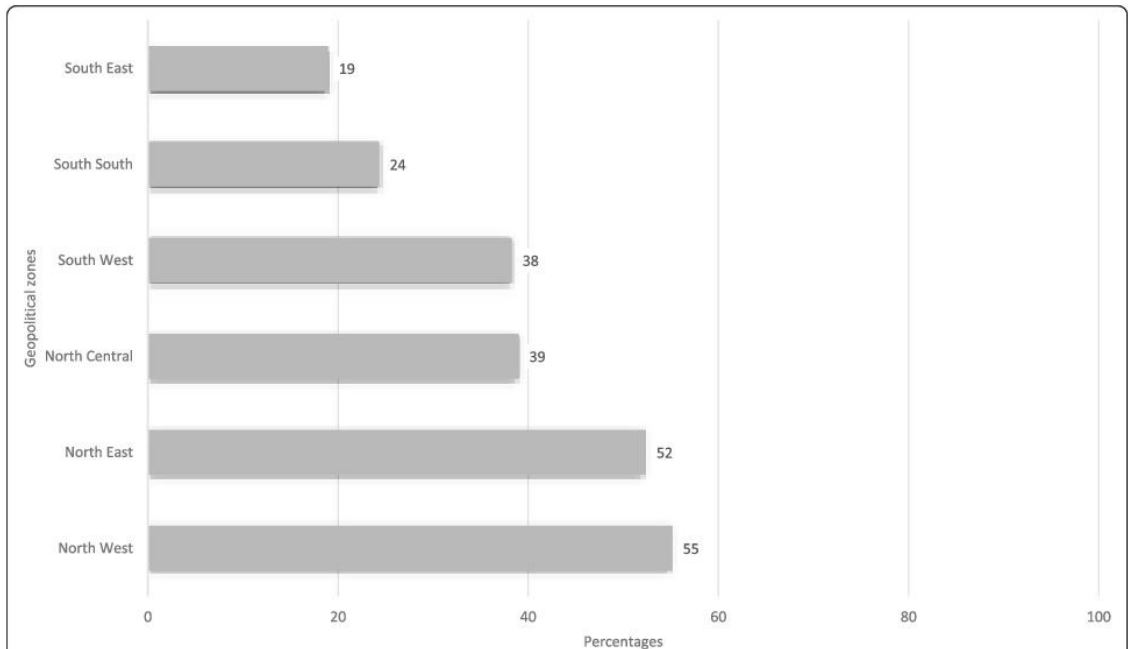


Fig. 4 Aggregated Compliance Scores for all domains by Geopolitical Zones (%)

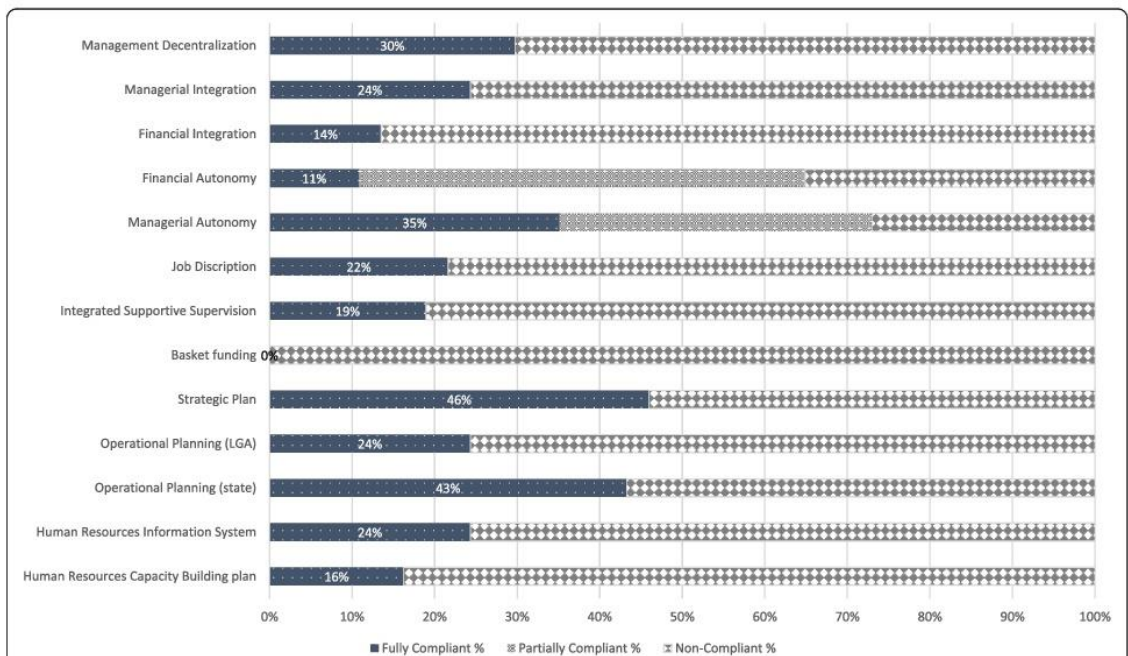


Fig. 5 Measures of Elements of Core Principles of PHCUOR

2. **Legislation:** Even though 32 (76%) states had passed laws establishing the SPHCDA, only 12 (32%) of the laws passed through the complete prescribed process (Table 1). Furthermore, the content of the state laws was at significant variance with the principles of PHCUOR in the policy guidelines. The details of this non-compliance are reflected in the findings below with respect to the other domains.
3. **Minimum Service Package (MSP):** The guidelines require all SPHCDA to develop costed MSP which will guide classification of health facilities according to services provided and basic health needs of the communities served. The document is expected to be an evidence-based resource planning tool for health service provision, particularly about universal (free) access to basic maternal and child health services. Only 2 (5%) states met the criteria for having a functional costed MSP. Thus, health planning remains speculative, rather than evidence-based, and poorly linked to financing services.
4. **Repositioning:** This essentially includes legislative and change management processes required to ensure smooth transition and implementation of the reforms. No state met the guideline's criteria for repositioning, while 26 (70%) states partially implemented the guidelines, mostly the legislative requirements, but omitting re-orientation, stakeholder engagement and other change management processes.
5. **Operational Guidelines:** These are regulations that guide the functioning of the SPHCDA (including the departmental structures and relationships as well as clinical guidelines and standard operating procedures. Whereas only one state was found to comply with the all requirements for this domain, 14 (38%) had guidelines which were not in use.
6. **Systems Development:** Only one state met the requirements for full implementation in this domain. Strategic and operational planning is necessary to create systems that can produce expected outcomes. These are further strengthened by regular effective integrated supportive supervision/monitoring and evaluation systems as prescribed by the guidelines. This study found 17 (46%) and 16 (43%) SPHCDA having strategic plans and operational plans respectively at state level. Only 9 (24%) had operational plans at the LGA level- where service delivery is domiciled (Fig. 5).
7. **Human Resources:** Only 6 (16%) states had capacity building plans for health workers, 9 (24%) had functional Human Resource Information Systems (HRIS) and 8 (22%) had job descriptions available for health workers and managers. Human resource recruitment and management systems were non-existent in 19 (51%) SPHCDA while no state was fully compliant with human resource requirements prescribed by the guidelines.
8. **Funding Structure:** No state adhered to the prescription of funding structure for PHCUOR. While some states had established a basket funding system, in practice, these systems were either not functional or not integrated (selective for specific vertical programmes). Basket funding requires that all PHC funds from all sources (including development partners) are pooled into one "basket" and distributed to various programmes and components of PHC based on an integrated operational plan adopted by all stakeholders. Dedicated PHC budgeting system for the SPHCDA was not implemented in most states, and staff salaries and benefits were not under the control of most Agencies. Only 4 (11%) SPHCDA met these criteria for financial autonomy and poorly integrated financial management systems were observed generally.
9. **Office Establishment:** Operational offices for the SPHCDA at state and LGA levels are required by the guidelines for effective functioning. While policy makers ranked this as the least important domain, it was the domain with the highest sub-national implementation rate, i.e. 28 (76%) compliant states. However, states concentrated on having offices only at the state capital while neglecting the main operational bases for PHC as only 13(35%) states had offices at the LGAs.

Discussion

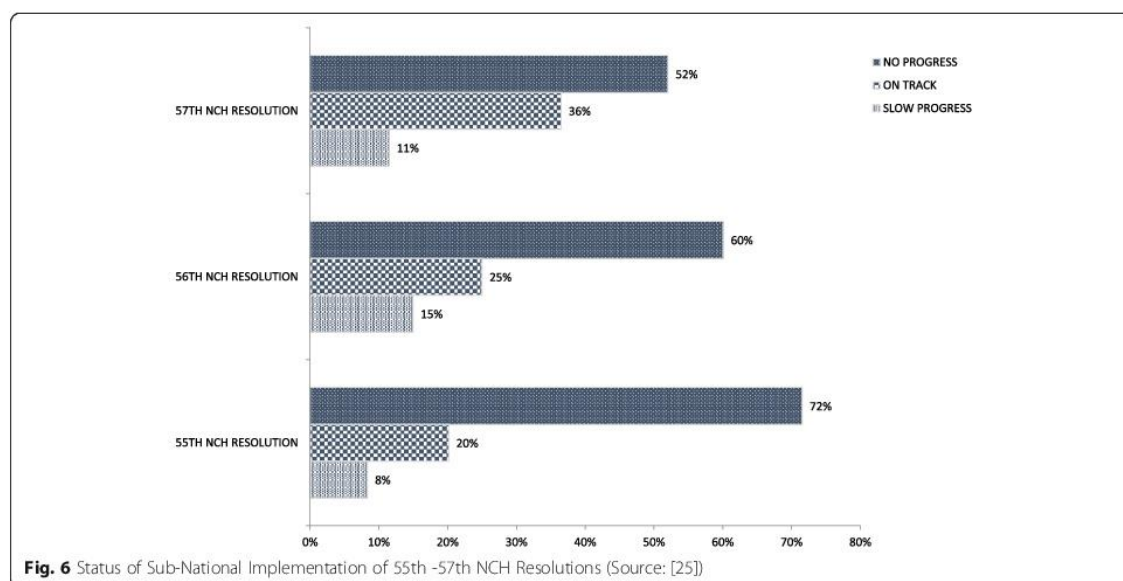
Our findings highlight the challenges of health policy implementation in politically and administratively decentralized systems. Notably, the strategy in place to ensure sub-national implementation fidelity of national health initiatives (the National Council on Health) was not effective in the implementation of PHCUOR. The assumption that decisions ratified at the National Council on Health will translate into policies at the state government level fails to consider that the political system overrides the health administrative system. The implication of this is that the elected state governors are the ultimate decision-makers at that level (the commissioners are political appointees of the governors). The state governors are not under any obligation to adhere to national decisions with respect to health. State governors make policy decisions after conferring with the State Executive Committees (SEC) which comprise of commissioners from all sectors (health included), secretary to the state government as well as the executive governor of the state (who chairs the SEC) and his/her deputy [17].

Thus, the commissioner for health seeks to convince the SEC to adopt national health policies as a priority in relation to the demands and interests of other sectors. And certain decisions at state level (such as the PHCUOR policy) must be ratified by the state legislature [17], which also needs to be convinced by the SEC of its importance. In the course of these processes, many national initiatives get modified, under-implemented or even rejected. A recent analysis by the Federal Ministry of Health at the 58th NCH revealed that only 20–36% of resolutions in the three consecutive preceding Councils were implemented according to schedule [25]. Fig. 6 further shows progress with implementation rates over the years. The PHCUOR policy was one of such resolutions of the National Council on Health. Over the years, the National Council on Health has reviewed progress with implementation of the policy and passed resolutions aimed at improving implementation at the lower levels.

The strategy to incentivise states to implement PHCUOR – i.e. the National Health Act provision to channel federal funds for PHC through SPHCDA [21] – also seems to be only partly effective. The number of states with SPHCDA increased from 16 in 2012 to 25 at the time of this assessment [26]. However, our findings show that this response appears to be superficial as states focus more on implementing domains that relate to structural establishment of SPHCDA (i.e. enacting enabling laws establishing the SPHCDA and providing offices at the state capitals) rather than full implementation of the functional aspects of the policy. This response suggests that states may be giving an impression of compliance by fulfilling easily verifiable domains to

access federal funds, rather than implementing the reforms out of the need to strengthen PHC. This results in a more complicated governance system than the status quo characterized by conflicts between the newly created SPHCDA and the existing State Ministries of Health (as both continue to oversee aspects of PHC within the state without a clear delineation of responsibilities) [27].

We also found that implementation fidelity was greater in states in northern geopolitical zones with strong support from donors and development partners or with governors who had shown strong commitment towards improving their health sector performance [13]. These findings are in line with inferences by Okpani and Abimbola (2016) that in Nigeria, differential levels of political support and prioritisation contribute substantially to health services performance in decentralized systems [28]. Our study also reflects, as in a previous study in Nigeria [7], the possible contribution of decentralization to supply-side health disparities across states, with implications on sustainability of health reforms in Nigeria (given the autonomy and discretionary power of states). Implementing and sustaining health system initiatives in decentralized systems require evolution of strategies that gain full sub-national political commitment. Whereas central government's direct intervention at lower levels may have “quick win” effects, long-term sustainability has been poor [26, 28–30]. Thus, in addition to the suggestion that central coordination may be necessary for equity of outcomes in decentralized health systems [31], our findings suggest that central government role in top-down initiatives in federal settings requires sustained advocacy and incentives



to facilitate the effective transfer of responsibility to lower levels of government where the power of implementation resides.

Sabatier and Mazmanian suggest that for national policies to be effectively implemented at sub-national levels, the policies must have clear and logically consistent objectives; there should be an adequate causal theory as to how specific activities would lead to desired outcomes; implementation process must be structured to ensure adherence by implementers (such as incentives and sanctions); committed and adequately skilled implementing officials must be available; support from interest groups and legislature; and no changes in socio-economic situations that undermine political support or the causal theory fundamental to the policy [32]. Hogwood and Gunn developed a more demanding list of preconditions for 'perfect implementation'. Some of these preconditions include availability of adequate time and sufficient resources as well as required combination of these resources. Other requirements are that the relationship between cause and effect must be direct and that policy makers can demand and obtain perfect compliance [33].

Given that these conditions are not likely to all be present at the same time [5], particularly in LMICs where finance and human resource constraints are common, complete implementation may not be expected. For example, in Uganda (low income economy), financial constraints at the lower levels of its administratively decentralized health system is a constraint on the implementation capacity of the lower levels of governance [9, 34]. Human resource for health challenges in South Africa (a politically decentralized upper middle income country) has similarly been found to affect implementation of national initiatives designed to reduce health inequalities. Nevertheless, strategies can be put in place to optimise implementation.

Based on our findings, we recommend the following strategies to improve sub-national implementation fidelity in politically decentralized systems such as Nigeria (although the complexity of health systems makes it difficult to guarantee maximum implementation fidelity in any system, not least decentralized ones):

1. Prioritize operational and implementation research (including stakeholder analysis) as a part of the policy process to provide evidence for advocacy to policy makers and implementers at all levels of governance. Such research should include implementation comparative fidelity assessments to promote peer competition among sub-national level decision makers and implementers towards improving compliance and ensuring quality implementation.
2. Ensure consistent advocacy to all stakeholders (particularly decision makers) on the relevance and

benefits of the policy. Particularly identify and engage power structures (final decision-making authorities), e.g. state governors through the Nigerian Governors' Forum in the Nigerian context, as this has shown to be effective in improving sub-national acceptance and implementation of national initiatives [13, 25].

3. Provide incentives, supportive supervision and mentoring to lower decision-making levels with respect to policy implementation and change management. These have been shown to facilitate sub-national implementation of some NCH approved initiatives in Nigeria.
4. Although direct national level intervention at the lower levels have shown some effect in stimulating absorption of some previous national policies in Nigeria, this strategy should be used sparingly as this results in over-dependence by states on the national government to implement what should otherwise be the responsibility of the lower tiers. Examples of this effect in Nigeria are the Midwives Service Scheme, Primary Health Care Reviews and the SURE-P MCH interventions [26, 28–30, 35].

Limitations in this study include its cross-sectional approach to examine an ongoing policy process. This approach potentially obscures some of the events that facilitated implementation of the policy which may have been brought to light if longitudinal implementation patterns were examined from conception to implementation, and if detailed qualitative exploration of sub-national implementation was conducted. However, our intention is not to evaluate the PHCUOR policy in isolation but to elicit lessons from its implementation to inform and improve other similar policy processes. Comparative analysis of findings from all three scorecards, including methodological variations, are detailed in another report [13]. Another potential limitation is that we attempt to apply recommendations from one policy process to other contexts. But this is not uncommon in health systems research on complex interventions and processes as insights obtained in one setting are often transferable to other settings [36].

Conclusions

Our study highlights how evaluating implementation fidelity can provide evidence of gaps in implementation, thereby potentially improving policy execution, particularly in decentralized health systems. Using this approach will help national policy makers identify more effective ways of supporting lower tiers of governance to improve health systems and outcomes. Further, evaluating implementation fidelity can guide policy stakeholders at all levels in evidence-based advocacy and other strategies to ensure effective policy execution.

Additional files

Additional file 1: Scorecard data collection tool (PDF 541 kb)

Additional file 2: Semi-structured questionnaire (PDF 200 kb)

Abbreviations

HRIS: Human Resource Information System; LGA: Local Government Area/ Authority; LMIC: Low and middle income countries; MSP: Minimum service package; NCH: National Council on Health; NPHCDA: National Primary Health Care Development Agency; PHC: Primary health care; PHCUOR: Primary health care under one roof; SEC: State Executive Council; SMOH: State Ministry of Health; SPHCDA: State Primary Health Care Development Agency; SURE-P MCH: Subsidy reinvestment programme for maternal and child health

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Availability of data and materials

The data set from this study are available at the National Primary Healthcare Development Agency (NPHCDA), Abuja, Nigeria but restrictions may apply to the availability of these data, which were used with permission for the current study, and so are not publicly available. Data are however available from the authors upon reasonable request and with permission of NPHCDA. Materials used for data collection are presented here as additional files.

Authors' contributions

EAE designed and coordinated the study. EAE, FAO and OE participated in data collection and analysis. All authors contributed to the writing of the paper and approved of the final manuscript.

Competing interests

The authors declare that they have no competing interests.

Consent for publication

Not applicable.

Ethics approval and consent to participate

Ethics approval for this study was obtained from the National Health Research Ethics Committee of Nigeria (NHREC/01/01/2007-13/08/2016). Informed consent was received from all respondents. The views presented were not reflective of personal information but rather government position.

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CHAPTER 5

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RESEARCH ARTICLE

WILEY

Implementation process and quality of a primary health care system improvement initiative in a decentralized context: A retrospective appraisal using the quality implementation framework

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Summary

Background: Effective implementation processes are essential in achieving desired outcomes of health initiatives. Whereas many approaches to implementation may seem straightforward, careful advanced planning, multiple stakeholder involvements, and addressing other contextual constraints needed for quality implementation are complex. Consequently, there have been recent calls for more theory-informed implementation science in health systems strengthening. This study applies the quality implementation framework (QIF) developed by Meyers, Durlak, and Wandersman to identify and explain observed implementation gaps in a primary health care system improvement intervention in Nigeria.

Methods: We conducted a retrospective process appraisal by analyzing contents of 39 policy document and 15 key informant interviews. Using the QIF, we assessed challenges in the implementation processes and quality of an improvement model across the tiers of Nigeria's decentralized health system.

Results: Significant process gaps were identified that may have affected subnational implementation quality. Key challenges observed include inadequate stakeholder engagements and poor fidelity to planned implementation processes. Although needs and fit assessments, organizational capacity building, and development of

implementation plans at national level were relatively well carried out, these were not effective in ensuring quality and sustainability at the subnational level.

Conclusions: Implementing initiatives between levels of governance is more complex than within a tier. Adequate preintervention planning, understanding, and engaging the various interests across the governance spectrum are key to improving quality.

KEYWORDS

decentralization, health policy, implementation science, Nigeria, primary health care

1 | BACKGROUND

Many definitions of implementation exist in the literature. These vary with respect to context, discipline, and other viewpoints. For example, while Damschroder and Hagedom¹ define implementation as "efforts designed to get evidence-based programmes or practices of known dimensions into use via effective change strategies," DeLeon² broadly refers to implementation as "what happens between policy expectations and (perceived) policy results." The difference between policy design and actual delivery is known as implementation variance or gap.^{3,4} The extent of this variance depends on implementation quality.

Implementing policies in health systems is complex and interactive, as numerous actors (local and international) try to influence agenda setting, policy formulation, and execution.³ Interactions among these actors and within contextual environments are largely responsible for implementation gaps observed between policy/program designs and implementation outcomes in real-world settings.^{4,5} Effective implementation processes that involve careful advanced planning, multiple stakeholder involvements, and address other contextual constraints are needed.⁴ Consequently, there have been recent calls for the use of better implementation science in health systems strengthening initiatives.⁶

Implementing initiatives between levels of governance is more complex than within a tier. A number of frameworks have been developed to understand governance within decentralized health systems.⁷⁻⁹ Data from a recent systematic review shows that most of these are either determinant frameworks (seeking to understand or explain influences on implementation outcomes), classic theories, or evaluation frameworks.¹⁰ Abimbola et al⁷ framework, based on the theory of common pool resources, conceptualizes at three levels of PHC governance: operational governance (individuals and providers within the local health market), collective governance (community coalitions), and constitutional governance (governments at different levels). Mikkelsen-Lopez et al¹¹ assess governance with respect to preidentified problems in a health system using systems thinking approach in relation to each tier of decentralized systems. Whereas these frameworks focus on the governance relations among different health system actors, they are limited in explaining quality implementation process of policies as a function of the interaction of actors between tiers of "constitutional governance." Thus, a gap exists in the literature regarding how to improve implementation processes within such contexts. Nonetheless, some top-down theorists have proposed conditions for ideal implementation in multilevel governance contexts.

Sabatier and Mazmanian¹² opine that optimal subnational implementation quality of national initiatives requires clear and logically consistent policy objectives; adequate causal theory linking specific activities to desired outcomes; committed and adequately skilled implementers; existence of measures (such as incentives

and sanctions) to ensure adherence by implementers; support from interest groups, lawmakers, and other stakeholders; and stable socioeconomic situations that will not undermine political support or the causal theory essential to the policy. Hogwood and Gunn¹³ expand on this list of preconditions to include the availability of adequate time and required resource combinations for implementation. They further posit that a direct relationship between cause and effect must be established and that policymakers are empowered to ensure perfect compliance with the process design. Some theorists have argued, however, that these conditions are unlikely to be met at the same time and context, particularly in low- and middle-income countries LMICs, due to resource constraints.³ Consequently, frameworks and models to guide and optimize implementation in such contexts may be helpful.

Several models and frameworks have been developed to explain, improve, and evaluate implementation of intervention. "Process models" aim at describing and/or guiding the process of translating evidence into practice by specifying steps (stages and phases) involved.¹⁴ This study applies one of these models, the quality implementation framework (QIF) developed by Meyers et al,¹⁵ to identify and explain gaps in the implementation of a policy to improve the primary health care (PHC) system in Nigeria's multilevel governance context.

Nigeria operates a federal system of government with considerable political and administrative decentralization. The health system is modeled after this structure, with multitiered governance for PHC. Although PHC policy thrusts mostly originate from the national level, implementation is largely the responsibility of the local government authorities (LGAs), although coordinated and supervised by the state governments.^{5,7,16} Consequently, in order for a national PHC policy or initiative to be implemented at the LGA level, the policy needs to be deployed in a way that is appropriate for the state context and is adopted by the state. Then, it needs to be implemented with quality in the state and LGAs. Both these conditions are necessary for successful policy outcomes. Primary health care policies commonly experience implementation bottlenecks along this cascade.⁵

In 2012, Nigeria's National PHC Development Agency (NPHCDA) initiated "the PHC Reviews" to improve integrated PHC planning by LGAs using a four-step quality improvement model: diagnose-intervene-verify-adjust (DIVA).¹⁷ DIVA is a variant of the well-known plan-do-study-act (PDSA) framework adapted by the United Nations Children's Fund (UNICEF) to strengthen decentralized district health systems in LMICs.^{18,19} The framework has been implemented in several sub-Saharan African countries and has been found to be helpful in health systems strengthening.¹⁷ Although approved by the National Council for Health (NCH) for implementation across all 36 states and 774 LGAs in Nigeria, implementation of DIVA was not widely sustained.²⁰ Only Kaduna state in Central Nigeria has continued implementation to date. This paper retrospectively examines the translation process of the PHC review policy from national to subnational levels using the QIF. The aim is to identify possible process gaps that may explain the implementation variance. The guiding theory of this research is that "a good process in the translation of policies from national to subnational tiers is important for acceptability, fidelity and sustainability of implementation."

1.1 | The quality implementation framework

Meyers et al¹⁵ developed the QIF from a synthesis of common elements in frameworks guiding implementation found in the literature. They posit that quality implementation—defined as "putting an innovation into practice in such a way that it meets the necessary standards to achieve the innovation's desired outcomes"—is a systematic process of coordinated steps that can be achieved with careful planning, requiring diverse activities and skills. The QIF (Figure 1) consists of six themes with 14 steps to quality implementation, clustered into a four-phase temporal sequence. Using this framework, we retrospectively examined the DIVA policy deployment from the national to the subnational levels in order to identify process gaps, so as to inform more effective program redesign and scale-up.

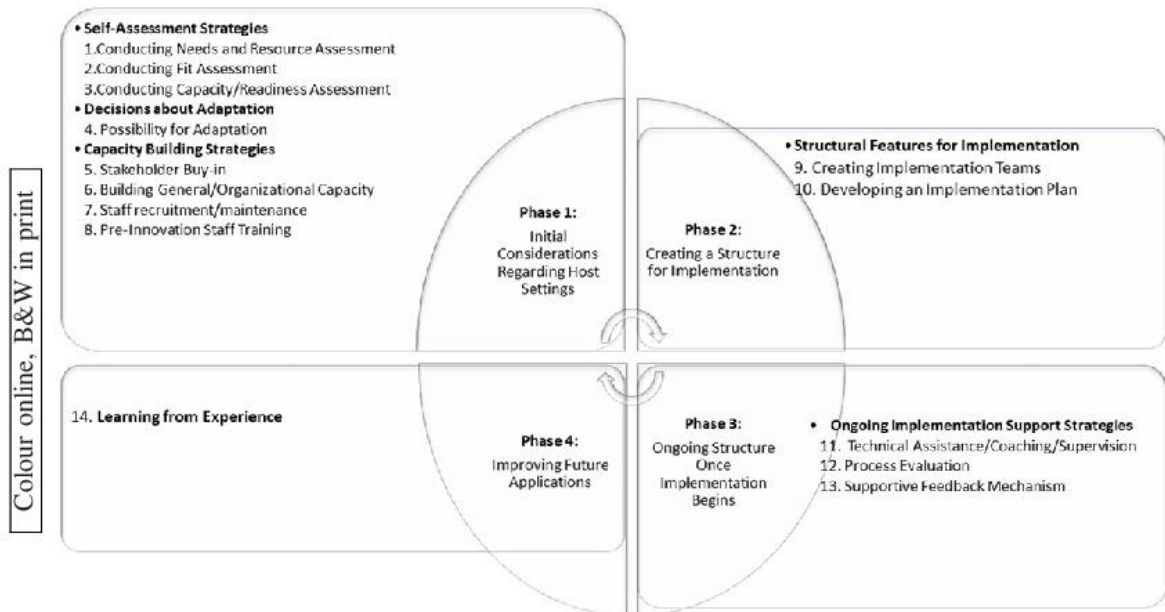


FIGURE 1 Shows the quality implementation framework, highlighting the phases, themes, and steps [Colour figure can be viewed at wileyonlinelibrary.com]

2 | METHODS

2.1 | Data collection

This study is part of a research series aimed at understanding and improving policy implementation in Nigeria.^{5,16,17} The overarching approach comprised the use of embedded research; a method that enhances collaboration between researchers, policymakers, and implementers to improve the use of contextual evidence in real-world policy processes.²¹ The first author was part of the national implementation team. We collected data on the process for the implementation of the PHC policy between 2012 and 2016 using participatory action research, key informant interviews, and document analysis. Details of the process are described in other papers.^{5,17} Data were obtained by analyzing contents of 39 document (Table 1) and 15 key informant interviews (R1-R15) to identify the design and implementation processes of the PHC reviews/DIVA in Nigeria. The documents comprise policies, guidelines, and implementation reports from national and subnational levels. We identified the documents from the researchers' knowledge as well as interviews with four subject matter experts (R1 and R3–R5) who participated in the initial policy processes. Further, we interviewed 11 other stakeholders working at different levels of the health system, including national level, Kaduna (implementing state), and in Nasarawa and Edo states (nonimplementing states), totaling 15 key informants (Table 2).

This paper summarizes the implementation data using the QIF as an analysis framework to assess the extent to which the implementation followed the most common implementation steps from which the QIF was created. The analyses in this paper focuses on national to state-level deployment of the policy.

2.2 | Qualitative analysis of implementation data

Data analysis was conducted using a deductive thematic analytic approach. NVIVO 11 was used in the data analysis. We coded data from documents and transcribed interviews using the 14 steps of the QIF using criteria and questions

TABLE 1 Documents analyzed

Code	Document	Status	Source
D1	Integrating primary health care governance in Nigeria (2013)	Published	NPHCDA
D2	Institutionalization of the primary health care reviews in Nigeria: Status and progress (2013)	Published	NPHCDA
D3	Revised national health policy.	Published	FMOH
D4	Guidelines for the training of resource persons and implementation of quarterly primary health care planning & Implementation Review: Bottleneck analysis methodology (2012)	Published	NPHCDA
D5	Primary health care under one roof implementation scorecard III report (2016)	Published	NPHCDA
D6	National strategic health development plan 2010–2015.	Published	FMOH
D7	National guidelines for the development of PHC system in Nigeria (2012)	Published	NPHCDA
D8-12	NPHCDA annual reports: 2010–2014 (5 documents)	Published	NPHCDA
D13	Assessment of NSHDP progress, status and indicators through PHC reviews: missions report (2013)	Unpublished	
D14-39	Presentations and minutes of stakeholder meeting on PHC reviews (27 documents)	Unpublished	NPHCDA

TABLE 2 Key informants interviewed

Code	Affiliation	Level of Operation
R1	NPHCDA (senior manager)	National
R2	NPHCDA (senior manager)	National
R3	National Consultant	National/subnational (state)
R4	National Consultant	National/subnational (state)
R5	UNICEF	International/national
R6	SPHCDA	Subnational (Kaduna state)
R7	SPHCDA	Subnational (Edo state)
R8	PHC manager	Subnational (Kaduna)
R9	PHC manager	Subnational (Kaduna)
R10	PHC manager	Subnational (Kaduna)
R11	PHC manager	Subnational (Kaduna)
R12	PHC manager	Subnational (Kaduna)
R13	PHC manager	Subnational (nonimplementing)
R14	PHC manager	Subnational (nonimplementing)
R15	PHC manager	Subnational (nonimplementing)

proposed by Meyers et al¹⁵ in their paper. Two researchers independently coded the data into the steps. A third researcher validated the categorization by reviewing and harmonizing the results of the other researchers. At a consensus/harmonization meeting, all three researchers agreed on the categorization and interpretation of findings based on the process questions and criteria stipulated in the QIF.

2.3 | Quantitative methods

The categorization of the review data into the QIF steps provided a rough initial assessment of the steps that were followed and those that were not. However, just because an interview transcript or document reviewed mentioned

an implementation activity that could be nominally mapped to a QIF step, it did not automatically imply that the activity was completely aligned with all the requirements for the step. To assess the level of alignment between the data and the QIF step, we created a scorecard. The aim was to give a quantitative score measuring the extent to which the reported or documented policy implementation activity aligned with the intent of the QIF step. An iterative consensus-building approach was used to discuss and finalize scores.

Guided by the description of the QIF steps, a 4-point Likert-type scale using values from 0 to 3 (representing nonalignment, poor alignment, fair alignment, and good alignment, respectively) was created to evaluate alignment of the implementation activity to the QIF step. Three evaluators with expertise on the policy implementation and knowledge of the QIF criteria independently reviewed the qualitative data associated with each of the 14 QIF steps and assigned a score. Two rounds of scoring reconciliation, facilitated by a nonrater, were conducted to achieve convergence. The convergence criteria were that disparities between each rater scores on any step must not exceed 1 point. Thus, any rating disparity greater than 1 point was discussed and reevaluated in the next round. The mean, rounded up to whole numbers, was used as the final score for each step.

3 | RESULTS

Table 3 highlights implementation along the 14 QIF steps using qualitative data. Sources of data are embedded within the table as quotes coded 1 to 25 (Appendix A), documents (D), and observation (O). A more detailed qualitative process analysis is attached as Appendix B.

Figure 2 shows that eight of 14 QIF steps have a score of 1 or lower, meaning that the policy implementation was poorly aligned with what was recommended in the QIF. The weakest alignment with the QIF was with the process evaluation step (score: 0); the needs assessment and staff recruitment/maintenance process steps seemed optimally aligned having scored the maximum 3 points. Thus, preparation for implementation primarily involved doing a needs and fit assessment and staff hiring and training; however, there was poor assessment of local context and readiness to implement. This indicates an assumption that because the intervention is needed and is a good fit, it will automatically work without consideration of context or readiness. An implementation plan was created, but there were poor support/resources for implementation. This indicates an assumption is that implementation will happen by itself and no support or guidance was needed to ensure adherence to the plan. Supportive feedback mechanism was poor, and there was no process evaluation during implementation. Thus, opportunity to learn and to improve implementation process was very limited.

3.1 | Phase one: initial considerations regarding host setting

This phase includes activities assessing organizational (health system) needs, innovation-organizational fit, and a capacity or readiness assessment. Our study found poor alignment of this phase with the QIF. Needs and resource assessments were conducted in purposively selected states that identified the need to strengthen LGA level capacity for evidence-informed health system bottleneck analysis, and improvement was identified, thus necessitating the introduction of DIVA. This earned the needs assessment step the highest QIF alignment rating of 3. However, there was poor engagement of critical subnational stakeholders. This was responsible for the poor alignment rating (score of 1) on this step. Further, subnational capacity building for implementation was suboptimal (scored 2), as it captured a limited spectrum of stakeholders. The trainings targeted mainly at managers domiciled at the state ministries of health, whereas key implementers at the LGA level were not included. This may have compromised adaptation with implications on implementation quality.

[The implementers] cannot [Implement effectively] because they've not been trained; their capacity has not been built on this. You know there was a state training on this bottleneck analysis by NPHCDA some years ago and it was expected that we should come back to the state to bring it down but that didn't work. R5

TABLE 3 Deductive analysis of DIVA implementation process using the QIF steps

QIF STEPS	Identified implementation processes
1. Conducting a needs and resources assessment	National needs and resource assessment were conducted in purposively selected states. The need to strengthen LGA level capacity for evidence-informed health system bottleneck analysis and improvement was identified. (Quotes 1, 2; D2, 3, 13)
2. Conducting a fit assessment	- DIVA is considered adaptable to the Nigerian context given that it was designed to strengthen decentralized (Devolved) health systems, such as Nigeria's. (D2,13) - Although DIVA's guiding principles include community and private sector involvement, however adaptation to community systems was not sufficiently evaluated, rather adaptations were largely based on supply-side assessments (Quote 2; D2, 13)
3. Conducting a capacity/readiness assessment	While the implementation plan includes readiness assessments prior to each quarterly cycle, there is no evidence that these were/are conducted. (Quote 3, D2, 13-39)
4. Possibility for adaptation	Annual national and biannual state review meetings were planned as platforms for feedback and programme modification. However, national meetings held only in 2012 and 2013 while state level meetings were inconsistent. (D2, 10-12)
5. Obtaining explicit buy-in from critical stakeholders and fostering a supportive community/organizational climate	Various stakeholder meetings were held between 2012 and 2013 to get buy-in from other agencies of the federal government (besides the NPHCDA and FMOH); state ministries of health and PHC agencies; as well as development partners. However, there was no direct consultation with the implementing tier (LGAs), community structures (beneficiaries), or private sector (D2,10-12)
6. Building general/organizational capacity	The needs assessment conducted identified the following as key items for capacity enhancement across the governance tiers: Routine data systems; Human resources to implement DIVA; Communication systems (e.g. internet infrastructure) (D13)
7. Staff recruitment/maintenance	Existing PHC managers and workers across the governance spectrum are expected to be used, given that DIVA is designed to build on existing systems and structures. National managers are to serve as initiators and coordinators of the initiative nationwide. State managers are to provide direct coordination, supervision and coaching for implementers at the LGAs. (D13)
8. Effective pre-innovation staff training	A phased cascaded approach to training was planned, however poor adherence to the plan constrained implementation quality. (Quotes 3; D2, 13)
9. Creating implementation teams	The number of resource persons mobilized to conduct the trainings did not match the scale of the exercise, consequently knowledge and skill may not have been effectively translated to implementation teams (D2, 10-12, 14-18)
10. Developing an implementation plan	A national rollout plan was developed in 2012. The plan detailed tasks and timelines, including accountability/responsibility frameworks. However, the roll out plan was not adhered to. (D2,13)
11. Technical assistance/coaching/supervision	Technical assistance for implementation was provided by the NPHCDA, SPHCDA and development partners. However, support waned in almost all states due to poor buy-in at state level. (D2,10-12)

(Continues)

TABLE 3 (Continued)

QIF STEPS	Identified implementation processes
12. Process evaluation	There is no evidence that process evaluation was planned or carried out anywhere
13. Supportive feedback mechanism	While review meetings were planned as platforms for retrospective evaluation (annually and biannually at national and state levels respectively), national meetings held only in 2012 and 2013. (D2,10-12)
14. Learning from experience	Lessons learned are documented in various reports, however these are limited to few implementation bottlenecks given that no process evaluation was carried out. (D2, 10-12, 14-39)

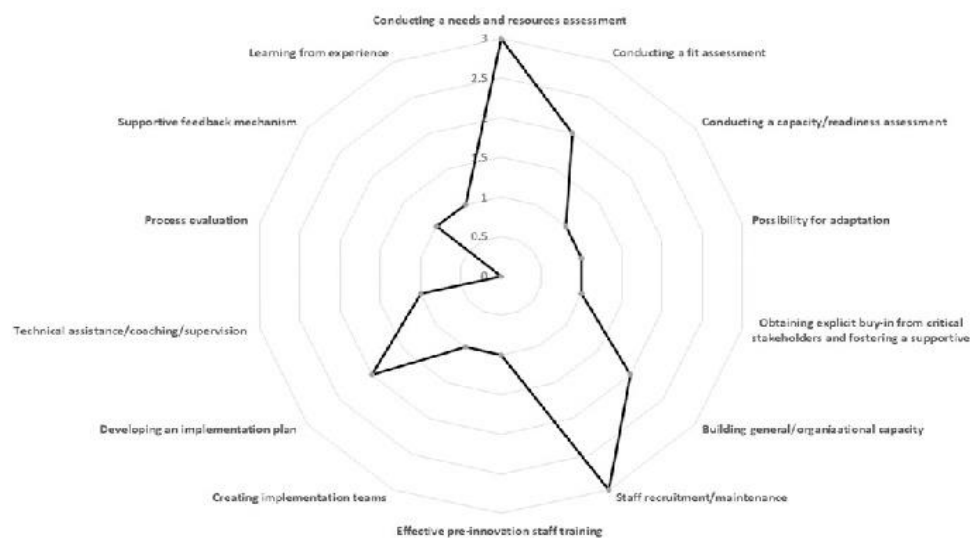


FIGURE 2 A radar chart scoring the alignment of the policy implementation process with the 14 QIF steps

3.2 | Phase two: creating a structure for implementation

This second phase of quality implementation involves the development of an organized structure to oversee the process. The QIF prescribes the availability of a clear plan for implementing the innovation as well as a team of qualified individuals responsible for executing tasks related to delivering the innovation and overseeing its implementation. With respect to DIVA rollout, document analyses and interviews revealed gaps with respect to alignment with the QIF. First, even though a national rollout plan was developed in 2012 detailing tasks and timelines (including accountability/responsibility frameworks), the rollout plan was not adhered to (D2, 13), thus earning this step a QIF alignment score of 2. Further, our analysis of implementation reports suggests that the number of resource persons mobilized to conduct the trainings did not match the scale of the exercise. Consequently, knowledge and skill may not have been effectively translated to implementation teams (D2, 10-12 and 14-18), thus the poor QIF alignment rating of 1 on "creating implementation teams."

... they took off very early! The national [NPHCDA] after developing the template and the training, were not supposed to go into [full] implementation. We [national] ought to have seen how we could analyse the results [from the pilot study] and published [findings], [Thereafter] seen how the states will buy in before withdrawing. But there was an early [national] withdrawal of the program ... and the states were not being mentored as they were supposed to be, the coaching process was not thorough. R2

We were unable to complete the plan because the funding was inadequate, so we used the money the state allocated for us to complete PHC review at the LGA level. R6

3.3 | Phase three: ongoing structure once implementation began

This phase involves three important tasks: providing needed on-going technical assistance to subnational implementers; monitoring on-going implementation; and creating feedback mechanisms. Our findings suggest that this was the least performing phase given that the three tasks scored 1, 0, and 1, respectively, on the QIF alignment scale. Analyses of qualitative data revealed that, even though technical assistance for implementation was provided by the national government and development partners, this support waned in almost all states. The exception was Kaduna state, where UNICEF sustained support due to the interest of the newly elected government in strengthening its health system through evidence-informed initiatives (D2, 10-12).

... early withdrawal at the national [level] ... made the states not to have a full grip of the PHC reviews because they did not have the level of support they needed. That was the major reason the PHC review process of the states could not continue as it was supposed to ... Nasarawa state wanted to continue ... but they dropped out. But Kaduna was able to have ownership, [state government] interest was there, and they saw that PHC review was actually an initiative that will bring dividends to PHC service delivery and then offer dividends to the populace. R2

A month after the swearing in of the governor [of Kaduna state], the team came to us and interacted with us, asking [about the issues in health] ... and we gave them the output of the last PHC review we had, what were the results, what were the challenges, what were the major challenges in health care services and after that we sent a memo in respect to the PHC review and instantly there was approval for what we asked for. R6

There was no evidence that implementation process evaluation was conducted in any state, thus the zero-alignment score on this step. Whereas the implementation plans included annual state-level reviews as part of feedback and mechanism, national meetings held only in 2012 and 2013, while only Kaduna state has sustained state level reviews (D2, 10-12). Consequently, the corresponding QIF step scored 1 on the alignment scale indicating poor alignment.

3.4 | Phase four: improving future applications

This final phase involves retrospective analyses and self-reflection with feedback from implementers to identify strengths and weaknesses that occurred during implementation. Unfortunately, due to the weak implementation of the preceding phases, learning from experience was also poor (score: 1). Thus, while "lessons learned" are documented in various implementation reports, these are limited to few implementation bottlenecks that are not in sufficient detail to improve future processes (D2, 10-12 and 14-39).

4 | DISCUSSION

Findings from the QIF process appraisal suggest that the poor subnational implementation of DIVA may have resulted from defects in translating the innovation from the national level to the subnational. Although needs and resource assessments, organizational capacity building, and development of implementation plans were relatively well carried out, these were not effective in ensuring sustainability of DIVA at the subnational level, given that most states did not sustain implementation. However, Kaduna state was able to sustain implementation due to strong political will of the state government. We discuss key process challenges using the QIF phases and themes.

4.1 | Phase one: initial considerations regarding host setting

This study found significant weakness in this phase at the national level. Organizational readiness for change is critical to implementation success, as inadequate readiness accounts for almost half of all failed large-scale innovations.^{22,23}

Although needs assessment was conducted, organizational readiness was not measured. This resulted in poor considerations for contextual adaptation. Transformational leadership of the state governor is a key factor identified for the high degree of readiness in Kaduna. Studies have shown the strong relationship between leadership and organizational readiness to implement change.^{24,25} Transformational leadership has been known to induce readiness, and, in one case, accounting for up to 44% variance in organizational readiness.²⁶

Another major weakness in this phase relates to the fifth QIF step "Obtaining explicit buy-in from critical stakeholders and fostering a supportive climate." While many stakeholder consultations were held, these were done at higher levels, thus excluded key implementers. Stakeholder engagements are critical in policy processes, as they help create acceptable and better evidence-informed policies and generate better development outcomes.^{3,12} For example, success in the development of Ghana's National Health Insurance Scheme has been attributed to strong stakeholder engagements in the policy processes.²⁷ Further, at lower levels, community engagement was also a useful strategy in promoting acceptance and improving interest and active participation in the scheme.²⁸ Conversely, inadequate engagement of critical stakeholders has been implicated in the weak mental health policies in Ghana, Uganda, South Africa, and Zambia.²⁹

Lower level implementers are known to exhibit discretionary power that often compromises implementation quality, even in centralized health systems.^{5,30} Sometimes, these "street-level bureaucrats" may significantly alter policy or program design to the extent of redefining the objectives.³⁰ Walker and Gilson,³¹ as well as Scott et al,³² demonstrated that lower level perspectives and resistance to policy (even when the implementers stand to benefit from the policy) could significantly affect the policy processes. Consequently, subnational implementation of top-down policies in decentralized settings must engage critical stakeholders across tiers of governance, especially those at the implementing tier.

4.2 | Phase two: creating a structure for implementation

Poor adherence to implementation plans was a major weakness in this policy process. The large-scale initial implementation probably overwhelmed the capacity and resources available to the national policy initiators. Meyers et al¹⁵ posit that at a minimum, a clear plan for implementing innovations and identifying a team of qualified individuals responsible for delivering innovation tasks must be in place before implementation commences. Weakness in this phase may have contributed significantly to the poor implementation outcomes observed with DIVA.

4.3 | Phase three: ongoing structure once implementation began

National processes were very poor in this phase of implementation. The weak and waning technical support to subnational tiers, and poor feedback mechanism and monitoring of ongoing implementation, could have also contributed to failed continuity in most states. Sustained technical, political, and sometimes financial support is critical to improving subnational uptake of top-down innovations in decentralized LMIC contexts.^{3,15} This is particularly crucial in Nigeria, where responsibility of the various governance tiers with respect to health is only defined by policy without constitutional backing.⁵ Consequently, strong advocacy, with political incentives, has been recommended as an effective measure to improve subnational commitment to national initiatives like DIVA.⁵ Sustained support for implementation process is essential for implementation quality. Thus, preimplementation planning of interventions must consider the availability of resources to support implementation and ensure fidelity.

4.4 | Phase four: improving future applications

Given that process evaluation was not conducted at the national level to provide knowledge on effective strategies, contextual facilitators, and challenges to quality implementation and sustainability of the initiative, opportunities to learn from experience were limited. Meyers et al¹⁵ identified this phase as being essential to implementation, given that this is where the support system engages with the delivery system to reflect on the implementation process.

Feedback from lower level implementers can inform modification or application of the innovation, and factors that influence the quality of implementation. For example, documented lessons learned from DIVA were useful in identifying health systems constraints and attracting more support for strategies to improve maternal and child health interventions in Ghana and Uganda.^{10,33} Top-down implementation theorists argue perfect implementation may not be expected, particularly in LMICs, considering resource constraints.^{3,5,12,13} This should not be of great concern, however, as long as implementation challenges are recognized and optimum implementation quality is maintained.³⁴ How the center and periphery of health systems relate also affects implementation quality, as many policies get altered or even discarded at subnational levels.^{3,5} Such lower level discretionary power informs the arguments by bottom-up theorists that, even in highly centralized systems, subordinate implementers can significantly influence or alter implementation objectives, thus are key (though often unrecognized) stakeholders in policy processes.^{3,30}

Top-down policies in decentralized LMICs like Nigeria commonly experience implementation challenges during the process of subnational translation and implementation.³ The extent of this depends on contextual differences such as governance structures, level of political decentralization, and external support systems.^{5,35} Nigeria possesses a considerably politically decentralized system of government. Although most health policy thrusts are centrally initiated and coordinated,³⁶ subnational governments demonstrate significant discretion as to whether and how to implement.^{5,16} Whereas quality improvement models like DIVA were designed to strengthen subnational organizational and management capacity to deliver quality PHC services, poor translation and delivery of the intervention constrain quality implementation and impact of such initiatives.

4.5 | Limitations

Findings and inferences from this study are based on our interpretation of documents and interviews, thus could be considered researcher biased. However, given that data were independently interpreted by different researchers and triangulated from multiple sources, we believe such biases are mitigated. While this study highlights key gaps and makes recommendations towards improving implementation in decentralized contexts, application of findings beyond the Nigerian context or even with another initiative within the same context should be applied with caution, given the complex adaptive nature of health systems.³⁷ However, lessons learned can inform better implementation in other contexts.³⁸ Our deductive approach to qualitative analysis confined the scope of this paper to predetermined themes from the QIF, thus potentially obscuring other aspects or nuances that may have been identified from emergent themes. However, here, we aim to explain gaps implementation processes using existing theories. Upcoming studies will complement this by using inductive techniques.

5 | CONCLUSIONS

Our study highlights the challenges to quality implementation in decentralized contexts and proffers ways to improve fidelity. Essentially implementing between levels of governance is more complex than within a tier. Understanding and engaging various interests across governance spectrum is key to improving quality. Further, detailed contextual analysis is recommended to inform more effective planning as against presumptive approach. While theories exist to explain aspects of policy implementation in decentralized settings, more comprehensive process models are needed to inform effective implementation processes and sustainability, particularly in decentralized contexts. Application of the QIF in one of such contexts provides some insight on how policy processes can be strengthened for optimal implementation outcomes. Thus, this study demonstrates that the QIF can contribute to filling this gap by identifying practical steps and process challenges towards improving implementation quality.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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CHAPTER 6

Open access

Research

BMJ Open Effectiveness of the Diagnose-Intervene-Verify-Adjust (DIVA) model for integrated primary healthcare planning and performance improvement: an embedded mixed methods evaluation in Kaduna state, Nigeria

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ABSTRACT

Objectives This study evaluates the real-world effectiveness of Diagnose-Intervene-Verify-Adjust (DIVA), an innovative quality improvement mode, in improving primary healthcare (PHC) bottlenecks impeding health system performance in Kaduna, a northern Nigerian state.

Design An embedded mixed method study design involving participant observation.

Setting PHCs in 23 local government areas of Kaduna state, Nigeria.

Participants 138 PHC managers across the state (PHC directors and programme managers in the 23 local governments).

Intervention DIVA is a four-step improvement model in which 'Diagnose' identifies constraints to effective coverage, 'Intervene' develops/implements action plans addressing constraints, while 'Verify/Adjust' monitor performance and revise plans.

Primary and secondary outcome measures The model, as adapted in Nigeria, is designed to evaluate and improve the availability of health commodities, human resources, geographical accessibility, acceptability, continuous utilisation and quality of four PHC interventions (immunisation, integrated management of childhood illnesses, antenatal care and skilled birth attendance).

Results 183 bottlenecks were identified by local government teams across all interventions in 2013. 41% of bottlenecks concern human resources. Geographical access and availability of commodities ranked least. Availability of commodities was the most improved determinant although among the least constrained, probably indicating skewed implementation of operational plans. 1562 activities were planned to address identified bottlenecks in the state, of which only 568 (36%) were completely implemented

Conclusion Our study demonstrates that PHC planning using the DIVA model can potentially improve health system performance. However, effective implementation is critical and may require some central government oversight.

Strengths and limitations of this study

- This study uses an uncontrolled before and after design for assessing change in identified bottlenecks.
- The design is constrained in attributing observed improvement to the intervention but was, however, most suitable given that all local governments in the state are implementing Diagnose-Intervene-Verify-Adjust.
- Participant observation methods are prone to the Hawthorne effect.
- Given that this is an embedded real-world continuous improvement intervention, the Hawthorne effect is a desirable if positive and sustained.
- We found this design very useful and easy-to-use for lower level operational managers in low- and middle-income countries implementing/evaluating health system improvement initiatives, particularly in district/decentralised health systems.

BACKGROUND

Introduction

Attaining universal health coverage (UHC) requires systems capable of ensuring that required interventions and services are effectively delivered to populations in need. Primary healthcare (PHC) provides an appropriate platform for integrating health system components towards UHC.¹ While selective PHC services usually offer a quick win approach to disease control through verticalised interventions such as immunisation and malaria control programmes, integrated health system strengthening is being advocated as a more efficient and effective strategy for improved health system performance.^{2,3} Substantial knowledge exists on causes of ill-health alongside interventions to address them, however how to implement

these interventions is far less understood.⁴ This is typical of complex health systems characterised by many actors and interest groups (governmental and non-governmental) operating at different levels.^{5–6} Lower levels of decentralised health systems are known to pose implementation challenges in low- and middle-income countries (LMICs) largely due to weak capacity for governance as well as political constraints.^{6–8} Several methods have been implemented to improve PHC performance in LMICs. Most common of these approaches include supportive supervision, mentoring, tools and aids, quality improvement methods and coaching.⁹ These approaches have largely focused on health facilities and are mostly vertical (focusing on one intervention).^{7,9} A systematic review of quality improvement strategies for improving maternal and child health in LMICs revealed a limited number of studies involved integrated approach to PHC.¹⁰ In this paper, we examine the effectiveness of an innovative model for improving integrated PHC performance as implemented in Kaduna, a northern Nigerian state.

The Diagnose-Intervene-Verify-Adjust (DIVA) model was designed for systematically identifying and resolving health systems bottlenecks, particularly in decentralised LMIC contexts.¹¹ The intervention theory, as described in the methods section, postulates that implementation of DIVA should improve health systems performance by facilitating prompt identification and response to health systems bottlenecks. However, in real-world contexts, the extent to which this can be achieved is not established. Implementation theorists believe that the effectiveness of interventions is subject to contextual variations, thus similar results may not be expected across all settings.¹² Consequently, this paper evaluates the effectiveness of DIVA as a model for improving health system performance through integrated PHC operational planning in Kaduna, Nigeria.

The DIVA model was introduced by Unicef in nine sub-Saharan African countries (Botswana, Democratic Republic of Congo, Mali, Malawi, Niger, Nigeria, Sierra Leone, Uganda and Zambia).¹³ While there has been some success in terms of DIVA providing evidence for policy making in these countries,^{11,13} there has been no effectiveness study of DIVA implementation to our knowledge. 'Effectiveness' here refers to how the intervention affects health systems outcomes when implemented in real-world (uncontrolled) environment. Thus, it reflects how contextual factors (such as the political economy, implementer capacity and discretion, stakeholder influences, etc) may enhance or inhibit the expected outcome of the intervention.^{14,15} Given the contextual diversities of these countries particularly with respect to political governance (all except Nigeria have a centralised government),⁸ our study provides unique insight to implementing DIVA in a politically decentralised system. Thus, lessons from this implementation research may be used to inform adaptation of DIVA in other similar politically decentralised LMIC contexts.

Study context

Nigeria's health system is anchored on a PHC structure known as the Ward Health System (WHS).¹⁶ The WHS is an adaptation of the WHO's District Health System where political wards of the local governments (LGs) (the smallest political governance units) double as the operational units for PHC.¹⁷ This design aims to strengthen community participation in health system governance as envisaged in the Alma-Ata PHC declaration of 1978.¹⁸ The WHS operates a primarily community-based management structure which functions through the Ward Development Committees (WDCs) and Village Development Committees (VDCs) at the ward and village levels respectively. Each WDC consists mostly of chairmen of the various VDCs under its jurisdiction while the VDCs consist of respectable members of the communities and representatives of various community-based interest groups and strata (eg. women, youth and occupational groups).¹⁹ The functions of these committees include identifying, planning interventions and mobilising resources to meet health and social needs of the communities, supporting and monitoring the implementation of work plans and activities of community-based and health facility workers, support maintenance of the Ward Health Centres as well as serve as the linkage between the communities and the government/other partners.¹⁷ Although the DIVA model is designed to strengthen this model,¹¹ in practice community participation has been rather very passive.²⁰

This study was conducted in Kaduna, one of Nigeria's 37 states/territories. Kaduna is home to about 7 915 487²¹ people distributed across 23 local government areas and 255 political wards. About 1523 (98%) of the 1560 health facilities in Kaduna are PHC facilities.²²

METHODS

The DIVA model

DIVA is a variant of the Plan-Do-Study-Act cycle designed to improve performance in complex macro-health systems, particularly the district health system.^{11,23} The model aims to build the capacity of LG health managers to assess, analyse, act and be accountable for equitable service delivery and to strengthen decentralised health systems. Four principles guide the implementation of DIVA- strong government leadership and ownership; flexibility and adaptability to local programmes, building on what exists; community involvement and engagement and supportive (technical and financial) process from civil society, private sector and development partners.¹¹ Kaduna state implements DIVA in quarterly cycles for each LG and annual reviews are conducted at the state level which feed into existing health sector annual budgeting and planning cycles. These phases overlap in practice.²⁴ The phases of DIVA are described below:

Diagnose phase

A modified Tanahashi model, described by O'Connell and Sharkey, is used during the diagnose phase of the

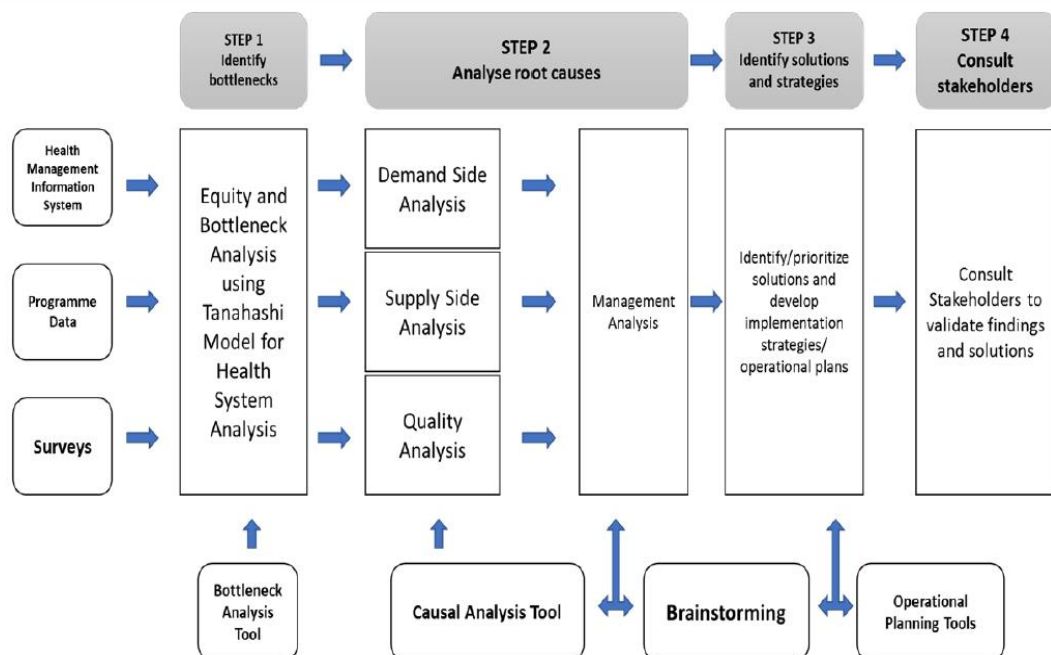


Figure 1 Framework for implementation of the 'Diagnose' phase (adapted from Unicef and Management Science for Health (MSH)¹¹).

PHC reviews to assess health systems bottlenecks at the LG level.^{13 25} Six determinants of quality or 'effective coverage' of interventions are measured: availability of essential health commodities, availability of human resources, accessibility of distribution points for the interventions (geographical access), initial utilisation (acceptability) of interventions, continuous utilisation (contact) of interventions and quality of interventions delivered. The first three determinants represent the supply side while the others are demand side determinants. Health systems bottlenecks are identified as constraints to full functioning of each determinant which impacts on effective/quality coverage of the intervention.¹³

A pre-implementation training of LG PHC management teams on bottleneck analysis methodology was conducted in 2012.²⁶ Thereafter, during the PHC reviews we provide technical guidance to the teams to carry out this diagnosis using routine data (and data from other sources eg demographic and health surveys) analysed on a MS-Excel based Bottleneck Analysis tool developed by the National PHC Development Agency (NPHCDA).²⁴ The LG teams are then supported to identify bottlenecks inhibiting optimal effective coverage with respect to each tracer intervention. This training and technical support was embedded into the DIVA process to ensure optimal implementation fidelity by mitigating lower-level discretion commonly observed in multi-level governance contexts.^{7 27–29}

The tool calculates coverage for each determinant using routine data inputted from the health management

information system as numerators and the national population census data as denominators. Graphs are automatically developed for analyses. The difference between target coverage and observed coverage for each determinant is identified as a measure of the bottleneck.^{13 24 25 30}

Using techniques and tools like brainstorming, '5 Whys' technique,³¹ affinity and driver diagrams, the teams are guided to identify immediate, proximate and distal causes of identified bottlenecks (S1). This step is known as root cause/causal analysis (figure 1).

Intervene phase

Following step 1, LG teams are guided to identify plausible solutions to these bottlenecks with specific quality/coverage targets for each quarter. Thereafter, proffered solutions are converted into action plans (S1) which are incorporated in annual health operational plans and budgets following stakeholder consultation (eg, the State PHC Development Agency chief executive, LG chairperson and ministries of health and finance). This is followed by implementation of the planned activities.

Verify phase

During this phase, the implementation of planned activities is monitored through existing supportive supervision, monitoring and evaluation mechanisms year-round. This helps early detection of deviation or lag while also ensuring implementation fidelity of planned activities. Quarterly diagnostic cycles further enhance verification. Supportive supervision includes quarterly visits from state

Table 1 Selected process and outcome measures used for the primary healthcare reviews

Determinants	Immunisation	IMCI - malaria	Antenatal care	Skilled birth attendance
Commodity	Percentage of health facilities without stock out of pentavalent vaccines in the reporting period	Percentage of health facilities without stock out of ACTs in the reporting period	Percentage of health facilities offering ANC services without stock out of iron-folate supplements in the reporting period	Percentage of health facilities offering delivery services experiencing no stock out of delivery kits in the reporting period
Human resources	Percentage of health facilities with at least two trained vaccinators	Percentage of health workers trained in the management of childhood illnesses	Percentage of ANC service providers who have been trained in focused antenatal care	Percentage of maternity staff trained in basic emergency obstetric care
Geographical access	Percentage of population living within 5 km radius from immunisation service points (health facilities and outreach locations) *	Percentage of population living within 5 km radius of health facilities offering services for management of childhood illnesses *	Percentage of population living within 5 km radius of health facilities offering ANC *	Percentage of population living within 5 km radius of health facilities offering basic delivery services *
Utilisation (initial)	Percentage of children under the age of one who received pentavalent vaccine dose 1	Percentage of children under the age of 5 years having fever and using health facility services for the management of childhood illnesses	Percentage of pregnant women attending at least one ANC service	Percentage of deliveries in health facilities
Continuity (continuous utilisation)	Percentage of children under the age of one who received pentavalent vaccine dose 3	Percentage of children under the age of 5 years having fever and that were treated with ACT	Percentage of pregnant women who attended four ANC visits †	Percentage of mother/infant pairs who received at least one follow-up home visit within the first month after delivery
Quality (effective coverage)	Percentage of children fully immunised (with all doses of routine vaccines) before their first birthday	Percentage of children under the age of 5 years having fever, who were tested with rapid diagnostic tests and treated with ACT	Percentage of pregnant women who had four ANC in a timely manner in accordance with focused ANC guidelines	Percentage of deliveries receiving postnatal check-up within 48 hours at health facilities

*Nigeria's government policy aims to provide services within 5 km/1 hour walking distance of communities.^{8 50}

†Nigeria's policy (in line with WHO) recommends that all pregnant women attend at least four ANC sessions.^{50 51} ACT, artemisinin-based combination therapy; ANC, antenatal care; IMCI, integrated management of childhood illness.

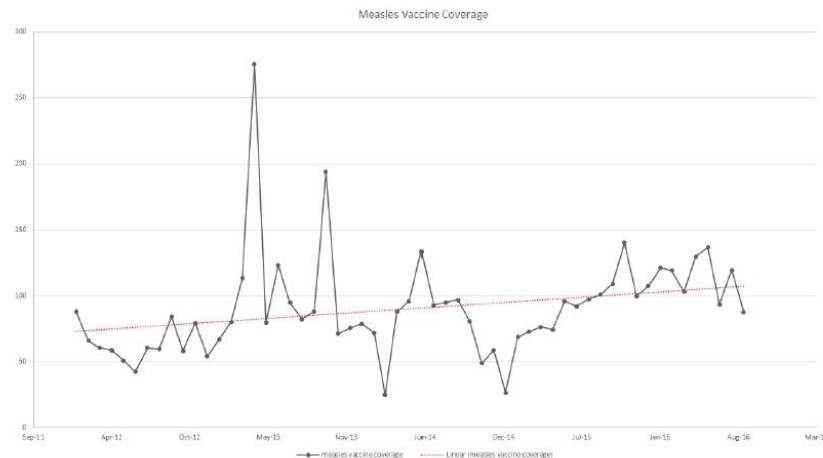


Figure 2 Trend - coverage of measles vaccine (monthly).

to LGs and from LGs to health facilities to supervise and aid frontline health workers as they implement activities planned out for each intervention.

Adjust phase

At any point during verification, implementation challenges identified are addressed to ensure interventions are carried out as planned and are on track towards attaining targets within stipulated time frames.

DIVA implementation process in Kaduna

Eight state and LG teams (PHC managers) were trained on the methodology of and guided on the Diagnose and Intervene steps to obtain a baseline in 2013. These managers include the PHC directors and programme managers at both levels. Thereafter technical support

was provided during the annual reviews conducted in March each year. The reviews focused on determinants for availability of health commodities, human resources for health, geographical accessibility, initial utilisation, continuous utilisation and quality coverage of four PHC tracer interventions (immunisation, Integrated Management of Childhood Illnesses (IMCI), antenatal care and skilled birth attendance). These tracer interventions were selected by stakeholders in the health sector using the following criteria: 'Data is available for the six coverage determinants; the tracer is an internationally recommended intervention with proven and quantified efficacy; the tracer is representative of other indicators within its intervention group in terms of facing similar health systems constraints at the chosen service delivery level, for accurate assessment of costs in overcoming bottlenecks'.³⁹

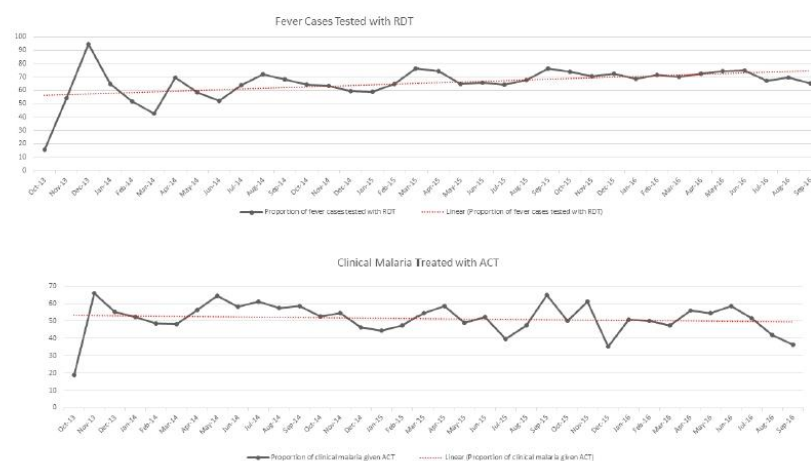


Figure 3 Trend - outcome of management of febrile illnesses (monthly). ACT, artemisinin-based combination therapy; RDT, rapid diagnostic testing.



Figure 4 Trends - outcomes of antenatal care.

LG health management teams (PHC directors and programme managers) were coached and supervised as they utilised routine data collected from their LGs to analyse health systems constraints, develop and implement evidence-informed plans to address them and improve performance. Each of Kaduna state's 23 LGs have six PHC managers (one PHC director and five programme managers) involved with DIVA. A total of 138 across the state therefore constituted the study population. Field notes were taken, and reports developed from each LG detailing bottlenecks identified, causal analysis and action/operational plans for each year. Draft reports were circulated to all LGs for confirmation and inputs towards the final documents (which were also endorsed by all LGs).

Study design

We evaluated the PHC reviews in Kaduna using an embedded a mixed method approach. The mixed approach was complementary such that qualitative data provided context and content to the changes in indicators measured using quantitative methods.³³ Embedded

research involves a partnership between researchers and decision-makers to facilitate co-production of knowledge towards evidence-informed policy and practice.^{34 35} A moderate participant observation approach was employed such that the embedded researchers mostly acted as process facilitators for the state and LG teams.³⁶ EAE and NI were played dual roles as embedded researchers and national-level policy makers between 2013 and 2016. The process aligned with Howell's participant observation phases such that the researchers first established rapport with the participants (subnational PHC managers), then embedded themselves in the field as process facilitators, recorded observations as field-notes and finally conducted framework and narrative analyses of the information gathered.³⁷ Detailed findings from these analyses are beyond the scope of this paper, but are published in other sub-studies within this research series.^{7 20 26} However, collated outputs from the process inform the process description below as well as the 'causal analyses and planned action table' in the results section.

Furthermore, we quantitatively evaluated the effectiveness of DIVA by measuring improvements on selected indicators (table 1) developed by the NPHCDA and from the Health Management Information System.^{24 32} Each LG team was instructed to identify two priority bottlenecks (constrained determinants) per intervention (one supply side and one demand side) using the MS-Excel bottleneck analysis tool described earlier. We followed up on actions planned to tackle these identified bottlenecks and their impact on reducing them between 2013 and 2016. This was done by extracting data from programme reports on how the planned activities were implemented. The level of implementation was categorised in a three-point ordinal scale (not implemented, partly implemented and completely implemented). The implementation data collated from all LGs was analysed using a pie-chart.

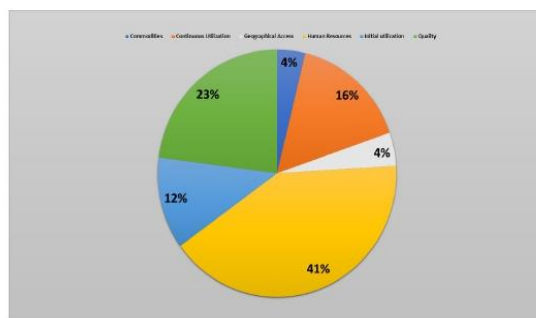


Figure 5 Distribution of identified bottlenecks across determinants of health system performance.

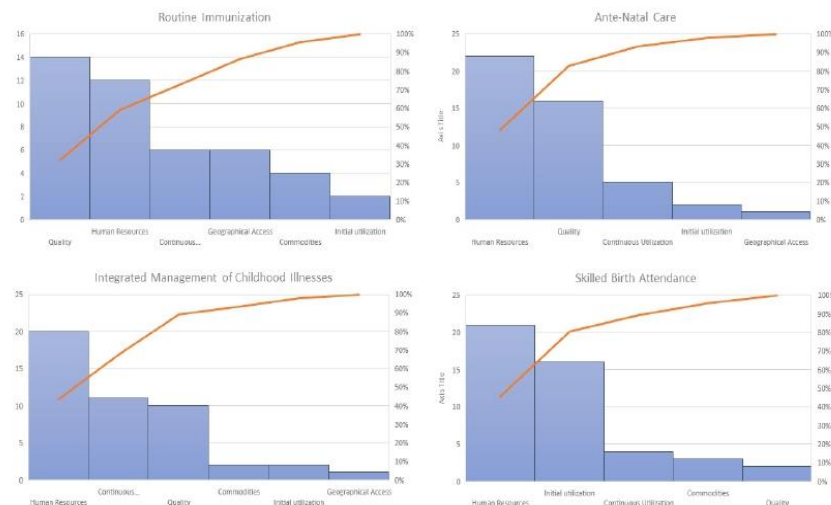


Figure 6 Pareto charts showing priority ranking of determinants with identified bottlenecks for each tracer intervention.

Coverage gap analyses were conducted on the prioritised bottlenecks to monitor improvements. The median performance values of each constrained determinant identified across the 23 LGs was determined both at baseline and post-implementation. Median values (rather than mean) were used as measures of central tendency to eliminate the effect of isolated extreme performance in some LGs. The change in bottlenecks are presented in bar charts. Health system performance measures were monitored using time-series charts which show trends in monthly coverage of selected outcome measures between 2013 and 2016. A trend analyses was conducted to monitor for possible improvements. The selected measures were based on proximate indicators from Nigeria's National Strategic Health Development Plan considered to have indirect but proximate relationships with the DIVA indicators.³⁸ These are trends in measles vaccination coverage, management of febrile illnesses using rapid diagnostic testing (RDT) and artemisinin-based combination therapy (ACT) for confirmed malaria cases, and attendance at antenatal care clinics.

Patient and public involvement

This study did not directly involve the patients, but rather an ecological approach using data from the Health Management Information System. The participatory action research approach involved the health system managers and planners who utilised the routine (secondary) data for decision making.

RESULTS

The results from this evaluation represent findings aggregated from 1523 out of 1560 health facilities distributed across all 23 LGs in Kaduna state.

Trend of selected performance measures based on routine data

First, we present trend analyses of selected outcomes; vaccination: measles vaccine coverage, antenatal care (ANC): coverage and average visits per client, IMCI: fever cases tested with RDT and clinical malaria treated with ACT. These outcomes were selected because they are proxy indicators of health systems performance associated with the various interventions in the national PHC review guidelines.³⁴

Figures 2-4 show that although improvement is observed with some outcome indicators (measles vaccination and fever cases tested with RDT), decline was observed with others.

Bottleneck analysis and action plan implementation

We now present findings from the baseline diagnosis in 2013 with priority ranking of bottlenecks and root cause analysis across the various interventions and causal analysis. Thereafter we demonstrate on bar charts how these bottlenecks have changed between 2013 and 2016. Lastly, we illustrate implementation gaps in action plans developed to address the bottlenecks.

A total of 183 bottlenecks were identified by the 23 LG teams across all tracer interventions in 2013. Figure 5 shows the distribution of these bottlenecks across the modified Tanahashi determinants. Most (41%) bottlenecks identified relate to human resource challenges, while geographical access and availability of commodities ranked least (4% respectively). Figure 6 disaggregates these findings per tracer intervention using Pareto charts.

Table 2 shows the common bottlenecks for each intervention as well as their probable causes as identified by the LG teams. Online supplementary material S1 contains an example of integrated evidence-informed operational plans developed by the teams during the PHC reviews to address these constraints.

Table 2 Causal analysis of commonly identified bottlenecks and planned actions by local governments

Interventions	Bottlenecks identified	Immediate causes	Underlying causes	Structural causes	Managerial causes	Planned actions
Immunisation	Difficult access to vaccination sites	Closure of some health facilities; dispersal of some communities	Insecurity	Inadequate security for health workers and communities in conflict areas	Poor response from the policy makers on security matters.	Advocacy to policy makers and security outflits
	Sub-optimal demand for vaccination services	Lack of information on the importance and safety of vaccines	Sociocultural apathy to vaccination	Weak functionality of community development committees	Weak community engagement	Community mobilisation
Integrated management of childhood illnesses	Inadequacy of health workers trained in the management of childhood illnesses	Lack of training of health personnel	Poor release of funds for planned training	No sustainable funding structure for primary healthcare	Weak prioritisation of health workers' capacity building by policy makers	Advocacy to policy makers on prioritising health workers' capacity building
	Inadequate ACT treatment of children under 5 years diagnosed with malaria	Inadequacy of health workers trained in the management of childhood illnesses; poor adherence to clinical guidelines	Limited release of funds for planned training	Inadequate distribution of health facilities providing ACT treatment across communities	Limited commitment and support to implementation of work plans by higher level of government	Advocacy to policy makers on prioritising health workers' capacity building
	Low demand for services by the communities	Patients' preference for self-medication	High ACT stock-out rates, diminishing confidence of community in availability of quality services at PHC facilities	No sustainable funding structure for primary healthcare	Inadequate supervision of health workers	Community sensitisation on the demerits of self-medication, supportive supervision for PHC; advocacy for sustainable funding mechanism
	Inequitable distribution of health facilities providing IMCI	Inadequate siting of facilities given population distribution	Weak planning of PHC expansion projects		Political influence on health facility siting	Advocacy to policy makers on prioritising equity in PHC expansion
Antenatal care	Limited coverage of ANC services	Low quality of services	Inadequacy of health workers (retrained on focused ANC, inadequacy of (free) MCH commodities)		Inadequate funding for training	Advocacy to policy makers on prioritising health workers' capacity building
Skilled birth attendance	High ANC dropout rates	Negative staff attitudes towards patients	Little or no training on service delivery	Weak supportive supervisory system	Inadequate funding for supervisory visits	Advocacy for improved funding
	Weak delivery of BEOC	Weak technical capacity of frontline workers in BEOC	Inadequacy of health workers trained in BEOC; inequitable distribution of trained health workers	Weak funding mechanism for training	Weak political will	Advocacy for improved funding
	Few follow-up home visits of mother/infant pairs who within the first month following delivery	Lack of commitment from the health personnel	Weak motivation of health workers	Unavailability of technical and financial support for health workers' home visits	Weak supportive supervision	Advocacy for improved funding
	Limited patronage of health facilities for delivery services	Preference for home delivery	Sociocultural	Inequitable geographical access (distance) to facilities providing 24 hours skilled delivery services		Health education and support to community; advocacy for equitable distribution of health facilities

ACT, artemisinin-based combination therapy; ANC, antenatal care; BEOC, basic emergency obstetric care; IMCI, integrated management of childhood illness; MCH, Maternal and Child Health; PHC, primary healthcare.

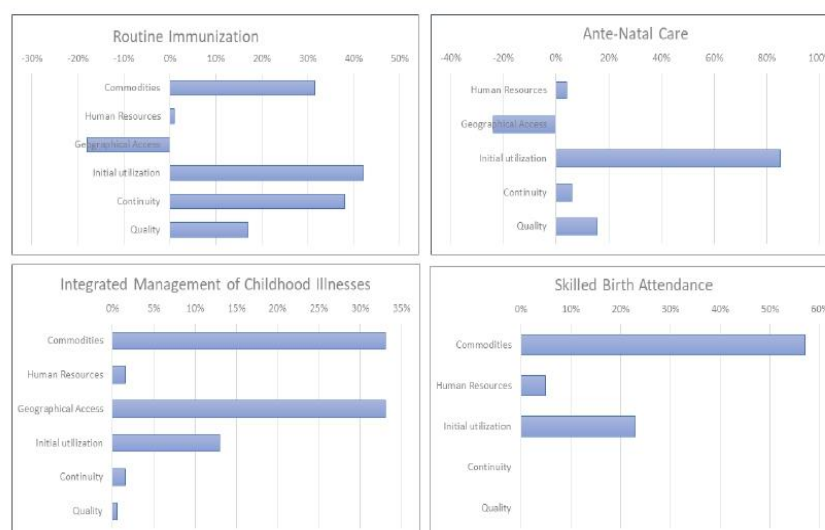


Figure 7 Bar charts showing changes in median values of indicators for each intervention between 2013 and 2016* (* some determinants were not identified by the teams as having priority bottlenecks in 2013).

Figure 7 measures the difference between 2013 (baseline) and 2016 median values of determinants for each intervention in LGs that identified them as priority constraints. These values exclude performance in LGs that did not identify priority constraints in the respective determinants (table 3). Thus, the measurements (figure 7) represent improvement (or otherwise) on identified bottlenecks following development of action plans to address them. While variable levels improvement can be observed in most determinants, geographical access to routine immunisation and antenatal services reduced. This may have resulted from the closure of facilities and dispersal of communities following security challenges in some LGs as identified in table 2.

Figure 8 shows a gap in implementation of activities aimed at addressing bottlenecks. A total of 1562 activities were planned to address identified bottlenecks in the state, in which only 568 (36%) were completely implemented. Only 6 out of 23 LGs fully implemented at least 50% of planned activities. Implementation gaps occurred across all interventions, however, as shown on table 2, implementation was not a priority bottleneck with routine immunisation, which is the most government and donor supported intervention.

DISCUSSION

Our findings reveal that the DIVA model was helpful in identifying bottlenecks and developing evidence-informed action plans to address them. Interpretation of the findings are, however, guided by the understanding that while DIVA is implemented at LG level, these outcomes are measured at state level (which are aggregates of possible effects in all LGs).

Challenges were observed, particularly regarding execution of planned activities to address the bottlenecks.

Funding constraints resulting from poor political will/government ownership (particularly at the LG level), was identified as a major factor underpinning implementation gaps. These mirror implementation challenges with DIVA in Ghana and Uganda.^{30 39} In addition to these, data availability to populate the Tanahashi determinants constrained implementation in Uganda. Generally, health systems bottlenecks identified were similar across these countries, save for some context specific constraints discussed below.

Human resources for health was identified as the most constrained determinant across all interventions except routine immunisation where it ranked second to quality. Common human resource challenges identified by the LG teams include weak capacity to deliver the interventions as well as poor motivation and commitment of frontline workers to service delivery. In addition to funding and management constraints, this may have contributed significantly to the poor quality of services which ranked second. In some LGs skilled human resources, where available, were inequitably distributed (being concentrated in larger urban or semi-urban facilities).

Geographical access and availability of commodities were the least constrained determinants identified. Security challenges (including terrorism and ethno-religious conflicts) constrained geographical access to services (particularly immunisation and IMCI) in some communities. Whereas Kaduna is not known as a hotspot for terrorism, findings from this research have shown that isolated security challenges have significant effects on the health system. Most responses to terrorism (including health sector) are currently concentrated in the North-Eastern states of Adamawa, Yobe and Borno. Consequently, there is need for a more widespread assessment

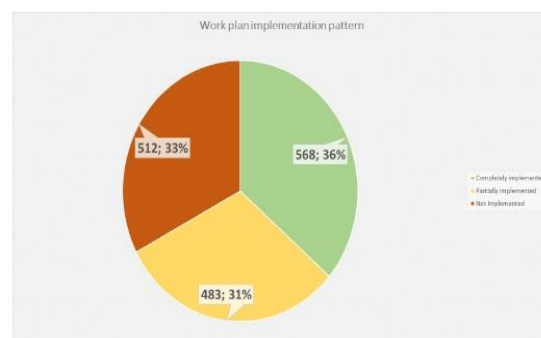
Table 3 Local governments that identified priority constraints in the respective determinants for each intervention in 2013 (n [%])

Intervention	Determinants	Number of LGs identifying bottlenecks (n [%])
Immunisation	Commodities	4 (17%)
	Human resources	13 (57%)
	Geographical access	5 (22%)
	Initial utilisation	2 (9%)
	Continuity	7 (30%)
	Quality	15 (65%)
Integrated management of childhood illnesses	Commodities	1 (4%)
	Human resources	20 (87%)
	Geographical access	1 (4%)
	Initial utilisation	2 (9%)
	Continuity	12 (52%)
	Quality	9 (39%)
Antenatal care	Human resources	22 (96%)
	Geographical access	1 (4%)
	Initial utilisation	2 (9%)
	Continuity	5 (22%)
	Quality	16 (70%)
Skilled birth attendance	Commodities	2 (9%)
	Human resources	21 (91%)
	Initial utilisation	16 (70%)
	Continuity	5 (22%)
	Quality	2 (9%)

LG, local government.

and response to the effects of terrorism and conflicts in Nigeria beyond the known hotspots.

Inequitable siting of health facilities was also cited as a constraint. A well-known reason for this is the tendency for politicians to influence the siting of developmental projects (including health facilities) based on quest for political capital as against equity needs of the population.

**Figure 8** Implementation of planned activities.

Thus, while health services are relatively inaccessible to some communities, others with greater political influence have more facilities than needed even though many of these function sub-optimally.⁸

Utilisation of services was mainly constrained by demand side factors such as sociocultural norms and poorly functional community development committees (which are supposed to provide a link between facility managers and the users of services). Efforts have been made by the national government to revitalise these committees through community Participatory Learning and Action programmes,⁴⁰ however a more sustainable framework for operationalising these committees will require states and LGs to play more significant roles in engaging communities in recognition of their vital role as part of the health system.⁶ Studies in Kenya, Tanzania and Nigeria have shown that communities can play active roles in service delivery and project implementation, health promotion and advocacy and resource mobilisation and management.^{41–43}

Planned actions to tackle these bottlenecks mostly revolved around advocacy and community mobilisation, indicating that majority of the solutions were beyond the immediate responsibility or capacity of the LG health teams. This probably explains the weak implementation of planned activities. Across all interventions, improvement in human resources was minimal even though it was the most constrained determinant. The challenges with human resources for healthcare are not new in Nigeria. However, most efforts to address them have focused on increasing their numbers and distribution, particularly Community Health Extension Workers.⁴⁴ This approach is not unusual in LMICs given that maldistribution and high attrition rates are common human resource challenges in these countries.⁴⁵ For example, maldistribution of health workers following punitive transfers and lobbying for posting are common concerns that have affected equitable access of clients to services in India, Pakistan, Mali and Kenya, which staff audits and re-distribution have attempted to solve.^{33–36} In addition to these, our findings suggest that attention should also be given to the capacity of available health workers to deliver specific services effectively. Thus, it is not sufficient to have adequate cadre of staff, efforts should be made to ensure these frontline workers get trained and retrained on the various PHC interventions to ensure quality. Clinical mentoring has also been employed successfully in Malawi, Uganda and Tanzania to strengthen human resource capacity.⁹

Availability of commodities was the most improved determinant even though it was among the least determinants cited as constrained. This pattern probably indicates skewness in implementation of operational plans as government and donors may prefer to intervene in this determinant to sustain supplies as against human resources, which require high costs and locally sensitive training. Availability of commodities was not identified as major constraint for ANC. Furthermore, there was

improvement in IMCI geographical access in the LGs that identified it as being a bottleneck. The reverse was the case with ANC and routine immunisation where access worsened. This may have been due to insecurity which led to closure of some health facilities in some LGs. These two interventions were probably more affected because they also include community-based outreach services, which declined as reported by participants.

Whereas some indicators for interventions like malaria and routine immunisation (which have strong donor support) improved, ANC indicators slightly declined. This may indicate that managers skew implementation towards donor interests by not prioritising other less supported interventions like ANC. Consequently, action plan implementation tends towards verticalisation contrary to the design of DIVA.

The PHC reviews are yet to be fully institutionalised as implementation is largely dependent on external support and contextual factors such as security, financing and political will. The successful implementation of the Verify-Adjust phase is hinged on a strong monitoring and evaluation system. However, our findings reveal that this system is weak, as reported in previous studies.⁷ Integrated supportive supervision has been relatively stronger with vertical programmes like malaria and HIV/AIDS due to donor funding requirements.⁴⁶ Although donor support has contributed to strengthening health systems in LMICs and improving PHC services in some cases, concerns have been raised about their negative impact on integrated systems strengthening.⁴⁷ For example, increase in HIV/AIDS funding has been observed to stagnate funding for reproductive health. Further, accusations have arisen that scarce personnel are being drawn off other health services by offers of better-paying opportunities in HIV/AIDS programmes.^{47 48} We thus recommend a robust government coordination of PHC to improve the effectiveness of DIVA.

While many of the findings are not new, particularly as relates to human resources for health being a major health system challenge in LMICs, including Nigeria,^{8 44 45} the PHC review presents a new approach to evidence-informed solutions using DIVA. Successful implementation of DIVA is guided by four principles - strong government leadership and ownership; flexible and adaptable to local programmes, building on what exists; community involvement and engagement and supportive (technical and financial) process from civil society, private sector and development partners.¹¹ Whereas, Nigeria's integrated governance structure may have played an important role in sustaining implementation to date,⁷ dependence on donors as primary technical and funding sources for implementation may threaten future sustainability of the initiative.

A limitation of our study is that the magnitude of change observed may not reflect the magnitude of impact DIVA has on health system performance. This is because DIVA implementation is at the LG while this study aggregates findings to state level, consequently, outstanding results

from high performing LGs are potentially obscured by low performing ones. However, given that our study focuses on state-level effectiveness of implementing the model (as against efficacy or impact evaluation), our findings are reflective of the potential of DIVA to improve health system performance within a decentralised context. Further, our analysis utilised median values as against means, thus eliminating the effect of possible extreme values from some LGs. While the use of routine data may be considered a limitation of DIVA owing to data quality concerns, our study focuses on change in coverage as against actual coverage thus potentially eliminating some known quality deficits. For example, the denominators for coverage in routine data are based on expected values projected from Nigeria's last census in 2006, but observed coverages sometimes exceed 100% signifying a possible change in population dynamics over the past 10 years. However, this is unlikely to affect our findings as we analyse changes in coverage rather than the absolute coverage. Further, Nigeria's electronic routine data platform and the PHC bottleneck analysis tool possess internal quality control mechanisms.²⁴

This study uses an uncontrolled before and after design for assessing change in identified bottlenecks. Consequently, it is constrained in attributing observed improvement to the intervention. This design was, however, most suitable given that all LGs in the state are implementing DIVA. Using LGs in other states as controls will potentially introduce complex confounders given the dissimilarities in contexts, governance and other characteristics across states. However, the time series charts used in analysing health system outcomes support the interpretation of our findings. Further, a follow-up evaluation of contextual influences on DIVA outcomes using the Model for Understanding Success in Quality has been conducted to develop a theory of attribution that takes into account other factors.²⁰

We found this design very useful and easy-to-use for lower level operational managers in LMICs implementing/evaluating health system improvement initiatives, particularly in district/decentralised health systems. Although desirable, we were unable to get sufficient reliable data to conduct a time series analysis for facility deliveries as proxy outcome indicator for skilled birth attendance due to gaps in routine data collection. As with all participant observation research, this study is prone to the Hawthorne effect. However, given that this is an embedded real-world continuous improvement intervention, the Hawthorne effect is a desirable as part of the intervention if positive and sustained.

CONCLUSIONS

Our study demonstrates that PHC planning using the DIVA approach model can potentially improve performance in decentralised health systems like Nigeria's if implemented well. However, effective implementation will require some degree of central oversight and ownership.

While an integrated approach to improving health system performance is ideal, this may not always be practicable owing to the complexity of the health system. However, our study has shown that integrated planning and some aspects of implementation are possible and potentially effective if structural and managerial bottlenecks are addressed. We view that while integrated financing structures recommended by Nigeria's ongoing PHC under one roof reforms policy may improve effectiveness of DIVA, political considerations have constrained its implementation to date.^{46 49} However, to improve health systems performance, a governance model that empowers the LGs technically, politically and financially will have to evolve, requiring the engagement of stakeholders at different levels of government as well as different sectors of the economy given that most challenges to performance observed are outside the immediate jurisdiction of the LG health authorities. This inference is supported by our follow-up context and process evaluations of DIVA implementation.^{20 26}

We recommend the tools used in this study (S1) for real time diagnosis, improvement and evaluation of health systems performance when implementing this model.

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Contributors EAE designed and carried out the study (coached participants, collected and analysed data) and prepared the first draft of the paper. EAE and NI were embedded researchers. NN and JE contributed to the design of the protocol and supervised the study. NN, RR, LI, NI and JE contributed to data analyses, interpretation/discussion of findings, developing and revising the final manuscript. All authors approved of the final manuscript.

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Ethics approval Ethics approval for this study was obtained from the National Health Research Ethics Committee of Nigeria (NHREC/01/01/2007-13/08/2016) and the Human Research Health Ethics Committee of the University of the

Witwatersrand, South Africa (M161122). Informed consent (written) was received from all respondents. Permissions were obtained from the NPHCDA for use of data not in public domain.

Provenance and peer review Not commissioned; externally peer reviewed.

Data sharing statement The data set from this study are available at the National Primary Healthcare Development Agency (NPHCDA), Abuja, Nigeria, but restrictions may apply to the availability of these data, which were used with permission for the current study, and so are not publicly available. Data are however available from the authors upon reasonable request and with permission of NPHCDA. Materials used for data collection are presented here as supplementary files.

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Strengthening decentralized primary healthcare planning in Nigeria using a quality improvement model: how contexts and actors affect implementation

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Abstract

Quality improvement models have been applied across various levels of health systems with varying success leading to scepticisms about effectiveness. Health systems are complex, influenced by contexts and characterized by numerous interests. Thus, a shift in focus from examining whether improvement models work, to understanding why, when and where they work most effectively is essential. Nigeria introduced DIVA (Diagnose-Intervene-Verify-Adjust) as a model to strengthen decentralized PHC planning. However, implementation has been poorly sustained. This article explores the role of actors and context in implementation and sustainability of DIVA in two local government areas (LGAs) in Nigeria. We employed an integrated mixed method approach in which qualitative data was used in conjunction with quantitative to understand effects of actors and contexts on implementation outcomes. We analysed policy documents and conducted interviews with PHC managers. Then using the Model for Understanding Success in Quality (MUSIQ), we measured contextual factors affecting implementation of DIVA in the selected LGAs. The LGAs scored 117.42 and 104.67 out of 168 points on the MUSIQ scale, respectively, indicating contextual barriers exist. Both have strong DIVA team attributes, but these could not independently ensure quality implementation. Although external support accounted for the greatest contextual disparities, the utmost implementation challenges relate to subnational government leadership, management, financial and technical support. Although higher levels of government may set visionary goals for PHC, interventions are potentially skewed towards donor interests at lower (implementation) levels. Thus, subnational political will is a key determinant of quality implementation. Consequently, advocacy for responsible and accountable political governance is essential in comparable decentralized contexts.

Keywords: Primary healthcare, context, quality improvement, Nigeria, decentralization

Key Messages

- Quality improvement models have been applied across various levels of health systems with varying success leading to scepticisms about effectiveness.
- Understanding success of improvement initiatives requires a shift in focus from examining whether improvement models work, to understanding why, when, and where they work most effectively.
- Quality of PHC improvement initiatives depends strong political leadership, financial and technical support, particularly at sub-national levels. Consequently, advocacy for more responsible and accountable political governance is essential, particularly in decentralized low- and middle-income country contexts.

Introduction

Quality improvement (QI), a combined and unceasing efforts of all system actors to make the changes expected to lead to better system performance (Batalden and Davidoff 2007), has recently gained widespread use in healthcare. Its application spans across various levels of health systems even though it is more commonly employed at the clinical interphase, organizational levels or with respect to vertical programmes (Vasan *et al.* 2017; Eboime *et al.* 2017). However, variations in success (some fail while others succeed to varying extents), has led to scepticism about effectiveness of these methods in healthcare (Kaplan *et al.* 2012; Dixon-Woods and Martin 2016). Health systems are complex, influenced by contexts and characterized by many actors and interest groups (Mburu 1994; Abimbola *et al.* 2014). Thus, shifting focus from examining whether QI methods work to understanding why, when and where they work most effectively is essential to understanding implementation success of healthcare QI initiatives (Kaplan *et al.* 2012). This involves examining local actors and contexts, a much argued for dimension of health policy analysis. Despite its recognition in health care analyses some 25 years ago (Walt and Gilson 1994), it continues to require explicit attention with respect to its constituent parts—actors, content, context (Walt *et al.* 2008). More recently, Embrett and Randall conclude their analysis of health equity studies by saying many appear to be focussed on advocacy rather than analysis and that the use of policy analysis theory is extremely limited. Their results further suggest that when such theories are incorporated into an analysis they are often not comprehensively employed (Embrett and Randall 2014).

Lately, many low and middle-income countries (LMICs), particularly in Sub-Saharan Africa, are restructuring their health systems towards decentralization, particularly following democratization of their polities (Eboime *et al.* 2017). This decentralized system of administration has implications on implementation of health initiatives. The aim of decentralization is to bring health services closer to the end users, particularly to improve community participation in healthcare planning and decision making in line with the Alma Ata Primary Health Care (PHC) Declaration (Gerring *et al.* 2007; Eboime *et al.* 2017). It is believed that a bottom-up approach to planning more effectively addresses equity and quality constraints as well as strengthening accountability mechanisms (UNICEF; MSH 2012). Consequently, the World Health Organization recommended the District Health System (DHS) to improve health system governance in decentralized LMIC contexts (Chatora and Tumusiime 2004; National Council for Health 2011; O'Connell and Sharkey 2013). Countries have adapted models of the DHS to their own contexts (Eboime *et al.* 2017).

In order to strengthen the DHS, a QI model known as DIVA (Diagnose-Intervene-Verify-Adjust) was introduced in some sub-Saharan African countries (including Botswana, Democratic

Republic of Congo, Ghana, Mali, Malawi, Niger, Nigeria, Sierra Leone, Tanzania, Uganda and Zambia) by UNICEF (O'Connell and Sharkey 2013; Maluka *et al.* 2010; Yawson *et al.* 2017). The model is designed to improve health outcomes by strengthening evidence-informed operational planning of PHC at the district level. DIVA is a four-step model in which 'Diagnose' identifies bottlenecks to programme interventions; 'Intervene' develops/implements action plans addressing the bottlenecks; while 'Verify/Adjust' monitor performance and revise plans (Figure 1). DIVA is a derivative of the Plan-Do-Study-Act cycle adapted to improve performance in complex macro-health systems like the DHS (IHI 2011; UNICEF; MSH 2012). The model aims to build the capacity of district health teams to evaluate, analyse, act and be accountable for equitable service delivery (UNICEF; MSH 2012). The main aim of DIVA is to improve effective coverage of health interventions (defined as coverage of sufficient quality to make desired impact; Tanahashi 1978; O'Connell and Sharkey 2013) through iterative cycles of evidence-informed health system bottleneck analysis, planning and performance improvement (UNICEF; MSH 2012; O'Connell and Sharkey 2013). Although no effectiveness study of DIVA has previously been conducted to our knowledge, case studies have demonstrated how DIVA has been useful in evidence-informed planning as well as improving financial investments in health in Ghana, Uganda, Tanzania and the Democratic Republic of Congo (O'Connell and Sharkey 2013; Baker *et al.* 2015; Kiwanuka Henriksson *et al.* 2017; Yawson *et al.* 2017).

The government of Nigeria (the federal and 36 state governments) in 2012, through the National Council on Health (Nigeria's highest policy making body for health, consisting of all State Commissioners of Health and chaired by the Minister for Health; FGN 2014), approved DIVA as a model for quarterly PHC reviews. The purpose of this is to strengthen ongoing PHC revitalization efforts, particularly the integrated PHC governance policy (NPHCDA 2013a). However, implementation of PHC reviews/DIVA has only been sustained in one state, Kaduna, due to the role of various actors in adapting the content to local context (NPHCDA 2013b). As part of a series of implementation research on DIVA, this article aims to explore the role of these actors and context in the implementation and sustainability of DIVA by comparing experiences between Nigerian local government areas (LGAs) (analogues of districts) in Kaduna state.

Nigeria's ongoing Integrated PHC Governance reforms, also called 'Primary Health Care Under One Roof (PHCUOR)' makes sub-national PHC governance, hitherto under the LGA, the responsibility of the State PHC Development Agency (SPHCDA) (NPHCDA, 2013a; Aigbiremolen *et al.* 2014; Eboime *et al.* 2017). This policy was introduced in 2010 by the Federal Ministry of Health through the National Primary Health Care Development Agency (NPHCDA), in response to the challenge of weak

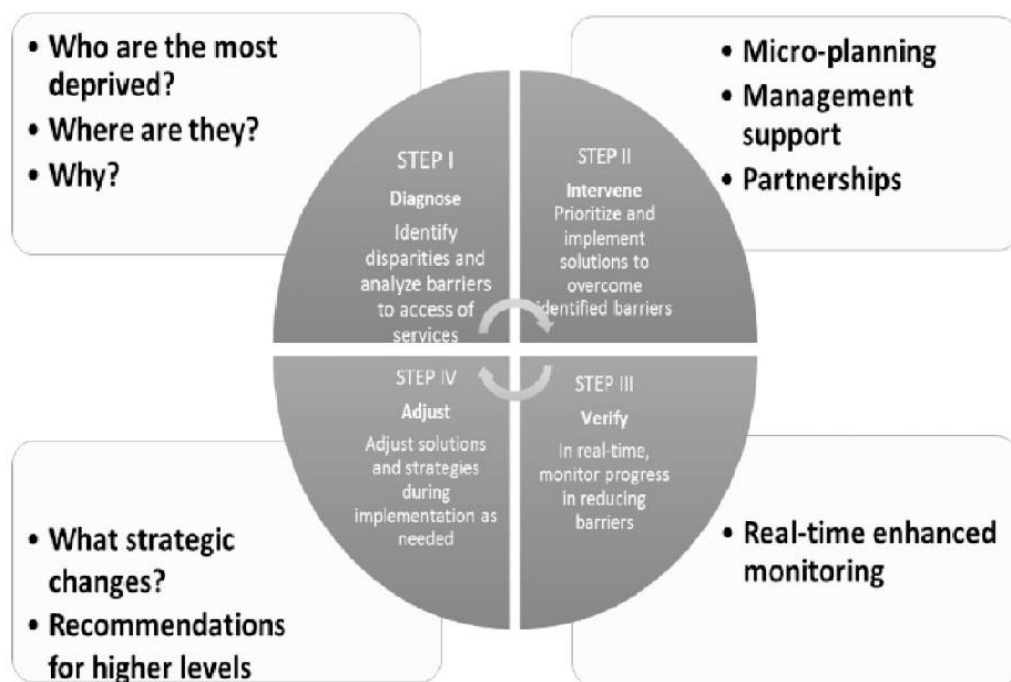


Figure 1. The DIVA Model (Source: UNICEF). The four-step DIVA model in which 'Diagnose' identifies bottlenecks to programme interventions; 'Intervene' develops/implements action plans addressing the bottlenecks; while 'Verify/Adjust' monitor performance and revise plans

governance at the lower levels of the health system (NPHCDA 2013a). The PHCUOR reforms are hinged on the core principles of 'One Management, One Plan, One Monitoring and Evaluation System'. The PHC reviews/DIVA was introduced to strengthen PHCUOR by integrating sub-national planning of otherwise vertical PHC programmes, in line with national goals.

Materials and methods

Analytical framework

According to Walt and Gilson (1994), implementation outcomes of health policies are products of the content, context, processes of formulation and execution, as well as the social actors involved in the processes. Policy content refers to the body of the policy and how it is expressed through its entire components such as aims, objectives, interventions, programmes, activities etc. Content has been described as 'a set of measures combined, in a particular sequence, in order to transform a real situation into a desired one' (Araújo and Maciel 2001). Contextual factors commonly affect how policies and initiatives are implemented and have been implicated in variability in effectiveness of interventions. This dynamic relationship makes it difficult to separate interventions from their contextual environments (Buse *et al.* 2005; Kaplan *et al.* 2012; Dixon-Woods and Martin 2016). With respect to QI initiatives, like DIVA, Kaplan *et al.* (2012) broadly categorized contextual factors as relating to the team working on the project, the microsystem in which they function, local QI support and capacity, the organisation in which they work, and the external environment. The effect of the context on outcomes will vary depending on how the policy or intervention is designed and implemented (Collins *et al.* 1999; Araújo and Maciel 2001). Finally, actors are the agents of policies and interventions.

They are at the centre of formulation and implementation. Generally, actors are either governmental or non-governmental. The interests, positions and power relations among actors shape the direction and processes of health policies and interventions (Walt and Gilson 1994; Araújo and Maciel 2001; Buse *et al.* 2005).

In this article, we focus on understanding how DIVA implementation is affected by actors and contextual nuances particularly at the LGA level. As relates to health policy analysis, context can either be macro (relating to systems level influences such as political and economic systems), meso (including local health system e.g. district health systems) or micro (relating to individuals and their interactions, e.g. provider-patient interphase, LGA health management teams) (Gilson, 2012).

Study setting

Nigeria is comprised of 36 states and the Federal Capital Territory, divided into 774 LGAs. Each LGA contains a number of electoral wards (totalling 9557 nationwide) which are the smallest political units in the country. Nigeria is made up of approximately 400 ethnic groups and 450 languages (Danladi 2013). The nation's constitution created a considerable politically and fiscally decentralized system of government. The state government is the second tier of government in Nigeria, headed by an elected governor whereas the political head of the LGA is an elected chairperson. PHC governance at state level is by the SPHCDA, which is semi-autonomous organ of the state ministry of health. PHC is under the purview of LGAs while the state and federal governments are responsible for the management (administrative and financial) of secondary and tertiary health care services, respectively (FMOH 2004).

Kaduna is 1 of the 36 states of Nigeria. Located in the North-West Zone of Nigeria, the state has a 2015 projected population of

7915, 487 (NPC 2006) distributed under 23 LGAs. As of 2012, the state had a total of 1560 health facilities out of which 1523 (98%) are PHC facilities. 1007 (66%) of PHC facilities are public while the remaining 516 (34%) are private facilities (FMOH 2012).

Study design

An integrated mixed method approach (Creamer 2017) was used in this study. Qualitative data was used in conjunction with quantitative data to understand how actors interact in different contexts, and how this affected DIVA implementation outcomes. The study was carried out in four phases. First, we analysed PHC policy documents to identify policy and programme content, governance contexts and actors. Next, we assessed the level of implementation of work plans developed during the PHC reviews to address identified bottlenecks in all 23 LGAs between 2013 and 2016. Details of the bottleneck analysis and planning processes are contained in another upcoming paper. Based on the findings, we purposively selected two LGAs (the highest and lowest performing in the period under consideration). Then, we conducted key informant interviews of LGA and state PHC managers to understand roles and experiences of various actors with DIVA implementation. Finally, using an adaptation of the Model for Understanding Success in Quality (MUSIQ) (Kaplan *et al.* 2012), we compared quantitatively the contextual factors affecting implementation of DIVA in the two selected LGAs. Triangulation of all data (interviews, MUSIQ and document analysis) was done to validate inferences. Further, findings from document analysis and interviews were used to understand and explain results from MUSIQ.

Phase 1: Identifying policy/programme content, contexts and actors

We analysed the content of 10 policy documents (NPHCDA 2009, 2012a, b, 2013a, b, c, 2006; FMOH, 2004, 2010; NPHCDA *et al.*, 2015) to identify implementation contexts, prescribed roles and responsibilities of various actors in implementing the PHC reviews. Guided by MUSIQ, we specifically sought to identify contextual factors relating to the microsystem (DIVA implementing team); the mesosystem (LGA health department in which they operate, local support and capacity for implementation); and the macrosystem (the broader organisational context) such as the LGA political governance structure and systems, and the environment external to the delivery system (including donors, civil society and higher socio-political influences).

The documents were identified following interviews with four national level subject matter experts (one NPHCDA director, two consultants and one UNICEF official) who were involved in the initial policy design; and from the researchers' knowledge. These documents include national PHC governance guidelines, reports of stakeholder meetings on PHC reviews and ongoing PHC revitalization initiatives, as well as national reports on initial implementation of DIVA.

Stakeholder analysis was done using a RACI (Responsible-Accountable-Consult-Inform) Matrix (Smith and Erwin 2005) as follows:

- **Responsible:** Those who do the work to achieve the task.
- **Accountable:** The person ultimately answerable for thorough completion of the deliverable or task, and the one who delegates the work to those responsible.
- **Consulted:** Those whose opinions are sought, typically subject matter experts.

- **Informed:** Those who are kept up-to-date on progress, often only on completion of the task or deliverable; and with whom there is just one-way communication.

Identified LGA level actors were subsequently interviewed as key informants.

Phase 2: Selecting sample

Kaduna was selected for study because it is the only state still implementing DIVA. We developed and distributed a work plan assessment questionnaire (Supplementary Material S1) to all 23 LGA PHC Directors in the state. We analysed the patterns of implementation of work plans developed to address bottlenecks in all LGAs between 2013 and 2016 using Microsoft Excel (details of this process is contained in an upcoming paper). Based on this finding, LGA1 and LGA2 were selected for further comparative study having implemented the highest (78%) and lowest (8%) proportions of planned activities, respectively. Given that while all LGAs in the state have the same organizational structure, this selection process was informed by the guiding theory of this study:

differential implementation outcomes of DIVA are a function of factors relating to unique contextual environment and actors operating in each LGA.

The identities of the LGAs have been anonymised as part of confidentiality agreements with key informants. LGA 1 has 75 PHC facilities and 2 secondary health facilities while LGA2 61 PHC facilities and 1 secondary health facility. Both LGAs are largely rural with semi-urban capitals. The capital of LGA 1, however, is more proximate to the Kaduna state capital than LGA 2 thus making it more structurally developed than that of LGA 2. Both LGAs share fundamentally the same organizational structure as all other LGAs in the state (and in Nigeria). LGAs in Nigeria are not financially autonomous as they are funded through joint state/LGA accounts which are administered by state governments (FGN 1999; Eboresime *et al.* 2017).

Phase 3: Exploring experiences of LGA actors with DIVA implementation

In-depth interviews were conducted with available LGA DIVA team members in both LGAs and an SPHCDA Monitoring and Evaluation consultant (totalling nine respondents) to understand their experiences with implementing DIVA. LGA DIVA team members interviewed include PHC Director (LGA 1), Monitoring and Evaluation officers (both LGAs) as well as programme coordinators for Maternal and Child Health (both LGAs), immunization (both LGAs), and malaria (LGA 2). These managers were purposively selected because they are central to implementation of DIVA at the various levels thus have detailed knowledge of the implementation processes and challenges and thus could provide in-depth and rich data which would further the understating of the context given the very few actors directly involved in DIVA implementation at the LGA level. The politically elected chairpersons for both LGAs, PHC Director for LGA 2 (Team lead) and the Malaria programme officer for LGA 1 were not available for interviews. The SPHCDA Monitoring and Evaluation consultant was interviewed because he is the only state level officer directly and actively involved with DIVA. Eight interviews were conducted face-to-face while one was conducted via phone call. Audio recorded interviews were conducted in English. Fieldnotes were also taken by an assistant. Interviews were converted into transcripts and compared with fieldnotes to ensure reliability of transcripts. Further, two researchers

listened separately to audio recordings and crosschecked against transcripts and fieldnotes. Interviews were conducted between February and April, 2017.

Data analysis was conducted using a framework analytic approach. Developed by Ritchie and Spenser, framework analysis is 'a content analysis method which involves summarizing and classifying data within a thematic framework' (Ritchie and Spencer 1994; Green and Thorogood 2014). The processes include familiarization, thematic analysis, indexing and charting. The method is ideal for generating policy and practice-oriented findings as is the case with this research (Green and Thorogood 2014). NVIVO 11 was used in the data analysis.

We adopted the six *a priori* themes of MUSIQ for deductive thematic analysis (Kaplan *et al.* 2012). We further identified new themes from the data set. Two researchers independently identified and categorized related data into the selected themes. A third researcher validated the categorization. All three researchers agreed on the themes and the indexing rules. Using NVIVO we created three case nodes by categorizing respondent data into 'LGA 1, LGA 2 and SPHCDA' according to the respective affiliations of respondents. These were charted against the six themes. We created summaries of the indexed data then 'cut and pasted' into the framework matrix created on NVIVO. Three researchers independently compared the data across and within codes to identify relationships, emerging characteristics and typologies.

Phase 4: Evaluating context using MUSIQ

MUSIQ was developed by Kaplan *et al.* (2012) as a conceptual model that can be used to understand and optimise contextual factors affecting the success of QI projects. The model identifies 25 contextual factors (grouped into 6 themes) likely to influence QI success (Table 1). Contextual factors within the microsystem (LGA health department) and those related to the QI team (in this case LGA DIVA teams) are hypothesised to directly shape QI success, whereas factors within the organization (LGA) and external environment are believed to influence success (fidelity and sustainability) indirectly (Kaplan *et al.* 2012). A MS-Excel tool was developed by Kaplan *et al.* to measure the level of influence of these conceptual factors. Whereas the original MUSIQ tool was designed for clinical settings, we adapted the tool to our study context reflecting Nigeria's LGA structure (Supplementary Material S2). We administered the tools to available LGA health team members (each team had four representatives). We encouraged the team members to agree on responses so that scores reflect consensus. However, for questions in which consensus could not be reached were given a score of 'No consensus (n.c)'. We compared the contextual factor scores and total MUSIQ scores between the two LGAs.

NB: QI, DIVA and PHC reviews are used interchangeably in this paper. Also, given that the first phase of DIVA involves bottleneck analysis, some respondents used the term 'bottleneck analysis' in reference to DIVA during the interviews.

Results

We present findings under two subsections: 'Actors and their roles' and 'Contextual factors'. Table 2 contains selected quotes from key informant interviews as referenced within the text.

Actors and their roles

The various actors are identified from policy documents and their prescribed roles and interactions within Nigeria's decentralized

health system (Figure 2). Although DIVA is designed to strengthen evidence-informed planning at the LGA level, actors from the various tiers of government and the community have varying levels of influence on its implementation. Table 3 is a RACI-Matrix showing the expected roles of key actors in DIVA implementation derived from policy/programme documents. Although in practice, actors' roles overlap, we present the most dominant roles as identified in the policy and programme documents.

The typical line management structure at the LGA level in Kaduna and their various roles in DIVA are depicted as obtained from document analyses and interviews (Figure 3). It should be noted that in reality the management structure at this level is a strong matrix (Stucklenbruck 1979) such that the programme managers report to the PHC director as regards the 'functional' management of the LGA PHC department; however, the PHC director has limited influence on management of the vertical programmes under their purview. Rather they report directly to state programme managers at the SPHCDA in this regard.

State government

Whereas DIVA-based PHC reviews were introduced in all states in 2012/2013 by the NPHCDA, only Kaduna state has sustained implementation with support from UNICEF. This has been attributed to new transformational political leadership in the state. The newly elected governor (2015) applied a bottom-up approach to agenda setting for health. Results from the initial pilot were instrumental in convincing the new political leadership of the potential of DIVA to improve PHC in the state (Quotes: 1a–d).

Local government chairperson

This LGA (headed by an elected Chairperson) is presently directly responsible for PHC. Respondents from both LGAs indicated that the LGA leadership is the weakest link in PHC strengthening, given that the chairpersons are hardly involved in PHC planning nor do they commonly provide leadership and financial support for implementation. This leads to dependence of available development partners to implement health plans for the LGAs with implications on sustainability of DIVA (Quotes: 2a, 3a and b).

Local government health management teams

These act as the DIVA team. They conduct DIVA and are directly responsible for managing health facilities and programmes. They expressed frustration with carrying out their responsibilities due to failure of the various governments to lead, own and financially support implementation. Their coping mechanism is to skew implementation towards the interests of development partners who are ready to provide technical and financial support (Quote: 2b).

Development partners

Partners are ideally expected to support government plans and programmes. However, poor government leadership and ownership has made development partners central to PHC implementation in the LGAs. Consequently, they play dominant roles at the LGA level, prioritizing their own agenda as against supporting the local governments' (Quote: 2c).

Civil society organizations

Civil society can provide a link between the community and government. They have been identified as playing critical roles in the sustainability of DIVA, particularly advocacy. (Quote: 1e).

Table 1. Contextual factors included in the MUSIQ

Contextual factor	Adapted definition
External environment	
External motivators	Environmental pressures and incentives that stimulate the LGA to improve its performance and quality around focus of DIVA.
External project sponsorship	Substantial and meaningful contributions of personnel, expertise, money, equipment, facilities or other important resources from outside entities (external to the organization) with formal relationships with DIVA.
Organization	
Organizational leadership	Senior management's governance—guidance, support, oversight and direction-setting—of improvement efforts.
Organization senior leader sponsorship	LGA chairperson's commitment to champion and support DIVA implementation.
Organization QI culture	Values, beliefs, and norms of an organization that shape the behaviours of staff in pursuing DIVA.
Organization QI maturity	Sophistication of the LGA's DIVA programme
DIVA support and capacity	
DIVA workforce focus	Degree to which the LGA develops the workforce through training and engages them in DIVA through reward systems and expectation setting.
Resource availability	Degree to which financial support for DIVA, including allocation of resources and staff time, is provided.
Data infrastructure	Extent to which a system exists to collect, manage and facilitate the use of data needed to support performance improvement.
DIVA Team	
DIVA team leadership	Team leader's ability to accomplish the goals of the improvement project through guiding the actions of the DIVA implementation team.
DIVA team diversity	Diversity of team members with respect to professional discipline, personality, motivation and perspective.
DIVA team subject matter expert	One or more team members is knowledgeable about the outcome, process, or system being changed.
DIVA team decision-making processes	Team engages in well-designed decision-making practices.
DIVA team norms	Team establishes strong norms of behaviour related to how work is to be carried out and how goals are to be achieved.
DIVA team QI skill	Team's ability to use improvement methods to make changes.
DIVA team physician involvement	Contribution of physicians to the DIVA team efforts.
DIVA team prior QI experience	Prior experience with QI.
DIVA team tenure	Team members have worked together as a team before.
Microsystem	
Microsystem leadership	LGA health department leadership capacity for improvement and degree to which they are personally involved in supporting and facilitating improvement efforts. The DIVA team is part of the microsystem leadership.
Microsystem motivation	Extent to which microsystem staff members have a desire and willingness to improve performance in this area of focus.
Microsystem DIVA capability	Microsystem staff's ability to use DIVA methods for change.
Microsystem culture	Values, beliefs, and norms present in the microsystem that emphasize teamwork, communication, freedom to make decisions and commitment to improve.
Miscellaneous factors	
Task strategic importance to the organization	Work perceived as part of the organization's strategic goals.
Triggering event	Presence of a specific event (positive or negative) that stimulates a new emphasis on improving quality around focus of DIVA.
Definitions of other MUSIQ terminologies	
Environment	The community and society surrounding the organization (LGA health department). It includes the geographical, political, and economic environment in which the organization exists and the associated regulations, policies, payment structures etc.
Microsystem	Microsystems in this context include implementing teams for the various health programmes in the LGA (DIVA and non-DIVA).
Organization	The largest collective unit that responsible for all programmes. In this context, it is the LGA.
DIVA team	DIVA team members are typically responsible for planning and conducting tests of change and/or data collection and management. Members of the DIVA team in this context are the members of the LGA health management team involved directly with DIVA (PHC Directors, data managers and selected programme coordinators).
DIVA team leader	The member of the DIVA team that is responsible for directing the work of the team. In this context, the PHC director acts as the DIVA team leader while also heading the microsystem.
Senior management/executives	This applies to the LGA executive committee lead by the politically elected chairmen in this context.

Adapted from Kaplan *et al*⁴.**Community**

Communities are the ultimate beneficiaries of health interventions; thus, they have been identified as very important in PHC planning

as well as in the effective implementation of DIVA (NPHCDA 2012a; UNICEF; MSH 2012). However, in practice, there has been inadequate community engagement in planning and implementation

Table 2. Selected quotes from key informant interviews

	Respondent	Quote
Reference	SPHCDA	<i>A useful [new political] administration in the state, they have shown interest</i>
Quote: 1b	SPHCDA	<i>I think one of the major things that resulted in the state supporting PHC review was that a delegation was sent from the government house to interact with the M&E about what the key issues in health are.</i>
Quote: 1c	SPHCDA	<i>A month after the swearing in of the Governor, the team came to us and interacted with us, asking [about the issues in health] ... and we gave them the output of the last PHC review we had, what were the results, what were the challenges, what were the major challenges in health care services and after that we sent a memo in respect to the PHC review and instantly there was approval for what we asked for</i>
Quote: 1d	SPHCDA	<i>We seek for support for us to conduct PHC review at the LGA level, though we later on changed the plan and used the money for completing the PHC review that was not completed in January 2016. We were unable to complete the plan because the funding was inadequate so we used the money the state allocated for us to complete PHC review at the LGA level. With this new government, here is support for PHC review</i>
Quote: 1e	SPHCDA	<i>What we [observed] in Kaduna state is that involving CSOs in the PHC reviews, so that they're around when you identify a major challenge, [makes them] go and advocate [to government and community]. Involving of CSOs has really helped Kaduna state in making a change</i>
Quote: 1f	SPHCDA	<i>For [LGA 1], perhaps it is because there are some partners that are interested... there are some partners that are supporting implementation of such activity while [LGA 2] is not being supported</i>
Quote: 1g	SPHCDA	<i>[DIVA] started when the Federal Government (NPHCDA) decided to revise the methodology in PHC review. So, a new strategy was adopted ... and Kaduna state was one of the states that took it very seriously through the support from UNICEF</i>
Quote: 2a	LGA 1	<i>We invite [the LGA chairperson] at the fourth or third day of the analysis ... to inform him of the action we need him to take... We have to tender it to him so that he can help us... But some of the programs when we finish our analysis, some of the implementing partners... if they have funds they normally help us, but at the side of the [local] government, we find it very difficult to get funds</i>
Quote: 2b	LGA 1	<i>You see there is an issue, some of the local governments have a lot of implementing partners and some don't have much implementing partners. Like our own [LGA], in terms of family planning we have almost about 3-4 partners that are covering that [intervention] and then in the other activities, we have a lot of partners. All these partners... have different activities they are carrying out. So, when they carry out the activity we consider it that we have done the activity in that plan. That is why we have this achievement</i>
Quote: 2c	LGA 1	<i>The partners have their own their own work plans... [most of] the plans we made are not the government's. It is the partners that are going to sponsor the activity</i>
Quote: 2d	LGA 1	<i>In the bottleneck analysis, actually we don't involve [the community], but after we have finished our analysis... then we go and meet them and show them what we have but during the carrying out [of DIVA], we don't invite them</i>
Quote: 2e	LGA 1	<i>We normally invite the LGA Chairman after doing the analysis... to inform him where we are, and the action we need him to take... Some implementing partners that are around, if they have funds, they normally help us but at the side of the [local] government, we find it very difficult to get funds</i>
Quote: 2f	LGA 1	<i>The data are of good quality because we sometimes do DQA [Data Quality Assurance] to improve the data quality.</i>
Quote: 2g	LGA 1	<i>We bring out the agenda, we sit as a team then make decisions</i>
Quote: 2h	LGA 1	<i>...After we have known the issues, the causes of the problem, we start addressing the ones we can address at our own level [while] the ones that we need the chairman of the local government to address it, we have to tender it to him so that he can help us</i>
Quote: 2i	LGA 1	<i>There is need to invite [the community], there are some areas we need traditional and community leaders to sensitize their community, if they are there during the bottleneck analysis, they will give us a lot of information.</i>
Quote: 2j	LGA 1	<i>All key officers at the PHC department must be involved</i>
Quote: 2k	LGA 1	<i>It's really helping us!!!... before [DIVA] we hardly knew how to tackle some of the challenges we have in the health facilities but in the past two years [following] training in [DIVA]... when I go for any supervision, if I detect anything, I go back to my system to see how the facility will achieve good result based on the training we received</i>
Quote: 2l	LGA 1	<i>There is a lot of improvement because when we do the bottle neck analysis, we normally bring out the issues at the grass-roots level, after we have known the issues, the causes of the problem, then we start addressing the one we can address at our own level... and the one that we need the chairman of the Local Government to address, we have to tender it to him so that he can help us. Yes, I think that is the effect of the bottle neck</i>
Quote: 3a	LGA 2	<i>We don't find it easy when it comes to implementation. The challenge is that the LGA doesn't release any finance</i>
Quote: 3b	LGA 2	<i>And the LGA itself is never ready to sustain it. So, if UNICEF removes its hands... I don't see how it can continue; because the government of the day, I don't see how they can sustain this programme</i>
Quote: 3c	LGA 2	<i>We tell [the district heads] what [DIVA] is all about and its importance. How, if implemented, it will go a long way in helping the community. Their role is to sensitize the community on the importance... if our people don't come to clinic, we can't get data.</i>
Quote: 3d	LGA 2	<i>The LGA chairman comes around during the Bottleneck Analysis but you know politicians, they make promises which they never fulfil, so when it comes to implementation, that's how it is</i>
Quote: 3e	LGA 2	<i>One of the problems we are having in the LGA, a few years ago, one of the partners came in and while they were [existing], we were trained on how to sustain the programme. But the problem is individually [as LGA health departments], we cannot generate such funds to sustain the programme</i>
Quote: 3f	LGA 2	<i>The data we generate is okay. Because we obtain our data from the facilities. When we go for meetings, there are some particular areas they want us to look at. So, when they come, we have the data available.</i>

(continued)

Table 2. (continued)

	Respondent	Quote
Quote: 3g	LGA 2	<i>Yes [we have been trained] but we need to train other staff from the health facility. That is if one staff [member] can be trained on Bottleneck Analysis, it will go a long way in improving data quality.</i>
Quote: 3h	LGA 2	<i>We sit as a team in decision making. We sit as a team, the director is involved, even the LGA chairman is also involved. And almost all the deputy directors are involved</i>
Quote: 3i	LGA 2	<i>Sometimes the [PHC director] involves the chairman. Once in a while, he comes to witness what is going on. . . Sometimes the meeting is chaired by the LGA chairman or in his absence, the director PHC.</i>
Quote: 3j	LGA 2	<i>The traditional leaders, we hardly involve them. But it's one of the recommendations being given that we involve them</i>
Quote: 3k	LGA 2	<i>It's not easy. Because, even during the course of the planning, we only plan but we don't know how to source for the money to implement [strategies to address] the bottleneck identified. So that's why I say it's not easy because the government at times is not ready to put in their money. Most especially the local government. There are somethings we detect, which if they were implemented by the LGA, these bottlenecks will be reduced</i>
Quote: 3l	LGA 2	<i>Before the [DIVA] started [in 2013], they [LGA health management] don't sit as a team to make decisions. Since the bottleneck analysis started, then once in a while, they sit as a team to make decisions</i>
Quote: 3m	LGA 2	<i>Yes [we have been trained] but we need to train other staff from the health facility. That is if one staff [member] can be trained on Bottleneck Analysis, it will go a long way in improving data quality.</i>
Quote: 3n	LGA 2	<i>It's really been helpful for planning. It provides [systematic] guidance on planning. It provides evidence for decisions</i>

processes as they were only informed but not invited to participate. Involvement of communities seems to largely be with respect to increasing demand for health services, rather than health system governance. For example, the community leadership is mobilized to sensitize women to attend ante-natal services at health facilities. However, they are never invited to participate in identifying barriers and planning strategies to improve utilization. Thus, key information on community perception of service availability and delivery is unavailable for user-oriented planning (Quotes: 2d and 3c).

Contextual factors

Table 4 interprets the total MUSIQ scores. LGA 1 (highest work plan implementing) scored 117.42 on the MUSIQ scale while LGA 2 (lowest work plan implementing) scored 104.67 both indicating that DIVA could be successful, but possible contextual barriers exist.

Table 5 compares findings on each contextual factor between LGAs. A higher score (max = 7) for a contextual factor indicates that the context is likely to be supportive for this feature. Lower scores (min = 0) indicate an area for possible intervention. The Maximum possible total for each domain is also indicated. Figure 4 compares contextual domain subtotals as proportions of highest possible domain scores. The greatest contextual challenge in both LGAs was with respect organizational factors, i.e. issues relating to LGA leadership and management even though external support accounted for the greatest contextual disparities.

Organization

Organization was seen to be the greatest challenge as both LGAs had low MUSIQ scores in three out of factors in this domain. Although DIVA is integrated into both LGAs' organizational system in that it supports health governance, LGA leadership support and organizational culture towards the initiative are poor. Both DIVA teams totally agreed on the MUSIQ questionnaire that there is no reward from the LGA for improvement in performance. Support for capacity building was reported to be poor. There is also very poor political commitment to implementing plans developed during DIVA processes. Generally, LGA leadership disposition towards DIVA seems passive. Consequently, health managers are forced to depend primarily on external support to implement plans (Quotes: 2e and 3d).

External environment

Using DIVA as the model for the PHC reviews resulted from higher level health system influence. The intervention was initiated by the Federal Government through the NPHCDA, adopted by the Kaduna SPHCDA with support from UNICEF but largely implemented by the LGAs. However, LGA 1 enjoys significantly more support from development partners than LGA 2 in implementing DIVA. Although UNICEF provides technical and financial support for DIVA (particularly the 'diagnose' phase), most other development partners are interested in planning, implementing and funding interventions within their scope of interest. Consequently, they tend to support only LGAs in which they operate and aspects of DIVA that suit their interests. External support seems to be critical to the success of the initiative given the weak support from the LGA leadership. However, such dependence on donors could lead to skewed implementation in favour of donor interests potentially resulting in deviations from the original design of DIVA especially with regards to integrated governance (Quotes: 2c, 3e and 1f).

DIVA support and capacity

Both LGAs had similar challenges with respect to DIVA support and capacity even though LGA 1 had slightly higher MUSIQ scores than LGA 2 for the elements within this domain. Although data availability and harvesting from routine data system for DIVA is generally good, demand and use is of the data poor particularly in LGA 2. LGA 2 identified the need to build DIVA capacity, especially at the service delivery level even though DIVA teams have been trained (Quotes: 2f, 3f and g).

DIVA team attributes

The MUSIQ scores on the elements of this domain suggest that both LGAs have considerably strong DIVA teams, even though both teams considered the presence of a physician on the team as 'not applicable' hence the scores of '0' on this element. National PHC policy documents recognize the role of physicians in PHC as desirable but not mandatory (NPHCDA 2013c).

In both LGAs, the DIVA teams are led by the PHC directors, while the programme managers for the various interventions are team members thus bringing diversity of expertise. The Monitoring and Evaluation officers serve as assistant team leads and collate and

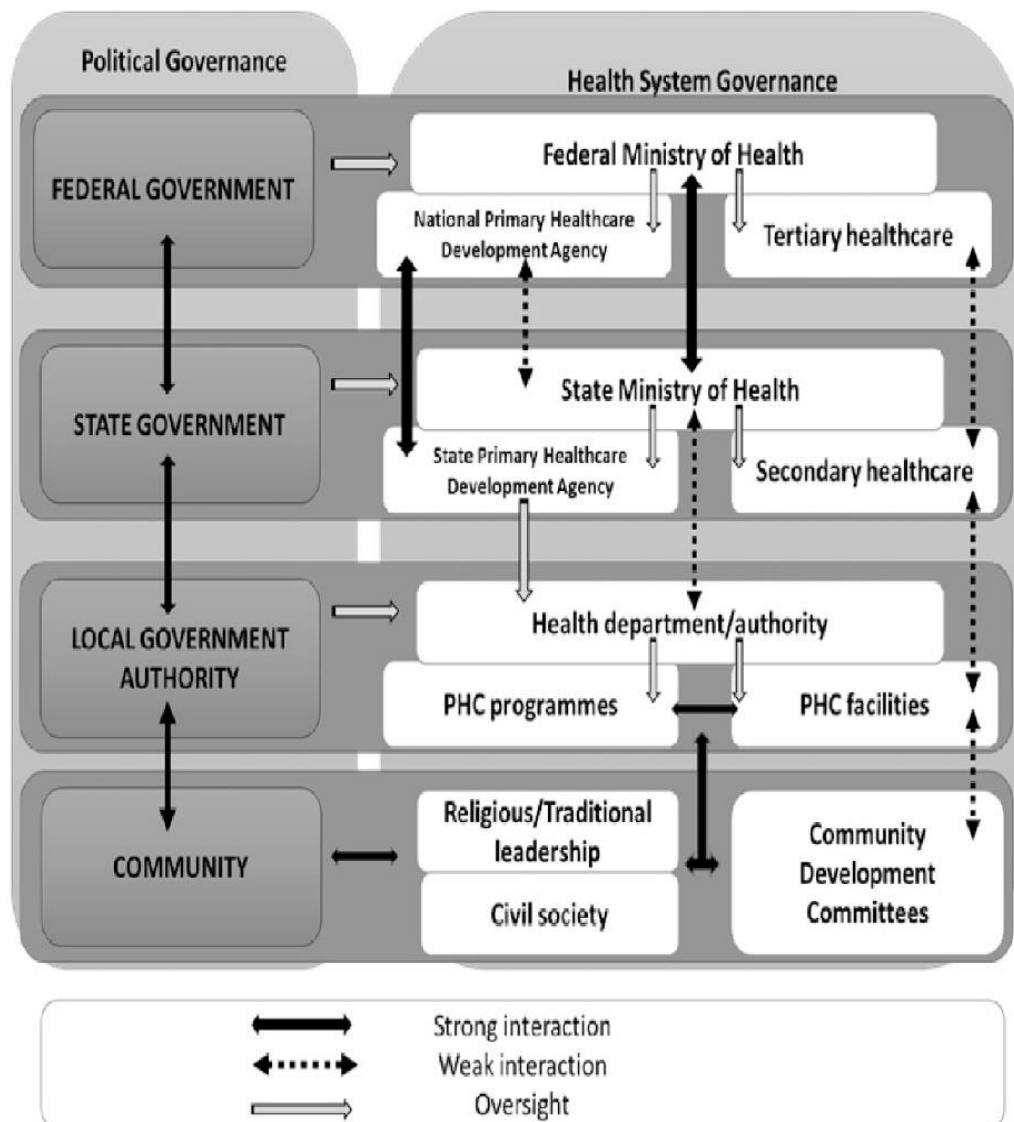


Figure 2. Decentralized health system governance in Nigeria The three-tier structure of government and how each relates to the Nigerian health system and the community. The LGA (through its health department) is the implementing level for PHC with strong interaction with the community. The state PHC Development Agency oversees the activities of the LGA health departments while the National PHC Development Agency interacts strongly with the State PHC Agency with respect to PHC policy thrusts. Interactions between PHC facilities and other levels of care are weak (mostly limited to referrals)

analyse data from the various programmes. They are the most trained with respect to DIVA and coordinate QI processes. Decision making is a team effort (Quote: 2g and 3h). However, whereas LGA 2 occasionally involves the politically elected LGA chairperson in the planning process, LGA 1 seems less dependent on the political leadership and prefers to escalate only issues beyond the teams' immediate capacity to the LGA chairperson (Quotes: 2h and 3i).

In both LGAs, the DIVA team has worked together as part of the LGA health management team prior to DIVA. Both LGAs recognize the need to expand the DIVA team to include other programme directors not directly involved in DIVA implementation, as well as representatives of the communities (Quotes: 2i, j and 3j).

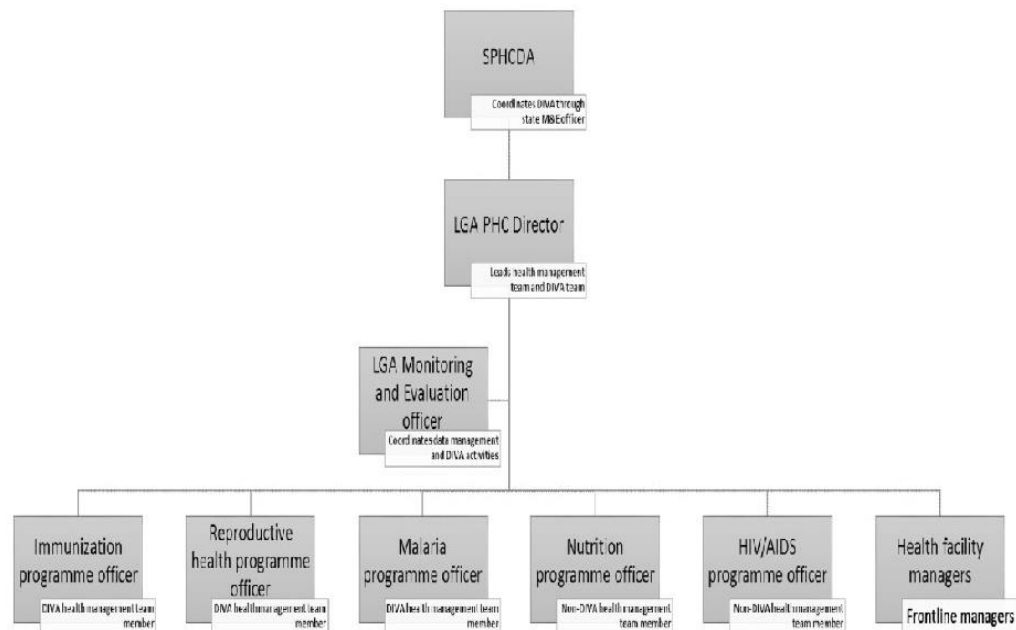
Microsystem

Both LGAs reported strong leadership and motivation for the various programme teams and the health department leadership. The DIVA teams continue to work, even though frustrated by poor support (particularly financial) from the LGA political leadership. The motivation was stronger in LGA 1 most likely because of the higher donor support they receive (Quote: 3k). The outcome of evidence-informed planning using DIVA seemed to also be a motivating factor in both LGAs. Team work in LGA 2 has been enhanced following the implementation of DIVA. The team cohesion could also enhance team motivation despite challenges (Quotes: 2k and 3l).

The DIVA teams recognize capacity gaps in the microsystem which need to be addressed. They opine that expanding training and

Table 3. RACI matrix showing the expected roles of actors in the various phases of DIVA

DIVA phases	Responsible	Accountable	Consult	Inform
Diagnose	LGA Health Management Team	LGA Chairperson	Development Partners; NPHCDA; Community	SPHCDA
Intervene	LGA Health Management Team	LGA Chairperson	Development Partners; NPHCDA; Community	SPHCDA
Verify	LGA Health Management Team	LGA PHC Director	Development Partners	SPHCDA
Adjust	LGA Health Management Team	LGA PHC Director	Development Partners; NPHCDA	SPHCDA

**Figure 3.** Typical LGA PHC line management (microsystem) in Kaduna state. The typical line management structure at the LGA level in Kaduna and their various roles in DIVA implementation. The PHC directors, monitoring and evaluation officers, programme officers for immunization, reproductive health and malaria are directly involved with DIVA presently. Operationally, however, the management structure at this level is a strong matrix rather than purely linear**Table 4.** Interpretation of MUSIQ scores

Score	Interpretation
168	Highest Possible MUSIQ Score
120–168	Project has a reasonable chance of success
80–119	Project could be successful, but possible contextual barriers
50–79	Project has serious contextual issues and is not set up for success
25–49	Project should not continue as is; consider deploying resources to other improvement activities
24	Lowest Possible MUSIQ Score

involving more health workers and managers in DIVA will strengthen outcomes (Quotes: 3m and 2j).

Miscellaneous

DIVA was a top-down policy which the LGAs were directed to implement. There were no specific triggering factors (sudden transient shock or event) at the LGAs that necessitated implementation. Rather, the policy “trickled down” from higher tiers of government. The LGAs only complied particularly with support from development partners.

Despite these, DIVA was considered beneficial in improving PHC planning in both LGAs (Quotes: 1g, 2k, l and 3n).

Discussion

Implementing DIVA as an improvement model for PHC planning and governance, though potentially effective, is constrained by contextual factors and actors. In both LGAs, experiences with DIVA were mostly similar. Both LGAs have strong DIVA team attributes (leadership, cohesion, motivation and capabilities), but this is not sufficient to independently ensure quality implementation. The most significant contrast is with respect to development partners’ support which was more readily available to LGA 1 than LGA 2. This seems to account for the greater work plan implementation fidelity in LGA 1 (although both LGAs were sub-optimally implementing). Poor leadership and political support are the greatest implementation impediments in both LGAs as revealed by both key informant interviews and the MUSIQ scores under the ‘Organization’ domain. The DIVA teams compensate for this gap by leaning towards external support; however, this coping mechanism can potentially skew implementation towards donor interests.

Contrary to the core principles of DIVA and the Alma Alta Declaration which emphasize community participation in PHC

Table 5. Comparative MUSIQ scores between two selected LGAs

Contextual factor	LGA 1	LGA 2
External environment (maximum: 14)		
• External motivators	7	5
• External project sponsorship	7	2
Domain sub-total	14	7
Organization (maximum: 28)		
• Organizational leadership	3	1
• Organization senior leader sponsor	3	1
• Organization DIVA culture	2	2
• Organization DIVA maturity	7	7
Domain Sub-total	15	11
DIVA support and capacity (maximum: 21)		
• DIVA workforce focus	4.5	4.25
• Resource availability	5	4
• Data infrastructure	5	5
Domain sub-total	14.5	13.25
DIVA team attributes (maximum: 63)		
• DIVA team leadership	7	7
• DIVA team diversity	7	7
• DIVA team subject matter expert	6	7
• DIVA team decision-making processes	6.17	6.67
• DIVA team norms	6.75	6.75
• DIVA team DIVA skill	7	7
• DIVA team physician involvement	0	0
• DIVA team prior QI experience	n.c.	n.c.
• DIVA team tenure	7	5
Domain sub-total	46.92	46.42
Microsystem (maximum: 28)		
• Microsystem leadership	6	5
• Microsystem motivation	7	7
• Microsystem capability	n.c.	n.c.
• Microsystem culture	7	7
Domain sub-total	20	19
Miscellaneous (maximum: 14)		
• Task strategic importance to the organization	6	7
• Triggering event	1	1
Domain sub-total	7	8
Total	117.42	104.67

decision making, the users of services play peripheral roles in planning and governance. Commonly, policy makers and health managers fail to involve community structures actively in PHC planning processes (Abimbola *et al.* 2016). Rather, as our study reveals, they are used mostly to mobilize end users towards improving demand for services. However, there is evidence that community leadership and civil society can play more significant roles in governance (Abimbola *et al.* 2014; Nyongator *et al.* 2005).

The above findings are not unique to DIVA implementation in Kaduna. Studies of health interventions in other Nigerian states reveal similar contextual constraints (weak sub-national political will, overdependence on donors, poor subnational funding etc) (Okpani and Abimbola 2016). Our findings are also comparable to experiences in other LMICs. Implementation of Ghana's Community-Based Health Planning and Services (a similar bottom up governance initiative) was found to be more effective with external resources (Nyongator *et al.* 2005). Weak stewardship and coordination by the Ministry of Health constrained health planning in Kenya. However, in contrast to our study context, availability of reliable data for planning was also cited as a planning constraint in Kenya (Tsafa *et al.* 2016). In decentralized systems, some degree of central oversight is essential for quality implementation largely due to weak

local capacity for good governance as well as political constraints (Abimbola *et al.* 2014; Eboreime *et al.* 2015, 2017). However, health managers feel more incapacitated and demotivated when their efforts at improving quality of health interventions are frustrated by poor support from lower level political leadership to whom they are directly accountable. This was also the experience with district health managers in implementing decentralized health planning in India (Murthy 1998). A similar study on an innovative district health planning model in Tanzania cited unreliable and untimely funding, including inadequate capacity of the district to generate local resources, as major contextual factors impeding quality implementation (Maluka *et al.* 2010). However, central government's intervention and interest was viewed by district health managers as conflicting with district level priorities (Maluka *et al.* 2011).

Funding was found to be the underlying cause of most implementation challenges. Nigeria currently disburses its national revenue such that 52.68% is allocated to the federal government; state governments receive 26.72%, while 20.60% is shared among the 774 local governments (Lukpata 2013). Although this is not a direct reflection of health allocations, evidently the LGA, which is directly responsible for delivering basic health service to the populace, receives the least allocation of resources (federal and state governments are mostly responsible for tertiary and secondary facilities, while PHC is within the purview of LGAs) (FMOH 2004). The federal government has minimal direct responsibility with respect to PHC (usually limited to procurement and distribution of vaccines and commodities for some special interventions like HIV/AIDS and malaria control). States and local governments take charge of salaries, training and capital costs. Transport costs for vaccines and health commodities are the shared responsibility of all tiers of government, with the local governments bearing the greater burden as they finance the transportation of commodities to health facilities (Eboreime *et al.* 2015).

A general assumption in top-down policy implementation is that national priorities should automatically translate to subnational priorities. However, lessons from Nigeria and other similar contexts indicate that strong subnational political autonomy greatly impacts on implementation fidelity (Kolehmainen-Aitken 2004; Onoka *et al.* 2015; Eboreime *et al.* 2015; Sumah *et al.* 2016; Eboreime *et al.* 2017). Consequently, sustained engagement of subnational political structures by policy initiators, interest groups and other stakeholders may improve implementation quality. However, previous evaluation of implementation within Nigeria's political governance reveals that the LGAs possess weak delivery systems for PHC, as they are inadequately financed and are easily susceptible to external influences (political and otherwise). Thus, political actors at this local level tend to prioritize initiatives with adequate political capital or incentives, as against improvement of socio-economic indices of the populace (Eboreime *et al.* 2017).

The implications of this are far reaching with respect to ensuring equitable access to health services in line with UHC and the sustainable development goals. A previous study revealed the untoward effects of such lower level weakness on inequitable delivery of routine immunization services in Nigeria (Eboreime *et al.* 2015). Whereas the central government may set a national health agenda with the collaboration of states, a weak delivery system at the lowest tier of government poses a threat to attainment of desired goals. Consequently, any effort to improve Nigeria's health system must be hinged on strengthening the PHC delivery system. Government, particularly at state and LGA levels, needs to show leadership, technical, political and sustainable financial commitment. Further,

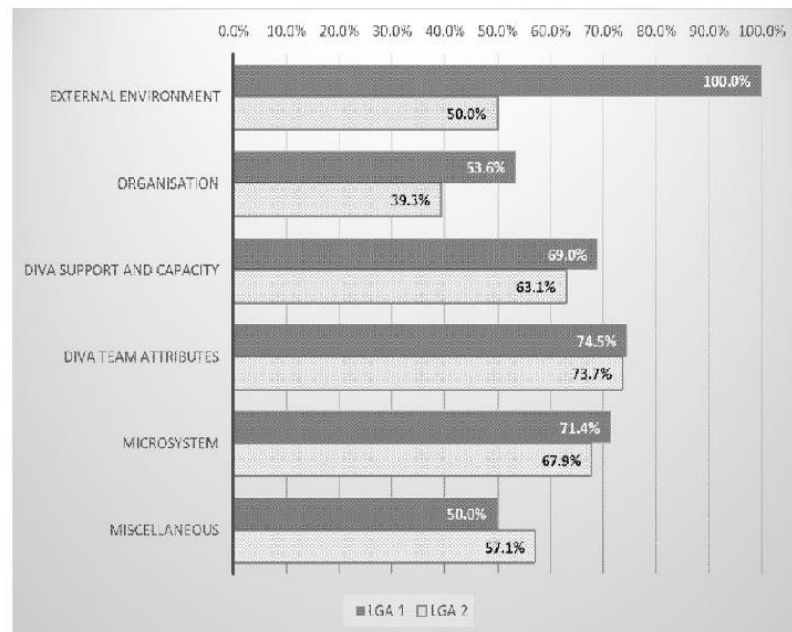


Figure 4. Contextual domain subtotals as proportions of highest possible domain scores. The bar chart illustrates the performance of each LGA with respect to contextual domains. The greatest contextual challenge in both LGAs was with respect organizational factors, i.e. issues relating to LGA leadership and management even though external support accounted for the greatest contextual disparities

accountability mechanisms for political leadership at the LGA must be evolved. As highlighted by some respondents in this research, involving the communities and civil society in governance will go a long way in ensuring politicians are held accountable towards improving delivery systems at the LGAs. With the current restructuring of the state health system towards PHCUOR, it is expected that the state government through the SPHCDA will take up all PHC responsibilities from the LGA (NPHCDA 2013a; Eboreime *et al.* 2017). This will potentially improve political will by shifting accountability from the LGA chairpersons to the SPHCDA. The LGA chairperson will tend towards the 'informed' role on the RACI matrix following completion of the reforms.

Strengths and limitations

Methodologically, our study found MUSIQ useful in identifying contextual constraints in this LGA-centred QI initiative in Nigeria. However, the model was unable to highlight the relative impact of each contextual factor on implementation outcomes. MUSIQ composite scores were not able to explain the magnitude of disparities in implementation between both LGAs. Nevertheless, the key informant interviews and the RACI matrix compensated for this deficit by revealing that some contextual factors (such as funding and political will) were greater determinants of successful implementation than others. Further, Walt and Gilson health policy analysis framework used in this study was helpful in integrating and explaining findings from the methods employed.

Stakeholder analysis typically explores issues of position, power and interests of actors. The use of a responsibility assignment matrix (such as RACI) in this study is unable to explore these issues. Given that this paper focuses on roles and responsibilities of actors in DIVA implementation, RACI was used here to identify the prescribed roles of actors as a preamble to exploring how these actors performed these roles (which are explored by the key informant

interviews). Further exploration of power dynamics and interactions of stakeholders, using tools such as Social Network Analysis, are upcoming in this series of studies on implementation and sustainability of DIVA in Nigeria. In these future analyses, the prescribed vis-a-vis practiced roles may be able to indicate how power and interests operate and become manifest at the local level.

Purposely selecting two LGAs based on work plan implementation may be considered a selection bias given that intrinsic differences may explain these implementation outcome disparities. For example, the capital of LGA 1 is more proximately located to the state capital than LGA 2 which may account for the greater partner support it receives. However, based on the theoretical framework of this study, these factors are also contextual even though not included in MUSIQ. Thus, our triangulation of methods (MUSIQ, key informant interviews and document analyses) served to interpret the how these affect implementation. Given also that organizational structure of all LGAs in Kaduna are fundamentally the same, findings and recommendations from this study can help improve implementation across other LGAs in Kaduna as well as guide scale up of DIVA to other states.

The non-availability of LGA chairpersons for interview potentially means that their key political perspectives cannot be fully appraised. Although we consider that the views of the LGA officers interviewed (who work closely with the chairpersons) can compensate for this gap, future studies exploring power dynamics of stakeholders in sustaining DIVA implementation should provide more political perspectives in line with the Walt and Gilson framework.

Conclusions

This paper is part of a series of studies which together form the first attempt at assessing the implementation of DIVA in Nigeria since its commencement in 2012. Our findings have far reaching implications for national policy in Nigeria and other LMICs with

comparable decentralized governance. First, even though PHC is the cornerstone of Nigeria's health system, the delivery system at the LGA is weak as is common in many LMICs. PHC planning and/or implementation of plans is therefore almost non-existent in the absence of external support from development partners. Consequently, even though higher levels of government may set visionary goals for PHC, at the implementation level, interventions are potentially skewed towards donor interests. Secondly, the present structure of the LGA system does not allow for effectiveness of PHC interventions given the weak managerial capacity and political accountability at that level. It is hoped that ongoing reforms aimed at integrating PHC governance at the state level under the SPHCDA will improve delivery systems (Eboreime *et al.* 2017). Ultimately, political will remains a key determinant should quality implementation be expected. Thus, the role of civil society in advocating for more responsible and accountable political governance, especially as relates to health, is essential in decentralized LMIC contexts.

And finally, to cite the World Report on Health Policy and Systems Research, 'the evidence-to-policy field remains quite fragmented. Although some practitioners operate primarily within a traditional knowledge-translation paradigm, others come from the research communication field, still others focus on evidence synthesis and some are more interested in studying how evidence, among other factors, affects policy development and implementation' (WHO 2017). Overall, this series of studies weighs the role of evidence in real-time policy interventions.

Supplementary data

Supplementary data are available at *Health Policy and Planning* online

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CHAPTER 8

“Every system is perfectly designed to get the result it gets”- Paul Batalden

8.1 Discussion

This PhD contributes to understanding how to improve sub-national implementation quality of national PHC policy interventions in Nigeria’s decentralized health system. The PHC review initiative was used as a case-study of top-down policy implementation given that it was developed nationally by the federal government, implemented by the lowest tier of government (the LGA) which serves as the PHC delivery system in Nigeria, under the coordination/supervision of the state government (second tier) with significant influence from non-state actors.

8.1.1 Summary of Research Findings

Papers 1 and 2 examined the formulation processes and translation of national policy initiatives to subnational implementers. Papers 3 and 4 mostly examined implementation quality and effectiveness at subnational levels (state and LGA) as well as their determinants.

Paper 1 explored the implementation fidelity of integrated PHC governance policy in Nigeria’s decentralized health system by evaluating subnational policy implementation patterns as compared to the national guidelines using a scorecard approach. The study found that sub-national governments’ exercise of discretionary power compromised implementation fidelity. Rather than implementing to improve health outcomes, findings suggest that national financial/political incentives were better motivators of subnational compliance with national guidelines. Thus, the study presents new contextual perspectives on how to better improve subnational political drive for implementation. Paper 2 retrospectively appraised the quality of the PHC review top-down implementation process using two theoretical frameworks. Meyer’s Quality Implementation Framework was used in evaluating the policy translation process from national to subnational levels. Inadequate stakeholder engagement and poor adherence to implementation plans were found to affect subnational implementation quality.

In paper 3, state-level effectiveness of DIVA was evaluated. The results showed that DIVA is potentially effective in improving population health outcomes. However poor implementation fidelity, occasioned by political and administrative constraints, affected observed outcomes.

Following these findings, paper 4 sought to examine these contextual constraints in detail at the LGA level using an integrated mixed methods approach. The study found LGA leadership and management constraints to have the most significant impact on implementation outcomes, even though external support for implementation accounted for the greatest contextual disparities in sampled LGAs.

Full results are presented in each appended paper while an integrated inference is discussed below and summarized on Table 4.

8.1.2 Integrative inference of findings

Policy implementation is a complex process, especially in decentralized LMIC settings. This research series examined the content, context, processes and outcomes of DIVA as a top-down policy initiated by the national government, translated through the state to the local government where implementation occurs. These overarching themes, drawn from the Walt and Gilson policy analysis triangle (1), were further examined using other theories and frameworks. The Interactive Systems Framework (ISF) suggests that, in order to improve implementation outcomes, attention must be given to the synthesis of policy, translation/adaptation, and support (technical, political, financial and administrative) for implementation as well as the delivery system(2). The Quality Implementation Framework (QIF) was useful in examining the strength of these interactive systems as well as adherence to the policy processes towards ensuring optimum implementation outcomes (fidelity and sustainability) (3). Emergent themes relating to the research objectives are discussed using the Walt and Gilson triangle(1), which serves as an integrating framework for all the theories, frameworks and methods used in this research.

Context

The conceptual framework of this research classifies contextual factors influencing policy into structural, cultural, situational, and exogenous factors based on Leichter's theory (4)

Structural factors (Decentralization, politics and governance): Top-down policies in decentralized systems require systematic introduction and implementation across tiers of health systems. Consequently, to ensure optimum implementation quality, it is essential to consider the extent of political and administrative decentralization and ensure that the policy is adaptable to context. Related to this, **political culture** was found to influence how DIVA gets implemented. Political culture is defined as *"set of attitudes, beliefs and sentiments that give order and meaning to a political process and which provide the underlying assumptions and*

rules that govern behaviour in the political system"(5). Subnational autonomy within Nigeria's health system institutionalizes lower-level discretionary power of choosing whether and how to implement national policies. Thus, governance structures and degree of subnational autonomy/ discretionary power commonly affect implementation quality leading to differential outcomes across states and local governments. Structural, political and administrative bottlenecks commonly constrain implementation. Consequently, in systems with high degree of subnational autonomy, sustained advocacy, with technical support and use of political incentives, may help improve subnational uptake and implementation quality. A bottom-up approach to policy planning may also improve implementation quality as it can ensure adaptation of policy to contextual nuances, thus potentially improving implementation fidelity. However, lower level resource gaps commonly experienced in LMICs may constrain the quality of policymaking using this approach.

The role of **situational factors** (transient incidents also called "triggering" or "focusing" events which kindle policy processes) in placing DIVA on the policy agenda was minimal; as evaluated using the MUSIQ framework (paper 4). However, declining health indices and weak LGA health governance structures partly informed the introduction of DIVA in Nigeria by UNICEF. Another key finding in this research series relates to **exogenous influence** on how policies are adopted and implemented across the governance spectrum. Many policies initiatives in LMICs are influenced by donors and development partners, who sometimes, in the absence of strong government coordination, skew implementation towards their own interests and priorities which may conflict with government ones.

Actors' roles

Actors are central to policy processes consequently their actions, inactions and interests directly or indirectly affect implementation outcomes. Three categories of actors are relevant to the context of this research. These are the policy initiators (national government), policy implementers (subnational governments) and the non-state influencers.

Policy initiators: In this case-study, the Federal Government of Nigeria is the policy initiator, setting the national thrust for health. Thus, the responsibility of translating policy to subnational actors lies with this governance tier. Although national government may set visionary goals for PHC, it is usually unable to ensure quality implementation and sustainability at subnational level. Initiators of interventions must, therefore, adequately engage subnational stakeholders. Poor stakeholder engagement by the national initiators was a major factor responsible for

implementation failure of the PHC reviews in most states in this case-study. Findings also suggest that effective implementation will require some degree of central oversight and ownership. However, provision of incentives, supportive supervision and mentoring to lower decision-making levels with respect to policy implementation and change management can facilitate sub-national implementation of health interventions and policies.

Subnational governments: Subnational governments are key determinants of population access to and experiences of the frontline delivery of national health initiatives. Strong subnational political will is essential for quality implementation in multi-level governance contexts. The roles of the state and LGAs fall within the ISF support and delivery systems respectively, even though some overlap is evident. The present structure of the LGA system does not allow for the effectiveness of PHC interventions given the weak managerial capacity and political accountability at that level. Consequently, to improve health systems performance, a governance model that empowers the LGAs technically, politically and financially is recommended. However, given that this will involve a complex political process with no guaranteed outcome, a more practical approach will be to centralize governance of the PHC delivery system at the state level. This is currently ongoing, however as evaluated in Paper 1, the implementation fidelity of this reform process is also poor.

Non-state actors: Non-state actors include donors, development partners, civil society, and the local community. They play critical roles in policy processes across the governance tiers. Many times, these roles are supportive, however, this study found that non-state actors are known to also alter policy design and implementation in favour of their own interests. Consequently, government coordination external interests and activities is important. Civil society can also play significant role in advocating for more responsible and accountable political governance, as well as ensure that donor interventions align with population needs and priorities. However, the extent of influence of civil society on policy implementation is limited by capacity for evidence-informed policymaking, knowledge of internal policy processes, as well as resources to ensure sustained advocacy for change.

Content

Attaining UHC requires systems capable of ensuring that required interventions and services are effectively delivered to populations in need. Consequently, to ensure quality implementation outcomes, attention must be given to how the policy is synthesized, translated, communicated and interpreted across tiers of the policy process. The different kinds of

stakeholders at the different stages of the policy process must be taken into account. Whereas some components of policy must be made adaptable to contextual nuances, efforts must be taken to ensure fidelity of core components of policy if the desired outcomes are expected to be attained. Politics, leadership and good management practices are also key determinants of UHC.

Policy processes

Key process determinants are implicit within the above discussed themes. In addition, findings suggest that non-adherence to implementation plans was evident across the implementation continuum. Systematic approaches (e.g. using implementation science frameworks and models) to policy development, translation and implementation is recommended. This will require closer collaboration between researchers and policymakers. Thus, the Participatory Action Research methods used in aspects of this research series, as well as other knowledge translation approaches, can improve implementation outcomes if applied routinely. Further, whereas national policymakers commonly drive policy thrusts in many decentralized LMICs, effective implementation outcomes and overall impact of policy requires stronger bottom-up approaches. This way, policy initiatives may be more easily adapted to local (implementation) contexts, thus improving (even though not guaranteeing) greater fidelity and sustainability of the policy. However, central (top-down) oversight remains important in ensuring a balance of fidelity and contextual “fit”, as well as alignment of processes and outcomes with national policy goals.

Table 5 summarizes thematic analysis of findings from the 4 research papers.

Table 6: Summary of key findings from the 4 PhD research papers

Themes	Paper 1:	Paper 2:	Paper 3:	Paper 4:
	Evaluating subnational fidelity of national initiatives	Implementation quality of national PHC initiatives	Effectiveness evaluation of DIVA	How contexts and actors affect implementation of DIVA
Context: Decentralization, politics, governance	National priorities do not automatically translate to subnational priorities Implementation quality of national policies declines at subnational level of decentralized systems. Governance structures and degree of subnational autonomy/ discretionary power commonly affects implementation quality leading to differential outcomes across states and local governments	Top-down policies in decentralized systems require systematic approach in introduction and implementation across tiers of health systems National priorities do not automatically translate to subnational priorities Contextual paradigms must be evaluated and considered in implementation to improve implementation quality	A bottom-up approach to PHC planning using the DIVA approach model can potentially improve performance in decentralized LMIC health systems. Integrated PHC planning and aspects of implementation are possible and effective if structural and managerial bottlenecks are addressed.	Although PHC is the cornerstone of Nigeria's health system, the delivery system at the LGA is weak as is common in many LMICs. The success of DIVA in decentralized planning depends on local government leadership, financial and technical support. Political will is a key determinant of quality implementation Responsible and accountable political governance is essential for quality implementation
Actors' roles: National government	Provision of incentives, supportive supervision and mentoring to lower decision-making levels with respect to policy implementation and change management can facilitate sub-national	National level initiators of interventions must adequately engage subnational stakeholders to ensure quality implementation and sustainability of initiatives	Effective implementation will require some degree of central oversight and ownership.	Although national government may set visionary goals for PHC, it is usually unable to ensure quality implementation at subnational level

Themes	Paper 1:	Paper 2:	Paper 3:	Paper 4:
	Evaluating subnational fidelity of national initiatives	Implementation quality of national PHC initiatives	Effectiveness evaluation of DIVA	How contexts and actors affect implementation of DIVA
	implementation of health interventions and policies	Systematic approach to scale-up of interventions is essential to ensuring subnational fidelity		
Actors' roles: Subnational implementers	Sub-national levels of government are key determinants of population access and experience of the frontline delivery of national health initiatives	Lack of subnational ownership and commitment largely informed poor sustainability as federal support and coordination waned Strong subnational political prioritization is essential for quality implementation in multi-level governance contexts	To improve health systems performance, a governance model that empowers the LGAs technically, politically and financially will have to evolve.	The present structure of the LGA system does not allow for the effectiveness of PHC interventions given the weak managerial capacity and political accountability at that level.
Actors' roles: Non-state actors	Consistent advocacy to all stakeholders (particularly decision makers) on the relevance and benefits of the policy is essential	Non-state actors play critical roles in implementation processes; however, government coordination is essential for harmonized implementation.	Engagement of stakeholders at different levels of government as well as different sectors of the economy is essential	Without external support from development partner, PHC planning and/or implementation of plans in Nigeria is almost absent. Although the national government may set visionary thrusts for PHC, at the subnational level, interventions are commonly skewed towards donor interests.

Themes	Paper 1:	Paper 2:	Paper 3:	Paper 4:
	Evaluating subnational fidelity of national initiatives	Implementation quality of national PHC initiatives	Effectiveness evaluation of DIVA	How contexts and actors affect implementation of DIVA
				Civil society can play significant role in advocating for more responsible and accountable political governance, as well as ensure that donor interventions align with population needs and priorities
Content:	Sub-national levels of government play a central role in the implementation of national efforts to achieve UHC.	Strengthening subnational level governance is critical to improving quality of health interventions	Attaining UHC requires systems capable of ensuring that required interventions and services are effectively delivered to populations in need.	Politics, leadership and good management practices are key determinants of UHC
Contributions to Universal Health Coverage debates	Subnational constraints can significantly affect the implementation chain such that policy initiatives might not be implemented as intended.		Evidence-informed, context-adaptive, decentralized PHC planning approaches provide appropriate platform for integrating health system components towards UHC	Continuous stakeholder engagements at all levels of decentralized systems are necessary to keep on track with UHC goals

8.1.3 Implications of findings on policy implementation in decentralized LMICs

This series of studies contributes to ongoing debates around the impact of decentralization on health system strengthening in LMICs. While reinforcing previous knowledge that decentralization can potentially improve health system performance, this research also brings to light approaches that could optimize the impact of decentralization despite known limitations.

Findings suggest that two subtle assumptions by national actors seem to have been responsible for implementation challenges across the tiers of governance. First is the assumption that *national priorities should automatically translate to subnational priorities* and will be implemented as planned. This paradigm is evidenced in the approach usually taken in the development of national health policies without adequate subnational consultations. In Nigeria, this phenomenon has been attributed to the evolution of governance from unitary military system to federal decentralized governance without adequate national reorientation(6). Similarly, Ethiopia, another African country with a past unitary military history, is also challenged with persisting centralization culture within its current federal system of government and is reputed for poor subnational stakeholder engagements in policy-making(7). Consequently, within the health system in both countries, a strong top-down approach to policy-making is dominant and has been associated with subnational implementation gaps(6, 8-13).

A strategy adopted for central coordination of the health sector in Nigeria is the National Council on Health (NCH); which is the highest policy-making body for health(6). The NCH sets national visions, thrusts and goals to be implemented across the various levels of the health system. The composition of the NCH (consisting of all state ministries of health, represented by their respective commissioners, and chaired by the national minister for health) assumes that its decisions should find easy sub-national implementation(8, 14, 15). This assumption, however, fails to take into cognizance that states, being administered by democratically elected governors (with their executive councils) and legislatures, can make and implement health policies and laws independent of the national government(6). This power is reinforced by the Nigerian constitution's silence on the functions and responsibilities of each tier of government with respect to health system governance(6, 16). Conversely, subnational governments commonly expect responsibility for funding or coordination of national or externally supported interventions to fall on the respective initiators. Thus interventions commonly get altered, under-implemented or even discarded at the subnational level (6). This phenomenon is not unique to Nigeria or federal systems of government. Walker and Gilson, as well as Scott et al.

demonstrated that lower level perspectives and resistance to policy (even when the implementers stand to benefit from the policy) could significantly affect the policy processes(17, 18). South Africa's pilot implementation of the National Health Insurance experienced district-level variation in implementation quality, indicating different levels of subnational readiness(19). Similarly, subnational personal and institutional interests constrained implementation fidelity of Ghana's (unitary) National Health Insurance Scheme(20). Thus, to ensure implementation quality and sustainability of such initiatives, significant subnational participation in policy development as well continued engagement towards ownership is essential.

The second assumption is that *political actors prioritize health interventions based on scientific evidence*. Policymakers of this view believe that providing evidence (from pilot studies) that DIVA works to improve population health and will convince subnational political actors to own and support implementation of the intervention. Consequently, it seemed to have been assumed that convincing state commissioners of health with such evidence at the NCH was sufficient engagement with the state governments. The commissioners will be expected to engage with the state governors and other state political actors who should be 'excited' to receive such evidence. However, in reality, political actors prioritize political interests such that they sometimes interpret and use scientific evidence as 'political ammunition' to support predetermined positions(21). Thus, an initiative without sufficient political capital hardly makes its way into the subnational policy agenda. For example, within the context of the integrated PHC governance reforms in Nigeria, subnational political acceptance of the policy was stimulated by political incentives. First, financial incentives for implementing states were implied in the National Health Act(15). Further, the health sector advocacy coalition played a significant role in creating political sentiments towards implementation(6). In spite of these, states were found to exhibit discretion in implementing elements of the policy, largely prioritizing elements that were more physically verifiable (structural) than more functional ones such as the provision of minimum service package; thus compromising implementation quality(6, 11). With respect to the PHC reviews, even though most state governments failed to own the initiative, the transformational nature of the new political leadership (elected in 2015) seemed to be the key driver of acceptance and sustainability in Kaduna state. This is evidenced by its continued emphasis on Universal Health Coverage through PHC revitalization initiatives(22). Further, it would seem that engagement of political actors as participants in the PHC reviews by health sector actors significantly improved state-level political commitment(23). However, better LGA level political commitment is needed to improve implementation quality. The role of health policy advocacy and advisory groups with diverse

representations (e.g. civil society, academia, professional groups) has been shown to stimulate such commitment by creating political capital in Nigeria and other similar settings(6, 24-26).

Engagement of actors across the evidence to policy and practice continuum is critical to successful implementation as it helps create acceptable and better evidence-informed policies as well as generate better development outcomes(25, 27). For example, success in the development of Ghana's National Health Insurance Scheme has been attributed to strong stakeholder engagements in the policy processes(28).Further, at lower levels (delivery system), community engagement was also a useful strategy in promoting acceptance as well as improving interest and active participation in the scheme(29). Conversely, inadequate engagement of critical stakeholders has been implicated in the weak mental health policies in Ghana, Uganda, South Africa and Zambia(30).

Although decentralization theoretically provides opportunity for local community participation in healthcare decision making, in reality this may not always be the case. Weak lower level capacity for healthcare agenda setting, particularly with respect to global health initiatives and thrusts, makes the role of central governments critical. Consequently, dynamic power equilibrium between central and subnational actors will have to be evolved with each intervention and/or implementation context.

While perfect implementation has been said to be an unlikely expectation (6, 27), ensuring optimal subnational implementation quality of health interventions in decentralized systems requires sustained advocacy and stakeholder engagement across all tiers. Rather than assuming implementation fidelity is natural, process evaluations and scientific approaches to implementation (which take contextual variabilities into cognizance) should be incorporated into policy processes.

8.1.4 Contribution of findings to implementation science and HPSR

In recent years, there have been growing interests around how to translate evidence to policy and practice in the real-world, thus, the advancement of the field of implementation science(31). Implementation science has been described as the 'scientific study of methods to promote the systemic uptake of research findings and other evidence-based practices into routine practice to improve quality and effectiveness of health services and care'(32). The discipline aims to improve the efficiency of the evidence-policy-implementation continuum(33). On the other hand, health policy and systems research (HPSR) *“seeks to understand and improve how societies organize themselves in achieving collective health goals, and how different actors interact in the policy and implementation processes to*

contribute to policy outcomes”(34). The evident overlap between implementation science and HPSR informed the use of frameworks both disciplines in this research series. Further, this research demonstrates how models, theories and frameworks from policy analyses and implementation science research can complement each other in addressing real-world health system challenges. Policy analysis can serve to address political and socio-economic drivers of interventions thus creating optimal environment for systematic approaches to quality implementation.

Implementing top-down policy initiatives are particularly challenging in decentralized LMIC settings. The overarching conceptual framework of this PhD, which examines how policy actors’ interact within various contexts to affect policy processes, guided interpretation of facilitators and constraints of PHC policy implementation in Nigeria, with implication for other similar decentralized LMICs(1, 35). Specifically, interactions were examined with respect to the policy synthesis, translation, support and delivery systems across the tiers of governance. Overall, implementation process and outcomes (particularly fidelity and sustainability) of national initiatives depend on the how adaptable the policy content is to the various subnational contexts, the extent to which key state and non-state actors are engaged across the tiers of governance, the degree to which the various actors buy into the initiative (particularly at the implementation level/delivery system, e.g. LGA in Nigeria). Findings from this series of studies suggest that, given sufficient resources (e.g. financial, human and statutory), political and management related factors are key determinants of successful implementation of PHC strengthening initiatives. Table 6 summarizes the key contributions of this research to implementation science and HPSR, including the strengths and limitations of frameworks and theories applied.

Table 7: Summary of key contributions to implementation science and HPSR: strengths and limitations

Paper 1:	Paper 2:	Paper 3:	Paper 4:
Evaluating subnational fidelity of national initiatives	Implementation quality of national PHC initiatives	Effectiveness evaluation of DIVA	How contexts and actors affect implementation of DIVA
This study highlights the importance of measuring implementation fidelity as a means of identifying process gaps and improving policy implementation, especially in decentralized health systems.	The study tested the use of an implementation science framework, originally designed for application in organizational settings, in	Demonstrates that quality improvement models (like DIVA) applied at the macro-level of health systems can potentially improve delivery of PHC	Methodologically, the Model for Understanding Success In Quality (MUSIQ) was useful in identifying sub-national contextual constraints but could not highlight the relative

Evidence generated from such evaluations can assist national policymakers identify more effective strategies to support subnational tiers of governance in improving health system processes and outcomes.	a multi-level LMIC governance system	interventions and health system performance	impact each factor had on implementation outcomes.
Evaluating implementation fidelity guides other policy stakeholders at all levels in evidence-based advocacy and other strategies towards effective policy execution. Thus, implementation research should be incorporated into policy processes.	Quality Implementation Framework (QIF) was found useful in highlighting key process gaps in subnational policy deployment process The study identified gap in existing literature regarding how to ensure quality implementation multi-level governance contexts.	Contextual adaptation of these models is essential for optimal results Government coordination of stakeholders is critical for successful implementation	MUSIQ composite scores could not explain the magnitude of differences in implementation between LGAs. Key informant interviews and the RACI matrix compensated by revealing that some contextual influences (such as funding and political will) were greater determinants of successful implementation than others. The Walt and Gilson health policy analysis triangle guided integration of inferences from all methods employed.

8.2 Conclusion

40 years after the world declared its intention to pursue “Health for All”, and almost 6 years after urging governments to move towards ensuring access to affordable, quality health-care services (vis a vis UHC), strong PHC systems remain key determinants of success, particularly in LMICs(36). Whereas numerous interventions have been initiated to improve PHC performance, sub-optimal implementation has hindered attainment of desired outcomes. As findings from this series of studies suggest, the interplay of health system complexity, evolving interests of political and social actors, political structures and systems, among others, determine the extent to which interventions are successfully implemented. Multi-level governance systems with significant autonomy of the tiers, as found in decentralized (devolved) health systems, create significant political and administrative barriers to implementing top-down policy initiatives. The extent of subnational political autonomy may also be limited by financial autonomy, as discussed in chapters 1 and 4. Thus, in systems like Nigeria, higher level government may influence subnational policy implementation by virtue of its financial weight and financing structure.

Based on findings in this research series, the following strategies to improve sub-national implementation fidelity and sustainability of national PHC policies in decentralized systems such as Nigeria are recommended:

1. Strengthen policy evidence generation, synthesis and translation systems. Policy initiators and facilitators must incorporate operational and implementation research within the policy process to generate evidence for advocacy to policy makers and implementers across the tiers of governance.
2. Strengthen policy support systems by providing incentives, supportive supervision, coaching and mentoring to subnational implementers (delivery systems).
3. Generating political support is critical, thus, in translating evidence for policy, inclusion of political gains of implementation (in addition to population health outcomes) can serve to facilitate implementation.
4. Sustained advocacy to all actors (particularly decision makers) on the relevance and benefits of the policy. Applying stakeholder analyses techniques to identify and engage power structures across the implementation continuum can facilitate implementation.

Whereas these recommendations may serve to improve implementation quality, they cannot guarantee optimal implementation. Thus, evidence-informed strategies are needed which evolve with contextual dynamics such as evolution in political power and governance paradigms. The findings in this PhD present only a few pieces of the puzzle on how to effectively implement policies in decentralized contexts. Consequently, further research is needed to strengthen and complement inferences from this series. And finally, citing the World Report on HPSR, “the evidence-to-policy field remains quite fragmented. While some practitioners operate primarily within a traditional knowledge-translation paradigm, others come from the research communication field, still, others focus on evidence synthesis, and some are more interested in studying how evidence, among other factors, affects policy development and implementation”(37). This series of studies weigh the role of evidence in real-time policy interventions and contributes to synergizing the various fragments of the discipline towards improving policy implementation and impact on health system outcomes. The series also contributes to debates around UHC/PHC by emphasizing the important role of political, financial and health system governance in ensuring effective delivery systems which can provide quality, equitable, efficient and effective services to the population in need: the goal of UHC.

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APPENDICES

I. Change of research title



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Tel: 02711 7172076

Reference: Mrs Sandra Benn
E-mail: sandra.benn@wits.ac.za

07 March 2018
Person No: 1519566
TAA

Mr EA Eboreime
P.o.box 3460
Garki
900001
Nigeria

Dear Mr Eboreime

Doctor of Philosophy: Change of title of research

I am pleased to inform you that the following change in the title of your Thesis for the degree of **Doctor of Philosophy** has been approved:

From: **Improving effective coverage of primary health care interventions in Nigeria: The role of evidence-based planning and performance reviews**

To: **Implementing national policies in decentralized health systems: a case study of an integrated primary healthcare planning and performance improvement initiative in Nigeria**

Yours sincerely



Mrs Sandra Benn
Faculty Registrar
Faculty of Health Sciences

II. Wits Human Research Ethics Committee clearance



R14/49 Dr Ejemai Amaize Eboreime

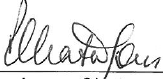
HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL) CLEARANCE CERTIFICATE NO. M161122

NAME: Dr Ejemai Amaize Eboreime
(Principal Investigator)
DEPARTMENT: School of Public Health, Centre for Health Policy
State Ministries of Health, Primary Healthcare Agencies
Nigeria

PROJECT TITLE: A Policy Analysis of the Implementation of DIVA-Model
for Primary Healthcare Planning and Performance
Reviews in Nigeria

DATE CONSIDERED: 25/11/2016

DECISION: Approved unconditionally

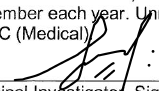
CONDITIONS:
SUPERVISOR:
APPROVED BY: 
Professor P Cleaton-Jones, Chairperson, HREC (Medical)

DATE OF APPROVAL: 23/01/2017

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office Secretary in Room 301, Third Floor, Faculty of Health Sciences, Phillip Tobias Building, 29 Princess of Wales Terrace, Parktown, 2193, University of the Witwatersrand. I/we fully understand the conditions under which I am/we are authorized to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated, from the research protocol as approved, I/we undertake to resubmit the application to the Committee. **I agree to submit a yearly progress report.** The date for annual re-certification will be one year after the date of convened meeting where the study was initially reviewed. In this case, the study was initially reviewed in November and will therefore be due in the month of November each year. Unreported changes to the application may invalidate the clearance given by the HREC (Medical).


Principal Investigator Signature

24/1/2017
Date

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

III. National Health Research Ethics Committee (Nigeria) clearance

8/21/2016

National Health Research Ethics Committee

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IV. Information sheet: LGA PHC Coordinator and Programme Managers

Good day. My name is Ejemai Eboime, I am a PhD candidate and I am a member of a research team from the School of Public Health (University of Witwatersrand in Johannesburg). As per our initial communication with regards to the study on the PHC Reviews/Bottleneck Analysis, I would like to obtain from you an overview of the programme, your views on the implementation of the programme. This will include information on the barriers and facilitators to implementation as well as the role of other stakeholders in operational planning.

Here is some information about the study and the information that we are hoping to discuss with you.

Background

We are mostly interested in the extent to which LGAs incorporating PHC Reviews/ Bottleneck analysis into their routine planning, monitoring and evaluation systems for PHC. We would like to understand the readiness of LGAs to adopt PHC Reviews/ Bottleneck analysis into systems and the barriers and facilitators to adoption.

To gain a better understanding of the implementation process as well as the constraining and enabling factors encountered by LGA PHC managers, I want to carry out interviews and focus group discussions. I will also be examining work plans and implementation reports. All of these activities will be conducted having received permission the Primary Health Care Development Agency.

You have been selected to participate as a key informant interview because you are either involved with PHC Reviews/ Bottleneck analysis or involved with PHC programme planning/ implementation in your LGA.

We would like to invite you to participate in this study and to ask your permission to conduct an interview with you.

Consent

Permission to carry out this project has been obtained from the National Primary Health Care Development Agency as well as Research Ethics Committees both in Nigeria and South Africa.

Will there be any benefit or risks from participating?

There are no foreseeable risks or discomforts to participating in this research. All answers will be reported in a general way and no names of LGAs or individuals will be used or stored with the transcripts for this interview. There are no direct benefits of this research to you, however, you will receive advance copies of the research finding which may help improve your work.

During the interview you have the right to decline to answer any of the questions, or stop the interview at any time. The fact that you have done this will not be reported to anybody, will not be recorded in the research report and will not have any negative consequences for you.

Permission to tape the interviews: To make the interview easier for us, we will also ask if we can tape the interview. If you do not want the interview to be taped that is your right, and it will not influence the interview or the research in any way. If you give us permission to tape the interview we will listen to the tape and write down every thing that you say but not use your name. We will keep the tapes for two years, after which they will be destroyed.

Confidentiality

As a participant in the research you can expect that all the information you provide will be treated in a confidential way. The names of LGAs and individuals will not be used in the research report. We will keep all information that people provide confidential. If necessary a member of the research team may contact you to check that you are happy with what has been written, and are not worried that you can be identified.

While efforts will be made to keep personal information confidential, it is important to note that absolute confidentiality cannot be guaranteed. Personal information may be disclosed if required by law. Organizations that may inspect and/or copy your research records for quality assurance and data analysis include groups such as the Research Ethics Committee.

The Interview

The interview will take about an hour. It will be carried out in English unless you would prefer it to be in your own language. The interview will be carried out at a time and place that are convenient to you, and will not interfere with your duties in the department.

We understand that the time taken for the interviews may have some implications such as you missing the staff bus to convey you home. Please be reassured that your transport fare will be reimbursed as well as any other out of pocket expenditure which you may incur as a result of this interview.

Contact Details of the Principal Investigators of the Research Project.

If you have any further questions, or any complaints about the way that the study is being implemented, you can contact the Principal Investigator of the project.

Dr Ejemai Eboreime

National PHC Development Agency
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School of Public Health
University of Witwatersrand
Johannesburg

Email: nonhlanhla.nxumalo@wits.ac.za

Email: john.eyles@wits.ac.za

Should you have any further questions concerning the ethical processes of this study, or feel there are ethical violations, please contact the HREC Chair/ Administrator for participants
HREC (Medical) contact details:

Nigeria:

National Health Research Ethics Committee, Abuja: info@nhrec.net

South Africa:

Prof P Cleaton Jones,

Tel: 011 717 2301,

Email: peter.cleaton-jones1@wits.ac.za

Ms Z Ndlovu/ Mr Rhulani Mkansi/ Mr Lebo Moeng (Administrative Officers)

Tel: 011 717 2700/2656/1234/1252

Emails: zanele.ndlovu@wits.ac.za; Rhulani.mkansi@wits.ac.za; and Lebo.moeng@wits.ac.za

Thank you for taking the time to read this information sheet.

V. Consent Form for Key Informant Interviews

I have been given the Information Sheet on the study on PHC Reviews/ Bottleneck Analysis in Kaduna/Edo state. I have read and understood the Information Sheet and all my questions have been answered satisfactorily.

I understand that it is up to me whether or not I would like to participate in the interview and that there will be no negative consequences if I decide not to participate. I also understand that I do not have to answer any questions that I am uncomfortable with and that I can stop the interview at any time.

I understand that the researchers involved in this project will ensure confidentiality and that my name will not be used in the study reports, and that comments that I make will not be reported back to anybody else.

Yes, I consent voluntarily to be interviewed

☐

No, I do not give consent to be interviewed

☐

Interviewee's signature: _____

Date: _____

Interviewer's signature: _____

Date: _____

Interviewer's name
(please print): _____

Date: _____

VI. Consent to tape record in-depth interviews (key informants)

I have read the project information sheet, and I understand that it is up to me whether or not the interview is tape-recorded. It will not affect in any way how the interviewer treats me if I do not want the interview to be tape-recorded.

I understand that if the interview is tape-recorded that the tape will be destroyed two years after the interview.

I understand that I can ask the person interviewing me to stop tape recording, and to stop the interview altogether, at anytime.

I understand that the information that I give will be treated in the strictest confidence and that my name will not be used when the interviews are typed up.

Yes, I give my permission for the interview to be tape recorded	☐
No, I do not give my permission for the interview to be tape recorded	☐

Interviewee's signature: _____ Date: _____

Interviewer's signature: _____ Date: _____

Interviewer's name
(please print): _____ Date: _____

VII. Key Informant Interview Questions

I. INTERVIEW GUIDE FOR PHC REVIEWS/ BOTTLENECK ANALYSIS

First of all, thank you for being willing to speak with me about PHC operational planning.

1. I'd like to start by asking you, in your own words, could you please tell me how you are involved in PHC operational planning in an LGA?
 - a. Probe: What areas/ programmes are you involved in planning?
 - b. Probe: Who do you work with during the operational planning process (list team members)?
 - c. Probe: Please describe in your own words how you develop plans for PHC in your LGA?
2. Do you know about PHC Reviews/ Bottleneck analysis? Please tell me what you know about it.
 - a. Probe: What do you think about PHC Reviews/ Bottleneck analysis? Is it very useful? Is it easy to implement?
 - b. Probe: Do you have other planning tools or methods besides PHC Reviews/ Bottleneck analysis? Please describe them.
 - c. How would you describe the availability and quality of data used for PHC planning?
3. Can you comment on the capacity and training needs of your team with respect to PHC planning and reviews?
4. What do you do after the PHC Reviews/ Bottleneck analysis? How do you implement the plans you developed?
 - a. Probe: Who supports you in implementing your plans? Community? Development partners? LGA? State?
 - b. Probe: How do you get funding for operational plan implementation?
 - c. Probe: What challenges do you have with work plan implementation?
 - d. Please describe how you change or improve on your work plans later in the year if you find out they are not working as expected?
5. From your observation, how is PHC Review/ Bottleneck analysis starting to become more incorporated into the planning cycle in your LGA?
 - a. Probe: Is there an increasing need/ demand for real time available data from the PHC Reviews/ Bottleneck analysis? Please explain.
 - b. Probe: How are staff across your LGA (especially the health facilities) using findings from PHC Reviews/ Bottleneck analysis?
 - c. Probe: How are stakeholders (communities, government, development partners) using findings from PHC Reviews/ Bottleneck analysis? How are they involved in the planning and implementation process?
6. How do you see PHC Reviews/ Bottleneck analysis being compatible with your work at the LGA health department?
 - a. Probe: Please explain how you think that the PHC Reviews/ Bottleneck analysis is currently affecting health outcomes in your LGA?

- b. Probe: How do you think PHC Reviews/ Bottleneck analysis can be improved upon?
- 7. So, in summary, what do you think have been the major factors that are working in your favour in terms of PHC Reviews/ Bottleneck analysis?
 - a. Probe: What has the role of other actors, such as partners, political or community leaders been?
- 8. What are the major barriers that are impeding the adoption of PHC Reviews/ Bottleneck analysis into your planning and M&E system?
 - a. Probe: Do you think that PHC Reviews/ Bottleneck analysis can continue in your LGA without external support? Please explain

II. INTERVIEW GUIDE FOR PHC REVIEWS GOVERNANCE AND LEADERSHIP

1. Can you tell me about how the PHC review initiative began (historical perspective)? What informed the initiative?
 2. How can you describe the integration of the programme to the existing PHC initiatives? (e.g. PHCUOR)
 3. How were stakeholders engaged in the process?
 - a. Community involvement?
 - b. Development partners
 - c. Other government programmes and structures
 4. How will you describe national government leadership/ownership?
 5. How did the states and LGAs accept the initiative?
 6. To what extent were the PHC reviews successful in achieving the desired results?
 7. Presently, only Kaduna state has continued to implement the PHC reviews on an annual basis. What do you think facilitated sustenance in the state? Why could other states not continue?
 8. Kindly comment on implementation gaps and challenges across the various levels of government.
 9. What do you think could be done differently to improve sustainability and effectiveness of the PHC reviews?
 10. Any other comments on implementation of PHC reviews and other similar policies ratified by NCH?
 11. That's it. Thank you for your participation. Is there anything else that you would like to add?
- Would you like an advance copy of the findings when they are ready?

VIII. LGA operational plan - performance assessment tool

III. LGA OPERATIONAL PLAN - PERFORMANCE ASSESSMENT TOOL						
Activity No.	Activity	Extent of implementation			Remarks	
		Completely implemented	Partially implemented	Not commenced	Enhancers	Challenges

IX. Permission to access data (NPHCDA)

NATIONAL PRIMARY HEALTH CARE DEVELOPMENT AGENCY <i>Plot 681/682 Port Harcourt Crescent, off Gimbiya Street, Area Eleven, P. M. B. 367 Garki-Abuja.</i> HEALTH INFORMATION SYSTEMS DIVISION		
Telegram.....		NPHCDA/P/1354
E-mail.....		Ref. No.....
Telephone.....		Date March 15, 2016

Dear Dr Eboreime Ejemai

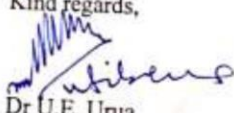
RE: REQUEST FOR ACCESS TO DATA FOR THE PURPOSE OF RESEARCH

The above subject refers.

Sequel to your request for access to unpublished data for use in academic research, I hereby write to convey approval for the said purpose.

The data requested include data generated from the quarterly Primary Healthcare Reviews which are generated from the Health Management Information System of Nigeria.

You may also access related data on the DHIS online platform : <https://dhis2nigeria.org.ng/> .

Kind regards,

Dr U.E. Urua
Chief Medical Officer
(Operations Research)

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Journal: Health Policy and Planning

DOI: 10.1093/heapol/czy042

Title: Strengthening decentralized primary healthcare planning in Nigeria using a quality improvement model: how contexts and actors affect implementation

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