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Measuring Leadership and Management Capacity in Low-Income Healthcare Settings: A Case Study on Strengthening EPI Programs in Nigeria

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"Of all the health system building blocks, leadership and governance is probably the most important in improving International Health Regulations (IHR) implementation and in countering outbreaks in general. It underpins the other health system components and constitutes the cornerstone of any effort to strengthen health security."

- British Medical Journal, 2017

Strong leadership and management capacity (LMC) is the backbone of effective health systems globally. This is especially true in low-middle-income countries (LMICs) such as Nigeria, where weak LMC has been linked to poor routine immunization indices, outbreaks of preventable diseases, and inefficiencies in pandemic response.[1] The COVID-19 pandemic further exposed these gaps. While countries with robust LMC adapted swiftly to vaccine rollouts, others, like Nigeria, grappled with supply chain breakdowns and zero-dose children piling up.[2,3] According to estimates from the United Nations Children's Fund (UNICEF) and the World Health Organization (WHO) for 2022, Nigeria has 2.3 million children who have not been immunized (also known as Zero Dose children), the second highest number in the world.[4]

Measuring leadership and management capacity is notoriously difficult—how does one measure decisiveness, collaboration, or adaptability? Many health indicators reflect the outcomes of health system leadership and management, assuming that strong leadership results in improved health indicators. Other approaches to LMC assessments measure learning outcomes, often missing contextual barriers. For instance, a high completion rate in an e-learning course means little if it does not translate into improved leadership and management behavior. The real question, therefore, becomes whether these often-used proxy indicators for LMC reflect actual leadership and management behaviour in the dynamic context of the health system.[5]

What constitutes "good leadership and management capacity" in healthcare settings? Is it patient outcomes, budget efficiency, staff retention, or reduced mortality? In corporate environments, leadership and management capacity is often quantified through standardized metrics such as return on investment (ROI), employee retention, or market share growth. In education, school administrators are assessed via student performance metrics or institutional rankings. Whereas healthcare, especially in LMICs, lacks such consensus, their metrics remain poorly defined, and inconsistent. In addition, leadership and management capacity cannot be divorced from context. In high-income countries, healthcare roles are well

[1] AFENET/AHBN (ZDLH). 2024. Closing The Immunization Gap: Enhancing Routine Immunization in Nigeria by Reaching Zero-Dose and Under Immunized Children in Marginalized Communities: Report of a Rapid Assessment. 2024. Available from https://zdlh.gavi.org/

[2] Balogun, Mobolanle, Aduragbemi Banke-Thomas, Adekemi Sekoni, Godfred O. Boateng, Victoria Yesufu, Ololade Wright, Osinachi Ubani, Akin Abayomi, Bosede B. Afolabi, and Folasade Ogunsola. "Challenges in Access and Satisfaction with Reproductive, Maternal, Newborn and Child Health Services in Nigeria during the COVID-19 Pandemic: A Cross-Sectional Survey." PloS One 16, no. 5 (2021): e0251382. https://doi.org/10.1371/journal.pone.0251382

delineated: clinicians treat, and administrators manage. In LMICs, however, a clinician may simultaneously serve as hospital director, procurement officer, and policy advisor, often without formal training in management. When a single individual straddles both clinical and managerial duties, how do we assess their performance? A district hospital manager in Malawi who maximized limited resources might appear inefficient if judged against a Swiss hospital benchmark. If patient outcomes decline, is the cause poor clinical skills, mismanaged supplies, or both? If staff attrition rises, is it leadership failure or systemic underfunding of salaries? If vaccination rates stagnate, is it due to community distrust or the manager's failure to mobilize outreach teams?

A leader who thrives in a well-resourced urban hospital may struggle in a rural facility plagued by chronic shortages, yet standard metrics rarely account for such disparities.

Why is Leadership and Management Capacity Hard to Measure in the Health System?

Measuring leadership and management capacity within health systems is notoriously difficult, particularly in low-income countries, due to a combination of structural, contextual, and cultural challenges. One major issue is the high-stakes nature of healthcare itself as failures in leadership can lead to preventable deaths, disease outbreaks, and even the collapse of entire health systems. Because of these severe consequences, institutions may be reluctant to acknowledge or expose leadership gaps, favoring a culture of silence over transparency. Compounding this issue is the lack of clearly defined roles and qualification standards. While high-income countries typically distinguish between administrators, clinicians, and policymakers, each with specific training and responsibilities, many low-income contexts rely on overstretched clinicians who simultaneously serve as hospital managers, district health officers, and policy advisors, often without formal management training.

Leadership effectiveness is also deeply context-dependent, which introduces subjectivity into any assessment. A leader who thrives in a well-resourced urban hospital may struggle in a rural facility plagued by chronic shortages, yet standard metrics rarely account for such disparities. Cultural dynamics, including deference to authority and limited feedback mechanisms, further obscure an objective understanding of leadership capacity. Finally, the absence of baseline data significantly hampers efforts to measure progress. Unlike high-income countries that rely on electronic health records, regular audits, and performance benchmarks, many low-income settings lack the infrastructure needed to track trends over time, making it nearly impossible to establish whether leadership interventions are making a meaningful difference.

[3] Akaba, Godwin O, Osasuyi Dirisu, Kehinde S. Okunade, Eseoghene Adams, Jane Ohioghame, Obioma O. Obikeze, Emmanuel Izuka, Maryam Sulieman, and Michael Edeh. "Barriers and Facilitators of Access to Maternal, Newborn and Child Health Services during the First Wave of COVID-19 Pandemic in Nigeria: Findings from a Qualitative Study." BMC Health Services Research 22 (May 6, 2022): 611. https://doi.org/10.1186/s129

[4] UNICEF. "The State of the World's Children 2023 | UNICEF." UNICEF Reports, April 20, 2023. https://www.unicef.org/reports/state-worlds-children-2023.

Measuring Leadership and Management Capacity for Improved Routine Immunization Outcomes: ACE's Work in Kebbi and Katsina, Nigeria.

Routine immunization remains one of the most cost-effective and life-saving public health interventions worldwide, with the power to prevent many leading causes of childhood morbidity and mortality. Despite this, routine immunization coverage in Nigeria remains low. Only 18% of children aged 12 to 23 months were fully immunized in 2016/17,6 rising modestly to 36% by 2021.7 While ongoing investments have strengthened vaccine supply chains and other health system components, weaknesses in leadership and management capacity (LMC) have emerged as critical, yet often overlooked, barriers limiting coverage and equity. A 2024 review of factors hindering routine immunization in Nigeria's marginalized communities identified several challenges, including insufficient human resources, inadequate cold chain management, poor data quality, gaps in training, and high rates of vaccine dropout.8

In 2024, Gavi, the global vaccine alliance, sought to strengthen LMC in Katsina and Kebbi State Primary Health Care Development Agencies as part of their investment in improving zero-dose rates in supported states in Nigeria. Recognizing that assessing the current LMC capabilities was fundamental to addressing these challenges, Gavi engaged a consortium comprising Solina Health, African Field Epidemiology Network (AFENET), and ACE Strategy to improve leadership and management capabilities for officers in the immunization programs. ACE strategy was commissioned to measure LMC and establish a baseline for progress.

01 Assess the governance and coordination of the RI programme at the state and LGA levels using appropriate metrics for measurement of leadership and management capacity

02 Assess the individual capacity needs of the RI managers across leadership, management, and core RI technical competencies

[5] Wolfgang Munar, Birte Snilstveit, Ligia Esther Aranda, Nilakshi Biswas, Theresa Baffour, Jenniffer Stevenson - Evidence gap map of performance measurement and management in primary health-care systems in low-income and middle-income countries: BMJ Global Health 2019;4:e001451 https://doi.org/10.1136/bmjgh-2019-001451

[6] https://microdata.nigerian-stat.gov.ng/index.php/catalog/59

[7] http://ngfrepository.org.ng:8080/jspui/handle/123456789/5382

[8] AFENET/AHBN (ZDLH). 2024. Closing The Immunization Gap: Enhancing Routine Immunization in Nigeria by Reaching Zero-Dose and Under Immunized Children in Marginalized Communities: Report of a Rapid Assessment. 2024. Available from https://zdlh.gavi.org/

We had two objectives for the assessment:

Between January and February 2024, ACE Strategy and Consults conducted an assessment of the leadership and management capacity of the Routine Immunization (RI) team in Katsina and Kebbi states by focusing on four critical areas.

First, ACE examined the profile of the EPI staff across the LGAs in the states, aiming to understand the composition, qualifications, and roles of the staff involved in immunization activities.

Second, the team explored the existing capacity-building interventions, assessing the training and development programs currently in place to strengthen the skills and abilities of the EPI staff.

Third, ACE evaluated the capacity of RI managers across key Leadership and Management Competency (LMC) skills, identifying areas where managers were either strong or lacking in crucial leadership and operational skills.

Finally, the assessment investigated the Performance Management System at both the state and local government area (LGA) levels to understand how performance is tracked, evaluated, and reinforced within the immunization program.

By combining detailed assessments of staff availability and distribution, competency evaluations, and a contextualized performance framework, ACE's strategy provides a comprehensive understanding of LMC gaps and offers practical, targeted recommendations for improvement.

Methods and Tools

Our approach to measuring Leadership, Management, and Coordination (LMC) leveraged a multi-domain methodology. This approach is crucial in contexts where traditional methods often fail to capture the complexities of leadership performance. By combining detailed assessments of staff availability and distribution, competency evaluations, and a contextualized performance framework, ACE's strategy provides a comprehensive understanding of LMC gaps and offers practical, targeted recommendations for improvement. In both Kebbi and Katsina, a mix of self-assessments, structured interviews with key stakeholders, and desk reviews were used. Appendix I lays out the assessment framework and assessment tool. The findings from the assessment are shared below across the various domains of the assessment tool.

Findings on Leadership and Management Capacity in Kebbi and Katsina

The RI program managers at the state and local government levels hold varying roles, as described in **Table 1**. At the state level, core program officers supporting immunization activities include the State Immunization Officer (SIO), the Monitoring and Evaluation (M&E) officer, and the State Cold Chain Officer. These officers oversee planning and monitoring of immunization programs, immunization data reviews and analysis, and oversee EPI logistics at the state level. At the LGA level, however, immunization focal officers include the Director of PHC (DPHC), Local Immunization Officer (LIO), Routine Immunization Officer (RIO), Local Government Cold Chain Officer (LCCO), M&E Desk Officer, and Disease Surveillance and Notification Officer (DSNO). The LGA officers perform similar functions within their LGA.

Table 1: Number of officers at state and LGA levels across both states

	Kebbi	Katsina
State officers	7	5
Local Government officers	14	25
Health facility	8	-

The findings from the assessment are reported in the following domains: Self-reported training, educational qualifications, and years of experience; foundational knowledge of vaccines and vaccine-preventable diseases, vaccine schedules, and the EPI program; and core leadership capacities like problem-solving, analytical and computer skills, team leadership, conflict management, feedback and coaching, performance management, work planning, stakeholder management, data analysis, and use. Lastly, technical competencies that were related to managing RI programs specifically, such as vaccine forecasting, allocation and delivery, logistic management systems, and community engagement, were assessed as well.

Staff Availability and Distribution Assessment:
In Kebbi state, the assessment revealed significant staff shortages and an unequal distribution of health workers. The physician-to-population ratio in Kebbi was found to be 1 to 200,000, far below the WHO's recommended ratio of 1 to 1,000. This disparity, particularly in rural LGAs, contributed to suboptimal immunization performance, where staff density was much lower than in urban centers.

Similarly, in Katsina state, the staff distribution inequities were linked to performance issues, especially in rural LGAs where staffing was insufficient to meet the growing health demands.

Self-reported educational qualifications and experience:
In both Kebbi and Katsina states, the assessment revealed a high concentration of senior staff within the immunization program. Respondents in both states had similar levels of experience, with approximately half having at least 15 years of experience in the EPI field. However, both states also showed a significant proportion of staff with limited experience in their current roles, suggesting potential turnover or reshuffling within the teams.

In terms of educational qualifications, Katsina had a slightly higher proportion of staff with advanced degrees compared to Kebbi. Additionally, the availability of job descriptions was nearly universal, with the majority of staff in both states having clearly defined roles, which is essential for improving clarity and accountability in task execution.

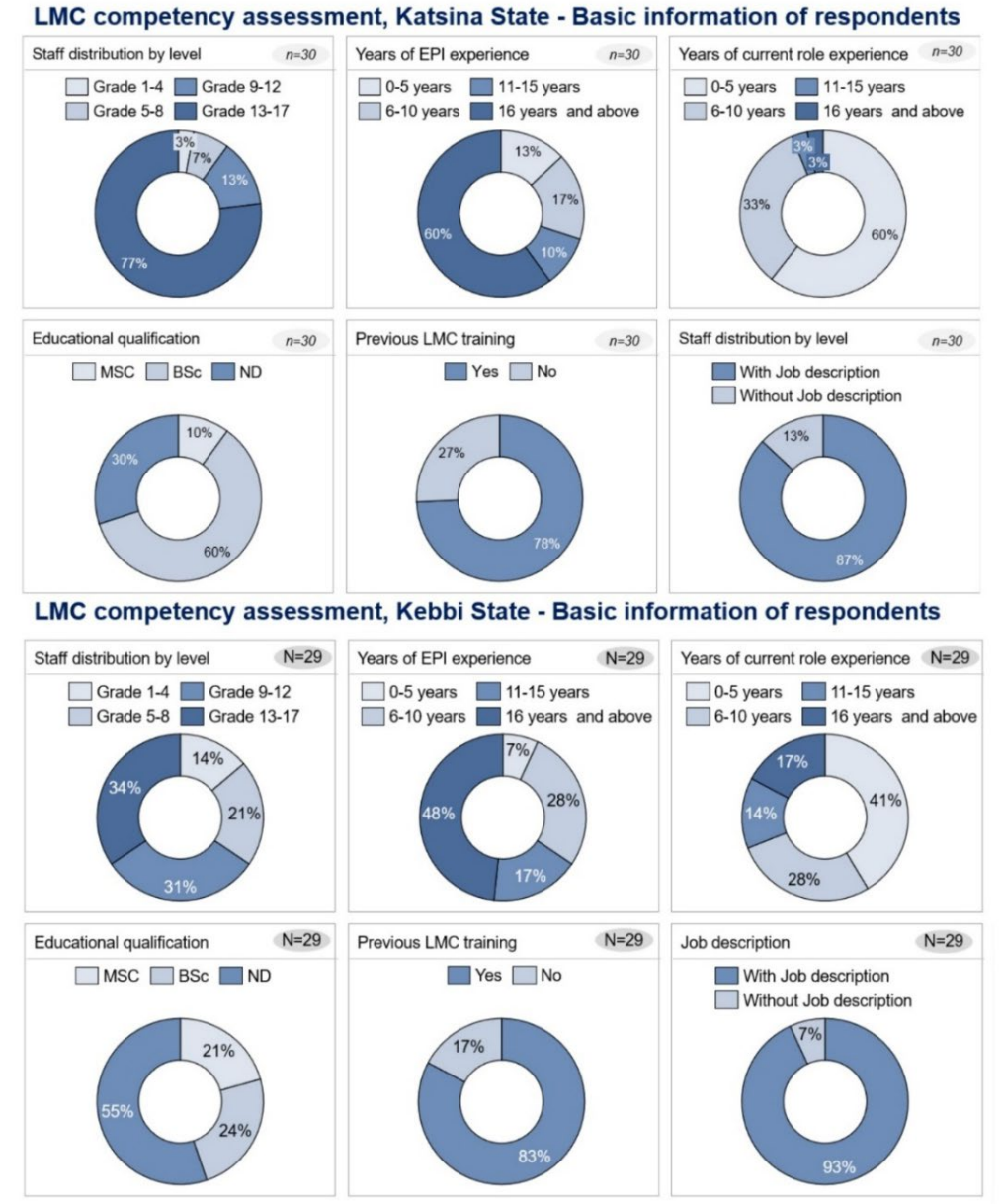

Figure 1: Self-reported educational qualifications and experience

Foundational Knowledge Assessment:
In both Kebbi and Katsina, foundational knowledge of immunization (LMC) had high scores, but significant gaps existed in technical skills like data analysis, performance management, analytical reasoning, critical thinking, and Microsoft Office tools, especially Excel. These gaps are critical, as technical skills such as data analysis are foundational for making informed leadership decisions.

Despite high ratings in immunization knowledge, these competencies may not translate into effective program implementation due to limited technological proficiency. The results also showed that there was a positive correlation between staff performance and educational qualifications. However, there was no correlation between years of experience and competency, suggesting that formal education played a more significant role in staff performance than practical experience alone. This finding led to the conclusion that higher educational attainment might offer deeper understanding of LMC skills, but practical application of these skills requires additional training and support.

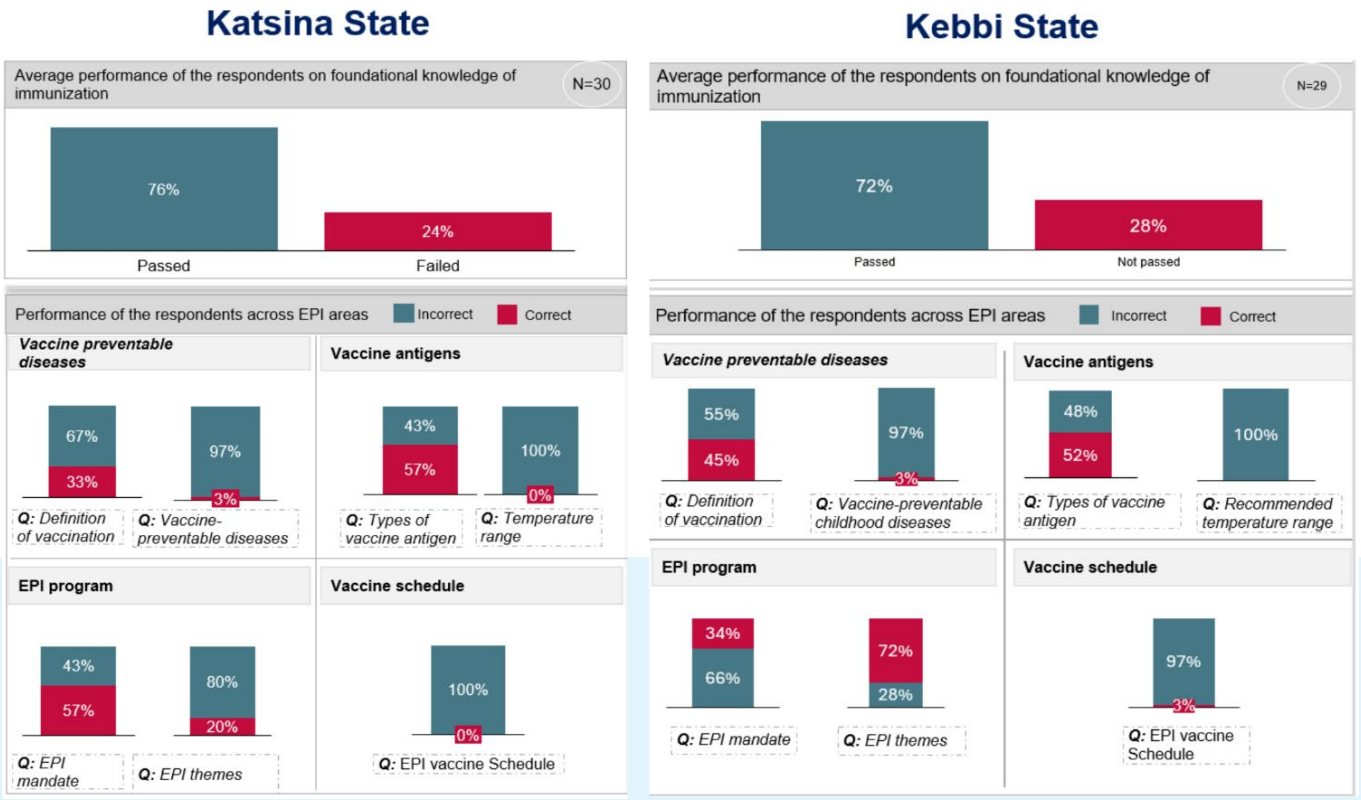

Figure 2: Respondents knowledge of immunization

Leadership and Managerial Skills Assessment:
The domains of leadership and managerial skills measured were public speaking, analytical reasoning and critical thinking, leadership and governance, team leadership, conflict management, feedback and coaching, performance management, work planning, stakeholder management and data analysis and use. In both Kebbi and Katsina, the findings revealed that respondents in both states had above-average ratings for LMC skills at 3.7/5 for Katsina and 3.6/5 for Kebbi. However, there were clear weaknesses in specific areas. In Katsina, conflict management, work planning, and performance management were identified as weak spots, whereas in Kebbi, data analysis, performance management, analytical reasoning, and critical thinking were the most commonly cited weaknesses. Again, respondents with higher educational qualifications demonstrated stronger LMC skills

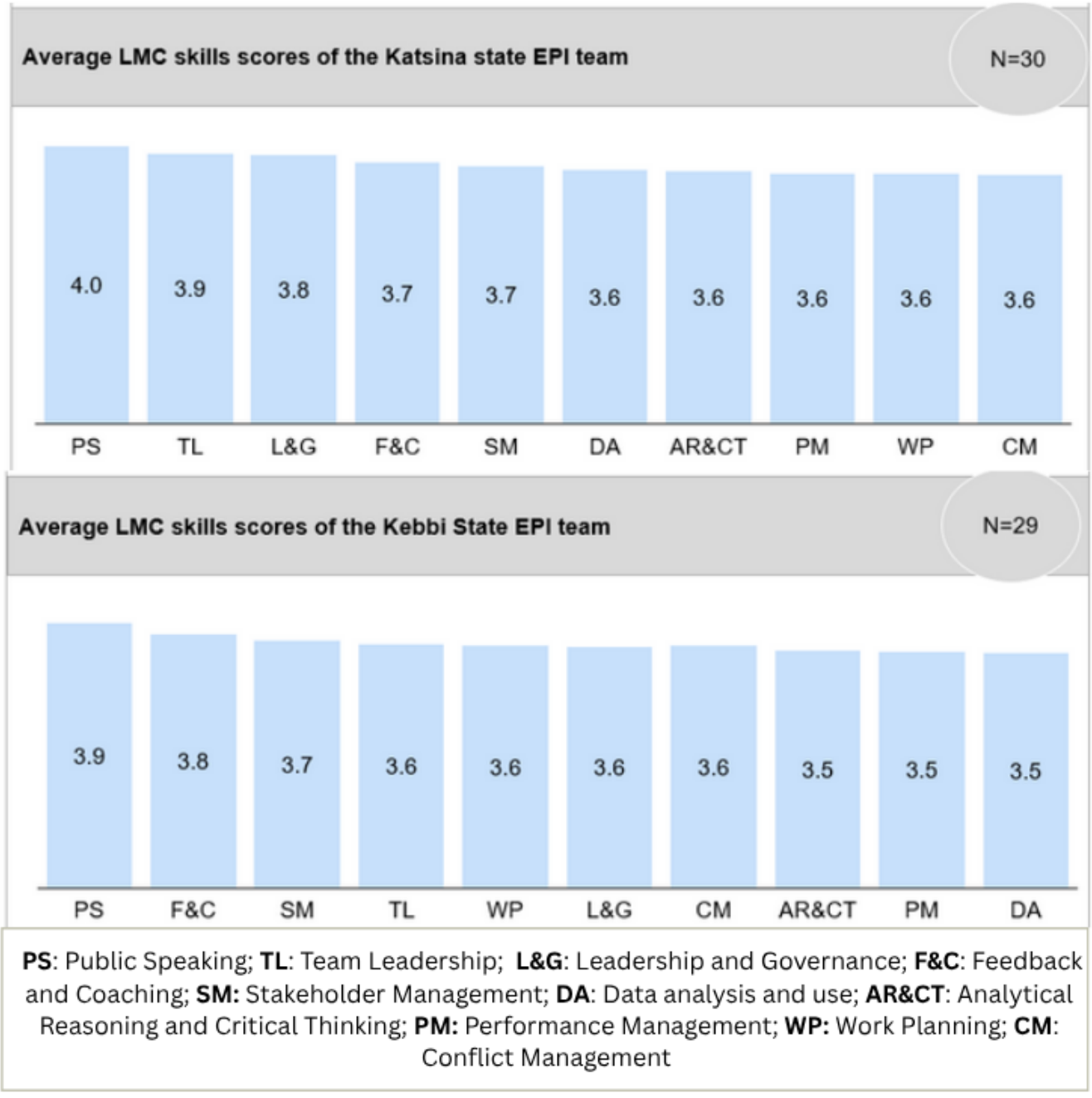

Figure 3: Respondents Leadership and Managerial Skills Self-Assessment (Scale: 0-5)

Technical Competency Assessment:
In both states, the performance across years of experience indicated capacity gaps in technical skills regardless of the level of experience. In Katsina, ACE found that experience was positively correlated with competency in the service and delivery capacity, suggesting that longer tenure helped staff in these areas. However, in other areas such as monitoring and evaluation (M&E), logistics, and human resource management (HRM), there was evidence of a decline in performance with increasing years of experience, potentially due to a shift from hands-on roles to more administrative functions. This decline drove home the importance of continuous skills upgrading for staff who transition into leadership roles. In Kebbi, however, there was no consistent pattern between years of experience and competency across different EPI themes.

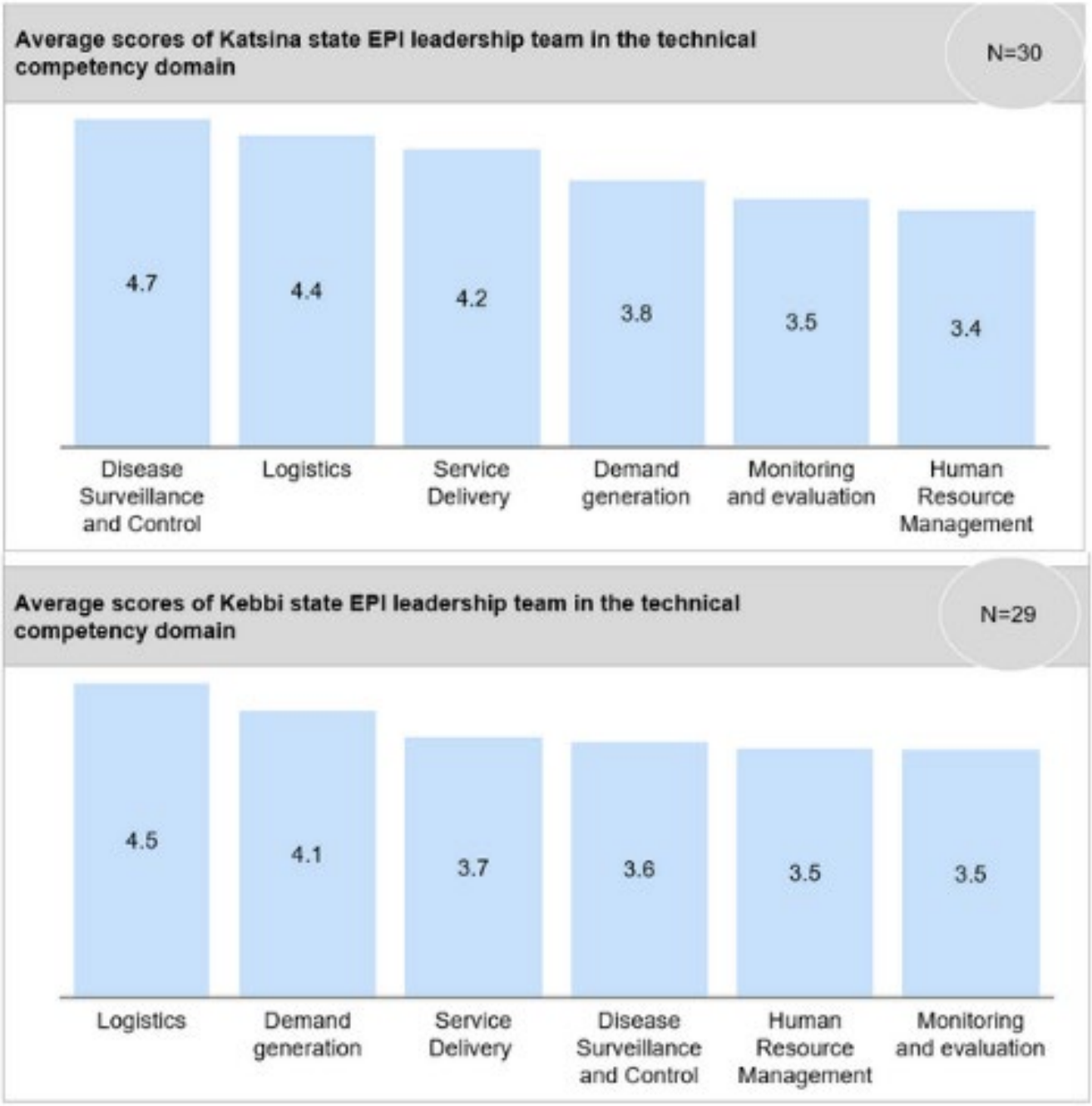

Figure 4: Respondents Technical Competency Self-Assessment (Scale: 0-5)

Key Findings

This assessment identified critical gaps in the leadership and management capacity for the routine immunization program in Katsina and Kebbi but also highlighted successes and gaps in the measurement of leadership and management capacity in Nigeria.

01 Measuring the foundational routine immunization program knowledge of the staff is important and may correlate to the performance of the staff.

02 Beyond technical knowledge, it is important to assess a wide range of management skills, including conflict management, public speaking, problem-solving, team leadership, feedback and coaching, work planning, stakeholder management, data analysis, and performance management, as these are essential for effective program management.

03 For a capacity assessment that is focused on the management of an EPI program, it is important to assess program-specific 'technical' competencies that are focused on disease surveillance and routine immunization service delivery.

04 The degree of computer literacy impacts technical skills like data management and computer literacy.

05 Ongoing technical training and mentorship, particularly for staff with long tenures who may be at risk of stagnation in their leadership and management capabilities, are essential.

Challenges Experienced with the Assessment

Throughout the course of the assessment, two main challenges emerged that significantly impacted the progress of the project. Firstly, limited collaboration due to conflicting schedules or reluctance to expose potential gaps in performance at the state level slowed down the assessment. In addition, the limited project timeline also impacted on the assessment.

Where Do We Go from Here?

Addressing the leadership and management capacity gaps uncovered in Nigeria's immunization programs is critical for accelerating progress toward equitable vaccine coverage across the country. While improvements have been made in vaccine supply and infrastructure, achieving optimal immunization coverage in every LGA and state depends largely on the strength of local leadership, the efficiency of operational systems, and the accountability mechanisms that drive performance.

In response to the identified gaps, the Consortium designed and implemented a comprehensive LMC training tailored to the needs of immunization officers at state and LGA levels.
The training focused on core leadership competencies, strategic management, data use for decision-making, team supervision, and adaptive problem-solving. This capacity-building effort aimed to equip participants with the practical tools and mindset needed to lead immunization programs more effectively within their contexts.

Building resilient leadership requires more than one-off interventions. It demands sustained investment in continuous learning, mentorship, and the institutionalization of performance management frameworks that reflect local realities. These efforts will not only improve routine immunization outcomes but also enhance the broader health system's ability to respond to disease outbreaks and public health emergencies with agility and precision.

As Nigeria and other low- and middle-income countries move forward, integrating leadership measurement into routine health system monitoring will be essential for sustaining progress. Combining data-driven insights with contextual understanding will enable governments and development partners to better target support, empower frontline managers, and ensure that immunization programs reach the children who need them most, especially those in underserved, marginalized, and hard-to-reach communities.

Building resilient leadership requires more than one-off interventions. It demands sustained investment in continuous learning, mentorship, and the institutionalization of performance management frameworks that reflect local realities.

ABOUT ACE STRATEGY AND CONSULTS LIMITED

ACE Strategy and Consults Limited is a consulting firm that supports individuals and organizations in addressing challenges by utilizing innovative problem-solving, providing deep context-specific experience, and real-time insight. Our approach enables our clients to perform data-driven decision-making in a rapidly developing context. We build and strengthen systems through evidence-based processes, iterate design thinking and an obsession with quality. We instil resilience through human-centered capacity-building that maximises insights from knowledge management.

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