



Enhancing collaborative efforts for health services delivery among Federal Medical Centres in North-West, Nigeria

Buhari Ahmad Ibrahim

Department of Library and Information Science, Federal Polytechnic Daura, Katsina, Nigeria

Abstract

This study was premised on the enhancing collaborative efforts among Federal Medical Centres (FMCs) in the North-West to share and exchange resources for effective support and service delivery. Effective collaboration can lead to numerous benefits, including improved resource allocation, enhanced service delivery, increased innovation, and better health outcomes. The study adopted a qualitative approach using interview schedule to general responses from the research population. The study uses thirty-one (31) participants included hospital administrators, medical directors, senior healthcare professionals, and policy-makers. Thematic content analysis was conducted to highlight the enhancing collaborative efforts among federal medical centres to improve healthcare services and increase access to resources for effective healthcare service delivery. Challenges affecting collaboration include poor funding, shortage of qualified personnel, communication barriers among others. This study recommended that there is need for increase funding and creating synergy for seamless resource sharing among the FMCs.

Keywords: Collaboration, resource sharing, Federal Medical Centres, health service delivery

Introduction

Federal Medical Centres (FMCs) play a crucial role in addressing the health challenges in and out the country. They are tertiary healthcare institutions that provide specialized medical/health services, conduct medical research, and offer training programs for healthcare professionals. Despite their importance, FMCs in Northwest Nigeria face numerous operational challenges that limit their effectiveness. These include inadequate funding, poor infrastructure, workforce shortages and lack of advanced medical technology (Ibrahim, 2022) [8]. Moreover, the fragmented nature of healthcare delivery with limited coordination and collaboration among FMCs, hampers efforts to improve healthcare outcomes.

Northwestern (NW) Nigeria that comprises seven states of Jigawa, Kano, Kaduna, Katsina, Kebbi, Sokoto, and Zamfara is characterized by a high population density, diverse socio-economic conditions and varying healthcare needs at different levels. The region faces significant public health challenges, including high rates of infectious diseases, maternal and child mortality, and non-communicable diseases (Eze, 2020) [6]. The healthcare infrastructure is often inadequate, with limited access to essential medical supplies, outdated equipment, and insufficient healthcare workforce. These issues are exacerbated by socio-political instability and economic constraints, further straining the healthcare system (Ogundipe, 2022) [14]. Northwest Nigeria is characterized by a high prevalence of communicable diseases such as malaria, tuberculosis, and meningitis as well as increasing burdens of non-communicable diseases like hypertension and diabetes. Federal Medical Centres are pivotal in addressing these health challenges, but they often operate under significant constraints, including limited funding, inadequate staffing, and outdated infrastructure (Nwafor, 2020) [13]. These factors underscore the importance of exploring collaborative approaches to optimize healthcare service delivery.

Collaboration among healthcare institutions is widely recognized as a key driver of health system strengthening. Effective collaboration can lead to numerous benefits, including improved resource allocation, enhanced service delivery, increased innovation, and better health outcomes. In the context of FMCs in Northwest Nigeria, collaboration can facilitate the sharing of resources, knowledge, and evidence based best practices, enabling these institutions to overcome common challenges and optimise their operations (Yusuf, 2021; Adebayo, 2019) [1, 19]. In Northwest Nigeria, FMCs play a crucial role in providing healthcare services to a diverse and often underserved population. However, these institutions face numerous challenges, including resource constraints, infrastructural deficiencies and the burden of complex healthcare needs. Collaborative efforts among FMCs have been identified as a potential strategy to enhance healthcare delivery by pooling resources together, sharing expertise and improving efficiency. Effective collaboration among FMCs also leads to improved service delivery, when FMCs work together; they can develop standardised protocols and guidelines, ensuring consistency in patient care. This standardisation is crucial for maintaining high-quality care across different centres. Additionally, collaboration can streamline the referral process, enabling patients to access specialised services more efficiently. In a region where healthcare resources are stretched thin, such efficiencies can significantly impact patient outcomes, ensuring that timely and appropriate care is provided.

Objectives of the Study

1. To assess the current state and nature of inter-FMC collaboration in North-West Nigeria
2. To identify the key facilitators and barriers influencing collaboration among the FMCs
3. To evaluate the impact of existing collaborative practices on key health service delivery indicators,

4. To determine the specific needs and priorities of the FMCs for a more robust collaborative framework
5. To propose a sustainable, context-specific strategic framework for enhancing collaboration among the FMCs.

Statement of the Problem

Federal medical centres in Northwest Nigeria face a critical crisis in resource distribution and utilization, characterized by inadequate funding, shortages of essential medical supplies and equipment, and significant human resource constraints. These issues are compounded by dilapidated infrastructure, including unreliable power and water supply, which disrupts medical procedures and compromises care (Yusuf, 2021) ^[19]. Furthermore, a shortage of qualified medical personnel, driven by poor working conditions and limited career advancement, has led to an uneven distribution of healthcare workers, leaving rural areas severely underserved (Adebayo, 2019) ^[11].

Compounding these resource challenges is a systemic lack of collaboration and an absent robust health information system. The centres often operate in isolation, with little data sharing due to bureaucratic bottlenecks and competition for resources. This fragmentation impedes effective monitoring of health outcomes, efficient resource allocation, and a coordinated response to public health emergencies (Nwafor, 2020) ^[13]. The absence of standardized data and coordinated efforts ultimately undermines the ability to leverage collective expertise and implement evidence-based interventions, prompting this study.

Current State of Collaboration among FMCs in Northwest Nigeria

Federal Medicinal Centers in the country are established to support and care the need of the citizen in the area of health services; this can be achieved effective when they collaborate with one another. According to Okeke (2022) ^[16], despite the potential benefits, collaboration among FMCs in Northwest Nigeria is currently limited. Several factors contribute to this, including bureaucratic bottlenecks, lack of trust, resource constraints, poor communication, and inadequate infrastructure.

1. **Bureaucratic Bottlenecks:** Rigid administrative processes and regulations often hinder the implementation of collaborative initiatives. The lack of a streamlined framework for inter-institutional cooperation creates delays and complicates the coordination of efforts.
2. **Lack of Trust:** Trust issues among FMCs also impede collaboration. Competition for limited resources and a history of poor cooperation contribute to a lack of trust, making it difficult for centres to work together effectively.
3. **Resource Constraints:** Resource constraints, including shortages of essential medical supplies, equipment, and funding, further limit the capacity of FMCs to engage in collaborative activities. Many centres struggle to meet their basic operational needs, leaving little room for joint initiatives.
4. **Poor Communication:** Effective collaboration requires clear and open communication. However, many FMCs

in Northwest Nigeria struggle with poor communication channels, hindering their ability to coordinate efforts and share information.

5. **Inadequate Infrastructure:** Inadequate infrastructure, including dilapidated buildings, outdated medical equipment, and insufficient power and water supply, poses significant challenges to collaboration. These infrastructure deficits make it difficult to implement and sustain joint initiatives.

Strategies to Enhance Collaboration

The following were the strategies to enhance Collaboration among FMCs in Northwest, Nigeria

1. **Establishing Regional Health Networks:** One of the key strategies to enhance collaboration among federal medical centres in Northwest Nigeria is the establishment of regional health networks. These networks can facilitate the coordination and integration of healthcare services, promote the sharing of resources and information, and ensure consistency in service delivery. Regional health networks can also provide a platform for joint planning, monitoring, and evaluation of health programs and interventions. For example, the establishment of a regional health network can facilitate the joint procurement of medical supplies and equipment, leading to cost savings and improved availability of essential items (Osinubi, 2021) ^[18].
2. **Strengthening Health Information Systems:** Developing and implementing robust health information systems is essential to enhance collaboration among federal medical centres. Integrated health information systems can facilitate the sharing of data and information, enable real-time monitoring and evaluation of health outcomes, and support evidence-based decision-making. This can be achieved through the development of standardized data collection and reporting mechanisms, the implementation of electronic health records, and the establishment of data-sharing agreements among federal medical centres. For instance, the implementation of electronic health records can improve the continuity of care by ensuring that patient information is readily available across different centres (Ihekweazu, 2020) ^[9].
3. **Capacity Building and Training:** Capacity-building initiatives are crucial to enhance collaboration among federal medical centres. Joint training programs and workshops can help to address human resource constraints, improve the skills and competencies of healthcare workers, and promote the adoption of best practices. These initiatives can also foster a culture of teamwork and collaboration, which is essential for effective inter-institutional cooperation. For example, joint training programs on emergency response and management can enhance the ability of healthcare workers to respond promptly and effectively to public health emergencies (Ajayi, 2019) ^[3].
4. **Promoting Policy and Regulatory Reforms:** Policy and regulatory reforms are essential to create an enabling environment for collaboration among federal medical centres. This includes the development and

implementation of policies and regulations that promote inter-institutional cooperation, reduce bureaucratic bottlenecks, and ensure accountability and transparency. For example, the development of policies that incentivize collaboration, such as funding mechanisms that reward joint initiatives and partnerships, can encourage federal medical centres to work together. Additionally, regulatory reforms that streamline administrative processes and reduce bureaucratic barriers can facilitate the implementation of collaborative efforts (Ogundipe, 2022) ^[14].

5. Enhancing Community Engagement: Community engagement is critical to enhance collaboration among federal medical centres. Engaging communities in the planning and implementation of healthcare programs and interventions can help to ensure that their needs and preferences are taken into account. This can also foster trust and cooperation between healthcare providers and communities, which is essential for effective collaboration. For example, community engagement initiatives, such as community health committees and participatory planning processes, can provide a platform for dialogue and collaboration between federal medical centres and communities (Babalola, 2020) ^[4].

Methodology

A qualitative research method was adopted to explore the enhancing collaborative efforts among FMCs in Northwest Nigeria. The qualitative research is particularly suitable for understanding complex social phenomena, providing deep insights into the experiences, perceptions, and motivations of participants (Creswell & Poth, 2018) ^[5]. Data was collected through semi-structured interviews with key stakeholders from FMCs in Northwest Nigeria. The study uses thirty-one 31 participants including hospital administrators, medical directors, senior healthcare professionals, and policy-makers. The interviews gathered detailed information on their views regarding the needs, purposes, and challenges of partnership activities. The thematic content analysis was conducted highlights the needs for partnership activities to improve healthcare services and increase access to resources for effective healthcare service delivery. Thematic content analysis was used to analyze the interview data. This method involves identifying, analyzing, and reporting patterns thematically within the data. It is a flexible approach that provides rich, detailed, and complex accounts of data.

Results

Section A: Demographic Information of the Participants

Demographic Variable	Category	Frequency	Percentage (%)
FMC Location	FMC, Birnin Kebbi	8	25.8%
	FMC, Gusau	7	22.6%
	FMC, Daura	6	19.4%
	FMC, Sokoto	5	16.1%
	FMC, Dutse	5	16.1%
	Total	31	100%
Gender	Male	17	54.8%
	Female	14	45.2%
	Total	31	100%
Age	25 - 34 years	7	22.6%
	35 - 44 years	12	38.7%
	45 - 54 years	8	25.8%
	55 years and above	4	12.9%
	Total	31	100%
4. Highest Academic Qualification	B.Sc./HND	9	29.0%
	Master's Degree (M.Sc., MPH, etc.)	11	35.5%
	Doctorate Degree (Ph.D.)	3	9.7%
	Fellowship (Medical)	5	16.1%
	Other	3	9.7%
	Total	31	100%
Current Professional Designation	Medical Doctor/Consultant	6	19.4%
	Nurse/Midwife	7	22.6%
	Hospital Administrator/Manager	5	16.1%
	Head of Department/Unit	4	12.9%
	Laboratory Scientist/Pharmacist	5	16.1%
	Health Information Manager	2	6.5%
	Other	2	6.5%
	Total	31	100%
Years of Work Experience	Less than 5 years	6	19.4%
	5 - 10 years	10	32.3%
	11 - 15 years	8	25.8%
	16 years and above	7	22.6%
	Total	31	100%

The data provides a clear demographic snapshot of the 31 participants, revealing a diverse and experienced group of healthcare professionals. The participants are fairly evenly distributed across the five

Federal Medical Centres. FMC Birnin Kebbi has the highest representation (25.8%), followed closely by FMC Gusau (22.6%). The other three centers (Daura, Sokoto, and Dutse) have comparable representation.

There is a relatively balanced gender distribution, with a slight majority of male participants (54.8%) compared to females (45.2%).

Regarding the age of the respondents, the largest age group is 35-44 years (38.7%), indicating that the sample is predominantly composed of mid-career professionals. Combined with the 45-54 years group (25.8%), these two cohorts make up almost two-thirds of the participants (64.5%). A significant portion (22.6%) are younger professionals (25-34 years).

Furthermore, the most common qualification is a Master's Degree (35.5%), followed by a Bachelor's degree (29.0%). There is a strong representation of highly qualified individuals, with 25.8% holding either a Doctorate (9.7%) or a Medical Fellowship (16.1%).

The sample represents a good mix of key hospital roles. Nurses/Midwives (22.6%) and Medical Doctors/Consultants (19.4%) form the largest groups. There is also strong representation from administrative and technical staff, including Hospital Administrators/Managers (16.1%) and Laboratory Scientists/Pharmacists (16.1%).

Based on the data collected, the sample is highly experienced. The majority (80.6%) have more than 5 years of experience. The largest single group has 5-10 years of experience (32.3%). Notably, almost half of the participants (48.4%) have 11 or more years of experience.

Section B: Using thematic content analysis, the following themes were generated;

This report presents a thematic analysis of qualitative data gathered from six key healthcare professionals across Federal Medical Centres (FMCs) in North-West Nigeria. The purpose is to explore the multifaceted nature of inter-departmental and inter-professional collaboration, identifying key facilitators, barriers, and perceived impacts on patient care. The analysis is structured around five pre-defined themes: Communication Channels, Leadership and Support, Technology's Role, Impact on Patient Outcomes, and Collaboration and Partnership.

In-depth interviews were conducted with a purposively selected sample of healthcare workers representing the core pillars of clinical and administrative services.

Thematic analysis was employed to identify, analyze, and report patterns (themes) within the data. Responses were coded and grouped to highlight convergent and divergent views across the participant groups.

Participants (Assigned Pseudonyms)

1. **Dr. Aliyu Bello:** Medical Doctor/Consultant
2. **Nurse Aisha Sani:** Nurse/Midwife
3. **Mr. Yusuf Ahmad:** Hospital Administrator/Manager
4. **Mrs. Fatima Usman:** Head of Department (Medicine)
5. **Mr. Ayo David:** Laboratory Scientist/Pharmacist
6. **Ms. Zainab Abdullahi:** Health Information Manager

Communication Channels

This theme explores the formal and informal methods of information exchange between departments and professionals.

- **Dr. Aliyu Bello (Consultant):** "Our primary channel remains the paper-based patient file, which is highly inefficient. Critical lab results or consultant notes often get lost between wards. We have WhatsApp groups for emergencies, but this is unstructured and raises

confidentiality concerns. There is a severe lack of formal, inter-departmental meetings."

- **Nurse Aisha Sani (Nurse/Midwife):** "Most communication is verbal during ward rounds. We nurse are often the link between the doctor, the lab, and the pharmacy. It's stressful because messages can be misunderstood. We need a standardised way to send and receive requests, like a digital tasking system."
- **Mr. Ayo David (Laboratory Scientist):** "The communication from the wards to the lab is one-way and often incomplete. Request forms come with missing or unclear clinical information. We have no efficient way to flag a critical result back to the doctor immediately; it's either a phone call that gets delayed or a paper report that sits in a tray."
- **Ms. Zainab Abdullahi (Health Information Manager):** "The entire system is fragmented. Patient data exists in silos: paper files in the wards, digital data in the lab, and finance data in the admin office. My department struggles to compile a complete patient record for reporting and decision-making because there is no integrated Health Information Exchange platform."

Convergent Views: All participants identified the reliance on paper-based, unstructured, and one-way communication as a critical barrier. Nurses, Laboratory Scientists, and Health Information Managers specifically highlighted their role as unintended "communication bridges" and the inherent risks of errors and delays in this model. There was a unanimous, though unspecific, desire for a more structured, digital system.

Leadership and Support

This theme examines the role of management and departmental heads in fostering a collaborative environment.

- **Mr. Yusuf Ahmad (Hospital Administrator):** "Leadership's role is to provide the enabling environment and resources. However, we are constrained by budgets. The 'silo mentality' is a cultural issue that leadership is trying to break through joint performance metrics, but it's a slow process."
- **Mrs. Fatima Usman (Head of Department):** "As a HoD, I encourage my consultants to liaise directly with their counterparts in other departments. However, there is a lack of top-down policy from the Medical Director's office mandating and rewarding collaboration. Without that, it remains optional and personality-dependent."
- **Nurse Aisha Sani (Nurse/Midwife):** "Support from leadership? It feels like we are not heard. When we report issues like shortages that prevent collaboration, the response is slow. There's a hierarchy that sometimes stifles open communication from junior staff to management."
- **Dr. Aliyu Bello (Consultant):** "Leadership must move beyond just administering and become champions of collaboration. They should institute formal

collaboration frameworks, like mandatory weekly case review meetings involving all relevant departments, and hold us accountable for participating."

Convergent Views: Mr. Ahmad, Mrs. Usman, and Dr. Bello all acknowledged leadership's pivotal role but from different angles. While the Administrator cited resource constraints, the HoD and Consultant pointed to a lack of strategic, top-down policies and frameworks that make collaboration a compulsory, measured part of clinical practice. Nurse Aisha's view adds that the hierarchical structure can be a barrier to upward feedback.

Technology's Role

This theme assesses the current state and potential of technology to bridge collaboration gaps.

- **Ms. Zainab Abdullahi (Health Information Manager):** "Technology is the single biggest game-changer we are missing. A unified Electronic Medical Record (EMR) system would solve 70% of our communication problems. It would allow real-time access to patient data for authorised personnel across all departments, from admission to discharge."
- **Mr. Ayo David (Laboratory Scientist):** "An integrated Laboratory Information System (LIS) that talks to the main hospital EMR is crucial. Doctors could see results as soon as we verify them, eliminating delays and transcription errors. It would also reduce the number of verbal queries we have to handle, freeing us for more critical work."
- **Dr. Aliyu Bello (Consultant):** "Telemedicine platforms could be used for inter-FMC specialist consultations within the North-West region. This would allow us to share expertise and manage complex cases without transferring patients, which is costly and risky."
- **Mr. Yusuf Ahmad (Hospital Administrator):** "I see technology as a double-edged sword. It requires significant capital investment and continuous maintenance. However, the long-term efficiency gains reduced paperwork, faster turnaround times, better inventory management justify the cost. We need a phased, sustainable plan for its implementation."

Convergent Views: There is a strong, unified consensus on the transformative potential of technology. The Health Information Manager, Laboratory Scientist, and Consultant provided specific examples (EMR, LIS, Telemedicine), while the Administrator acknowledged the benefits but highlighted the critical challenges of cost and sustainability. All view technology as the central solution to the communication issues identified in communication channels.

Impact on Patient Outcomes

This theme captures the perceived effects of current collaboration levels on the quality of patient care.

- **Nurse Aisha Sani (Nurse/Midwife):** "The delays are the most visible impact. A patient might wait for hours for a prescribed drug because the pharmacy hasn't received the request, or a surgery is postponed because the lab report isn't on the file. This directly affects patient satisfaction and recovery."

- **Dr. Aliyu Bello (Consultant):** "Poor collaboration leads to suboptimal clinical decisions. If I don't have a timely and complete picture from the lab, radiology, and the pharmacist, I am making decisions with incomplete information. This can lead to medication errors, missed diagnoses, and prolonged hospital stays."
- **Mr. Ayo David (Laboratory Scientist):** "I've seen cases where a critical value like a very high blood sugar was reported but didn't reach the doctor in time. The potential for patient harm is real. Effective collaboration is not an administrative luxury; it's a patient safety issue."
- **Mrs. Fatima Usman (Head of Department):** "From a departmental view, poor collaboration fragments the patient's journey. It creates a disjointed experience where the patient has to repeat their story to different people and navigate a system that doesn't seem to be working together. This erodes trust in our institution."

Convergent Views: All participants directly linked weak collaboration to negative patient outcomes. The perspectives covered a spectrum from operational delays (Nurse Aisha) and clinical decision-making risks (Dr. Bello) to critical patient safety concerns (Mr. Ayo) and overall patient experience (Mrs. Usman). The view is unanimous that collaboration is intrinsically tied to care quality and safety.

Collaboration and Partnership

This theme explores the existing models and future potential for formalized partnerships.

- **Mr. Yusuf Ahmad (Hospital Administrator):** "There is potential for inter-FMC partnerships in areas like bulk procurement of medical supplies to reduce costs, and shared training programs for staff. This requires Memoranda of Understanding (MoUs) at the management level."
- **Mrs. Fatima Usman (Head of Department):** "Clinical partnerships, such as creating specialist networks for cardiology or oncology across the North-West FMCs, would be powerful. We could develop shared protocols and rotate specialists to build capacity, reducing the need for patients to travel to the South."
- **Dr. Aliyu Bello (Consultant):** "I support Mrs. Usman's point. We need formal Clinical Governance Committees with representatives from medicine, nursing, pharmacy, lab, and admin. This committee would oversee patient care standards and troubleshoot collaboration issues, making partnership operational, not just theoretical."
- **Ms. Zainab Abdullahi (Health Information Manager):** "A partnership could start with data. If all FMCs in the region adopted a similar EMR system, we could create a regional health database. This would be invaluable for disease surveillance, tracking epidemics, and health planning for the entire North-West zone."

Convergent Views: Participants envisioned collaboration and partnership at different levels: managerial (Mr. Ahmad), clinical (Mrs. Usman, Dr. Bello), and technological (Ms. Zainab). There is a shared vision that moving beyond ad-

hoc cooperation to structured, formalized partnerships are the key to sustainable improvement. The ideas of shared resources, clinical networks, and data integration were highlighted as concrete steps forward.

Findings and Discussion

Findings

The analysis of participant responses revealed three central themes that illuminate the barriers to and potential enablers of effective inter-departmental collaboration: Communication Channels, Leadership and Support, and Technology's Role.

Communication Channels

The findings indicate that communication within the hospital is predominantly reliant on inefficient, unstructured, and one-way methods. The primary formal channel, the paper-based patient file, was identified by Dr. Aliyu Bello as "highly inefficient," leading to lost critical information (Bello). This fragmentation was further emphasized by Ms. Zainab Abdullahi, who noted that patient data exists in "silos," preventing the compilation of a complete health record (Abdullahi).

A key finding is the reliance on informal and risky communication bridges. Nurse Aisha Sani described nurses acting as the stressful "link" between departments through verbal messages, which are prone to being misunderstood (Sani). Similarly, Mr. Ayo David highlighted a broken feedback loop, where the lab lacks an "efficient way to flag a critical result back to the doctor immediately," relying instead on delayed phone calls or paper reports (David). Convergent views confirmed that all participants saw the current communication model as a critical barrier, creating risks of errors and delays.

Leadership and Support

Leadership was identified as a critical factor in fostering collaboration, but current leadership approaches were perceived as insufficient. Mr. O Ahmad, the Hospital Administrator, acknowledged leadership's role in providing an "enabling environment" but cited "budget" constraints and a deep-seated "silo mentality" as significant challenges (Ahmad).

However, other participants pointed to a lack of strategic direction from the top. Mrs. Fatima Usman stated there is a "lack of top-down policy from the Medical Director's office mandating and rewarding collaboration," making it "optional and personality-dependent" (Usman). Dr. Bello reinforced this, asserting that "leadership must move beyond just administering" and institute "formal collaboration frameworks" with accountability (Bello). Nurse Aisha Sani's perspective added a crucial dimension, revealing that the hierarchical structure can "stifle open communication from junior staff to management," suggesting a disconnect between leadership and frontline staff (Sani).

Technology Role

There was a strong, unified consensus among participants on technology as the central solution to collaboration gaps. Ms. Zainab Abdullahi positioned a "unified Electronic Medical Record (EMR)" as a potential solution to "70% of our communication problems" by allowing real-time, cross-departmental access to patient data (Abdullahi). This was supported by Mr. Ayo David, who advocated for an

integrated Laboratory Information System (LIS) to "eliminate delays and transcription errors" (David).

The vision for technology extended beyond internal communication to regional collaboration, with Dr. Bello proposing "Telemedicine platforms" for inter-specialist consultations (Bello). While Mr. Ahmad, the Administrator, concurred on the "long-term efficiency gains," he provided a critical counterpoint, describing technology as a "double-edged sword" due to its demands for "significant capital investment and continuous maintenance" (Ahmad). This highlights a convergent view on the potential of technology, tempered by a pragmatic understanding of the implementation hurdles.

Discussion

The findings from this study present a clear narrative: inter-departmental collaboration is severely hampered by archaic communication systems, a lack of enforced collaborative frameworks from leadership, and the absence of integrated technology. The discussion interprets these findings within the broader context of healthcare management.

The reliance on paper-based files and verbal handovers, as described by the participants, is indicative of a system operating below its potential. The identified issues lost files, misunderstood verbal messages, and incomplete request forms are classic symptoms of a fragmented system that increase the risk of medical errors and compromise patient safety (Kohn, Corrigan, & Donaldson, 2000) ^[10]. The emergent role of nurses and other staff as unintended "communication bridges" is particularly concerning. While this demonstrates professional dedication, it is an unsustainable and error-prone workflow that places undue stress on these professionals and formalizes a non-standardized, risky practice. The unanimous desire for a structured digital system is a direct response to these recognized inefficiencies and risks.

The findings suggest a gap between the recognition of leadership's importance and its effective execution. The Administrator's focus on budget constraints and cultural issues is a valid reality in resource-limited settings. However, the perspectives of the HoD and Consultant reveal that resource allocation alone is insufficient. The call for "top-down policy" and "mandatory... meetings" (Usman, Bello) underscores the need for leadership to actively design and mandate collaborative structures. As Gittel (2009) ^[7] argues in her theory of Relational Coordination, high-performance outcomes are achieved through shared goals, shared knowledge, and mutual respect, which are facilitated by formal communication and relational protocols. The current "personality-dependent" collaboration fails to embed these principles into the hospital's culture. Furthermore, Nurse Sani's experience of the hierarchy "stifling" communication indicates that leadership must also foster psychological safety and create flatter feedback channels to hear and act on frontline concerns.

The strong consensus on technology's role positions it not as a mere tool, but as a fundamental enabler of both process efficiency and a more collaborative culture. An integrated EMR/LIS system would directly address the critical failures in the communication chain identified in the first theme. By providing a single source of truth, it would eliminate data silos, reduce transcription errors, and ensure timely access to critical results, thereby empowering all departments (Menachemi & Collum, 2011) ^[11].

Mr. Ahmad's caution about cost and sustainability is a critical part of the discussion. A failed technology implementation can exacerbate existing problems. Therefore, a "phased, sustainable plan," as he suggested, is essential. However, the discussion must reframe technology not as a pure expense but as a strategic investment to offset the hidden costs of the current system—costs of delays, repeated tests, medical errors, and low staff morale. Dr. Bello's vision for telemedicine further illustrates how technology can transcend internal barriers to foster broader regional healthcare networks, potentially improving equity of access to specialist care.

Conclusion

It was concluded that enhancing collaborative efforts among federal medical centres in Northwest Nigeria is essential to address the numerous challenges they face and improve healthcare delivery in the region. Collaborative approaches can facilitate the sharing of resources, expertise, and information, leading to more efficient and effective healthcare delivery. This, in turn, can improve health outcomes, strengthen health systems, enhance efficiency and cost-effectiveness, facilitate knowledge sharing and innovation, and improve the ability to respond to public health emergencies. To achieve this, it is essential to establish regional health networks, strengthen health information systems, implement capacity-building initiatives, promote policy and regulatory reforms, and enhance community engagement. By working together, federal medical centres can leverage their collective strengths and resources to provide better healthcare services and ensure better health outcomes in Northwest Nigeria.

Recommendations

The following recommendations were made based on the findings:

1. There is need to increase funding and creating synergy for seamless resource sharing among the FMCs.
2. There is need to form consortia comprising FMCs and other healthcare stakeholders to coordinate resources and strategies for collective impact.
3. There is need to foster regular communication channels and networking opportunities among FMCs to share best practices, innovations, and challenges.
4. There is need to invest in training programs and continuous professional development for healthcare staff to build expertise and improve service quality.
5. There is need to collaborate on advocacy initiatives to influence healthcare policies, secure adequate funding, and address systemic challenges affecting FMCs.

References

1. Adebayo A. Human Resource Constraints in Healthcare Delivery in Nigeria. *Journal of Health Management*,2019;21(2):146–158.
2. Adeyemi O. Capacity Building Initiatives for Healthcare Workers in Nigeria. *Health Policy and Planning*,2019;34(1):45–56.
3. Ajayi T. Emergency Response and Management in Nigerian Healthcare. *Nigerian Journal of Medicine*,2019;28(3):213–222.
4. Babalola S. Community Engagement in Healthcare Delivery: Lessons from Nigeria. *International Journal of Community Medicine*,2020;5(4):239–248.

5. Creswell JW, Poth CN. *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. SAGE Publications, 2018.
6. Eze I. The Impact of COVID-19 on Healthcare Systems in Nigeria. *African Journal of Infectious Diseases*,2020;14(2):123–134.
7. Gittel JH. *High Performance Healthcare: Using the Power of Relationships to Achieve Quality, Efficiency and Resilience*. McGraw-Hill, 2009.
8. Ibrahim M. Challenges and Opportunities for Inter-institutional Collaboration in Nigerian Healthcare. *Public Health Reviews*,2022;39(5):310–325.
9. Ihekweazu C. The Role of Health Information Systems in Nigerian Healthcare. *Health Informatics Journal*,2020;26(1):67–77.
10. Kohn LT, Corrigan JM, Donaldson MS. *To Err Is Human: Building a Safer Health System*. National Academy Press, 2000.
11. Menachemi N, Collum TH. Benefits and Drawbacks of Electronic Health Record Systems. *Risk Management and Healthcare Policy*,2011;4(1):47–55.
12. Nwachukwu E. Innovation and Knowledge Sharing in Nigerian Healthcare. *Journal of Health Innovation*,2017;12(3):89–102.
13. Nwafor C. Fragmentation of Health Information Systems in Nigeria. *Global Health Action*,2020;13(1):123–134.
14. Ogundipe A. Policy and Regulatory Reforms in Nigerian Healthcare. *Health Policy Journal*,2022;22(3):189–202.
15. Okechukwu C. The Impact of Resource Shortages on Healthcare Delivery in Nigeria. *International Journal of Health Services*,2020;50(4):637–649.
16. Okeke P. Cost-Effectiveness of Collaborative Efforts in Nigerian Healthcare. *Journal of Health Economics*,2022;27(2):111–125.
17. Olumide F. Resource Allocation and Utilization in Nigerian Healthcare. *Nigerian Medical Journal*,2020;61(1):34–45.
18. Osinubi K. Establishing Regional Health Networks in Nigeria. *African Health Review*,2021;15(1):67–80.
19. Yusuf A. Infrastructure Challenges in Nigerian Healthcare. *Journal of Infrastructure Development*,2021;10(2):145–160.