Nigerian Journal of Perinatal and Neonatal Care

ORIGINAL ARTICLE

TITLE: REFORMING AND STRENGTHENING NEONATAL HEALTH CARE SYSTEM IN KADUNA STATE: FROM CALL TO ACTION

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Abstract

Background:

In 2022, 2.3 million neonatal deaths occurring in the first 20 days of life were reported worldwide. Kaduna state recorded the highest neonatal mortality (64/1000) in the country in 2018. One proven intervention to reduce the number of child and newborn deaths is the establishment of a specialized neonatal care units within health facilities. The establishment of a neonatal units comes with a comprehensive package with appropriate mix of trained staff equipped with appropriate knowledge and skills to use level- appropriate equipment to identify and treat diseases in neonates.

Objective: To describe the path to establishing a neonatal unit and challenges encountered.

Methods: The study is an operational-research to reform and strengthen in-

patient neonatal healthcare services in Kaduna state as part of reforming neonatal healthcare system in the state. A multi-level approach was adopted from assessment of facilities to remodeling design and establishment of the facility.

Results: a level II neonatal unit was established with appropriate level equipment, and staff were trained and equipped with knowledge and skills to provide services.

Conclusion: Establishment of neonatal units require robust plans and strategies as well as key stakeholder engagement and inputs. Established units would require ongoing support and mentoring to provide and maintain efficient services.

Keywords: Levels. neonatal care, inequity, disparity, health, system, facility.

Introduction

Globally, neonatal morbidity and mortality continues to attract attention. In 2022, 2.3 million neonatal deaths occurring in the first 20 days of life were reported worldwide.[1] In Nigeria, about 700 babies die daily amounting to around 30 babies dying every hour with the highest deaths recorded in the north western states.[2,3] In 2018 Kaduna state recorded the highest neonatal healthcare services as part of reforming and strengthening neonatal healthcare services in Kaduna state.**Aims**: To report, reformation and strengthening of in- patient neonatal healthcare services towards operationalization of standard levels I and II neonatal healthcare services in Kaduna State; outline the journey to the reform, successes, challenges and way forward.

Method: A multi- level operational research approach was adopted from assessment of facilities to remodeling design and establishment of the neonatal unit in a facility. Assessment was conducted to identify suitable facilities in each senatorial district of the state and a gap analysis carried out to determine the needs and requirement to establish a standard level I or II neonatal facility. A facility was selected from each of the senatorial district for remodeling as part of the immediate short- term strategy for the reformation of the neonatal healthcare system. The remodeling design of the neonatal unit

neonatal mortality (64/1000) in the country.[4] One proven intervention to reduce the number of child and newborn deaths is the establishment of specialized neonatal care units within health facilities.[5,6] Each unit is tailored to meet the specific health needs of the community, but generally includes provision of equipment like incubators, ventilators, and monitoring devices. The establishment of a neonatal units comes with a comprehensive package including appropriate mix of trained staff with additional training, mentoring for health facility staff on optimal and appropriate use and maintenance of neonatal unit equipment for identification, monitoring and treatment of diseases in newborns.[7,8]

The causes of neonatal death, though remained similar across the country,[1-4,9] an initial assessment showed a huge gap in the neonatal healthcare system in Kaduna state where standard and quality in- patient care for the common causes of neonatal morbidity and death remained unavailable.[10] The findings of the assessment necessitated an urgent call for the operationalization of standard functional public levels I and II in- patient

structure of the identified facilities were developed and budget estimates for the remodeling were also made. Partnership and support were sought. Approval and funding were obtained and a level II neonatal unit was established and operationalized including a training package for the unit staff.

Ethical approval for the study was obtained from the Health Research Ethics Committee of the Ahmadu Bello University Teaching Hospital Shika- Zaria (ABUTH/ HREC/ B23/ 2025).

Results: There were 30 public general hospitals across the 23 local governments in the state. Only 3 of these general hospitals provided some form of neonatal care or services. One each was located in the 3 senatorial districts. Remodeling of the neonatal unit facility in each of the 3 facilities were designed including building plan, architectural design (Fig1A- C) and comprehensive budget proposal for the remodeling, equipping and operation of the proposed level of neonatal care.

Figure 1A. Architectural Plan of the Proposed Remodel of Yusuf Dantsoho Memorial Hospital (YDMH) Neonatal Unit

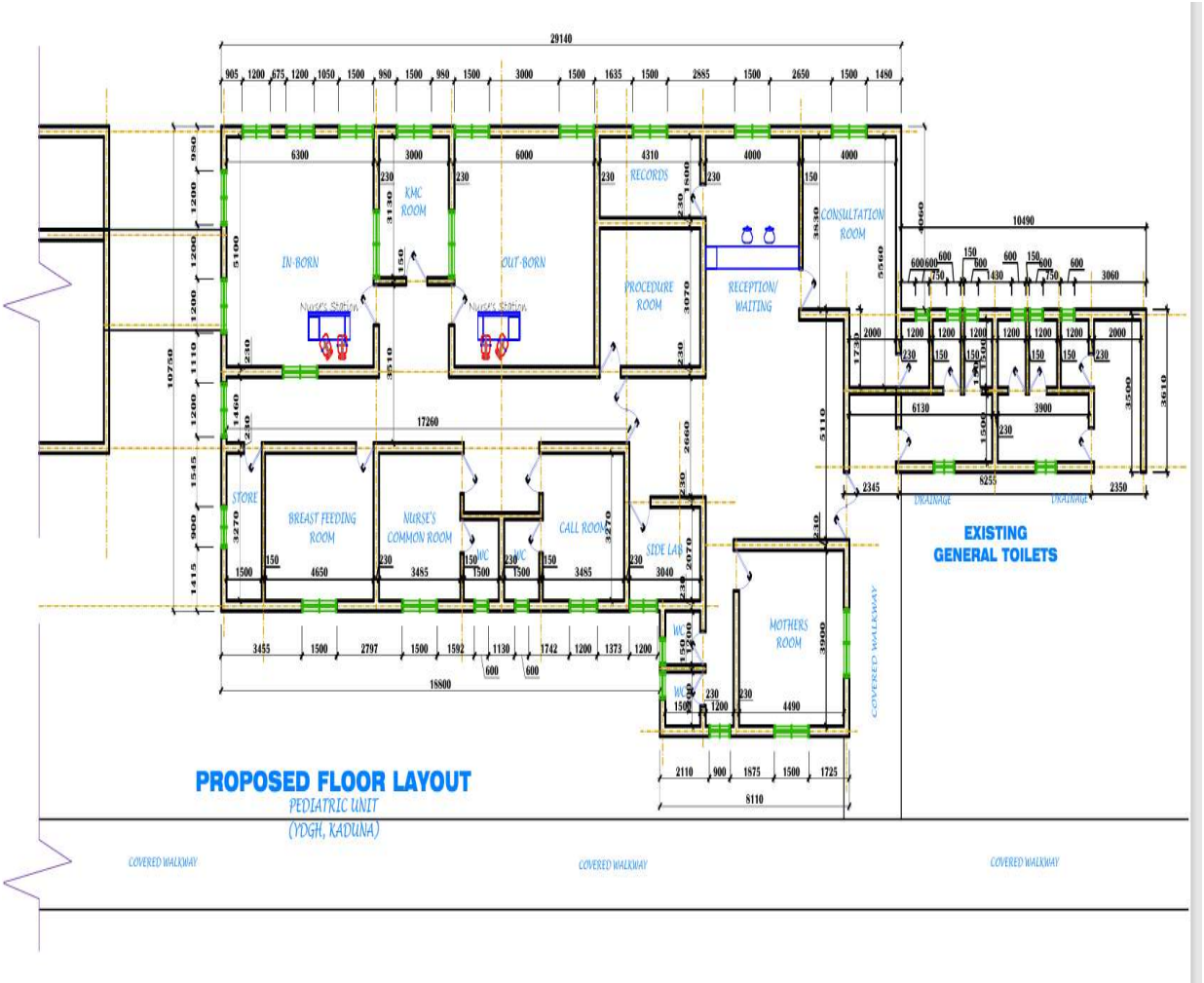


Figure 1B. Architectural Plan of the Proposed Remodel of Sir Patrick Ibrahim Yakowa Memorial Hospital (SPIYMH) Kafanchan Neonatal Unit

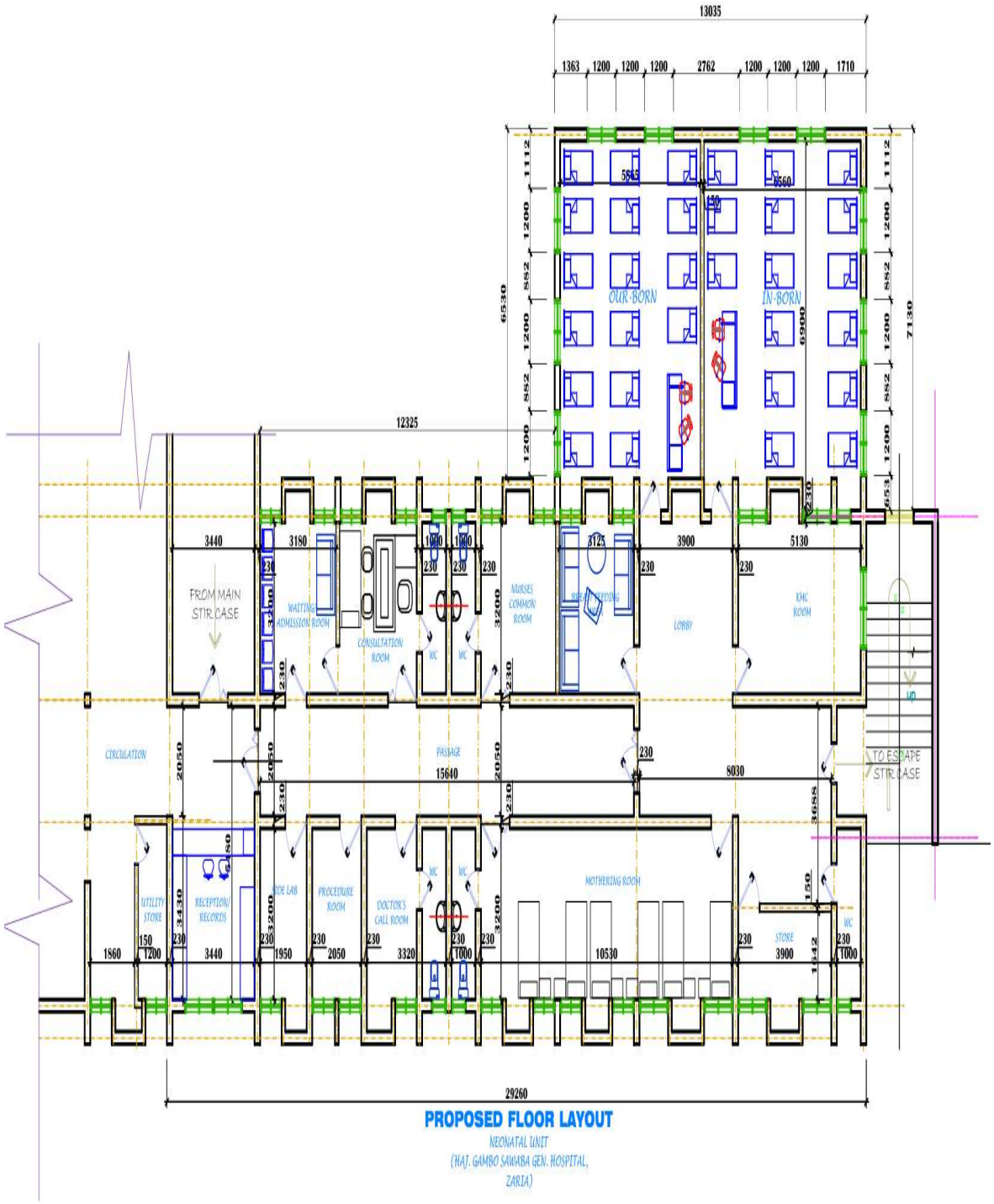
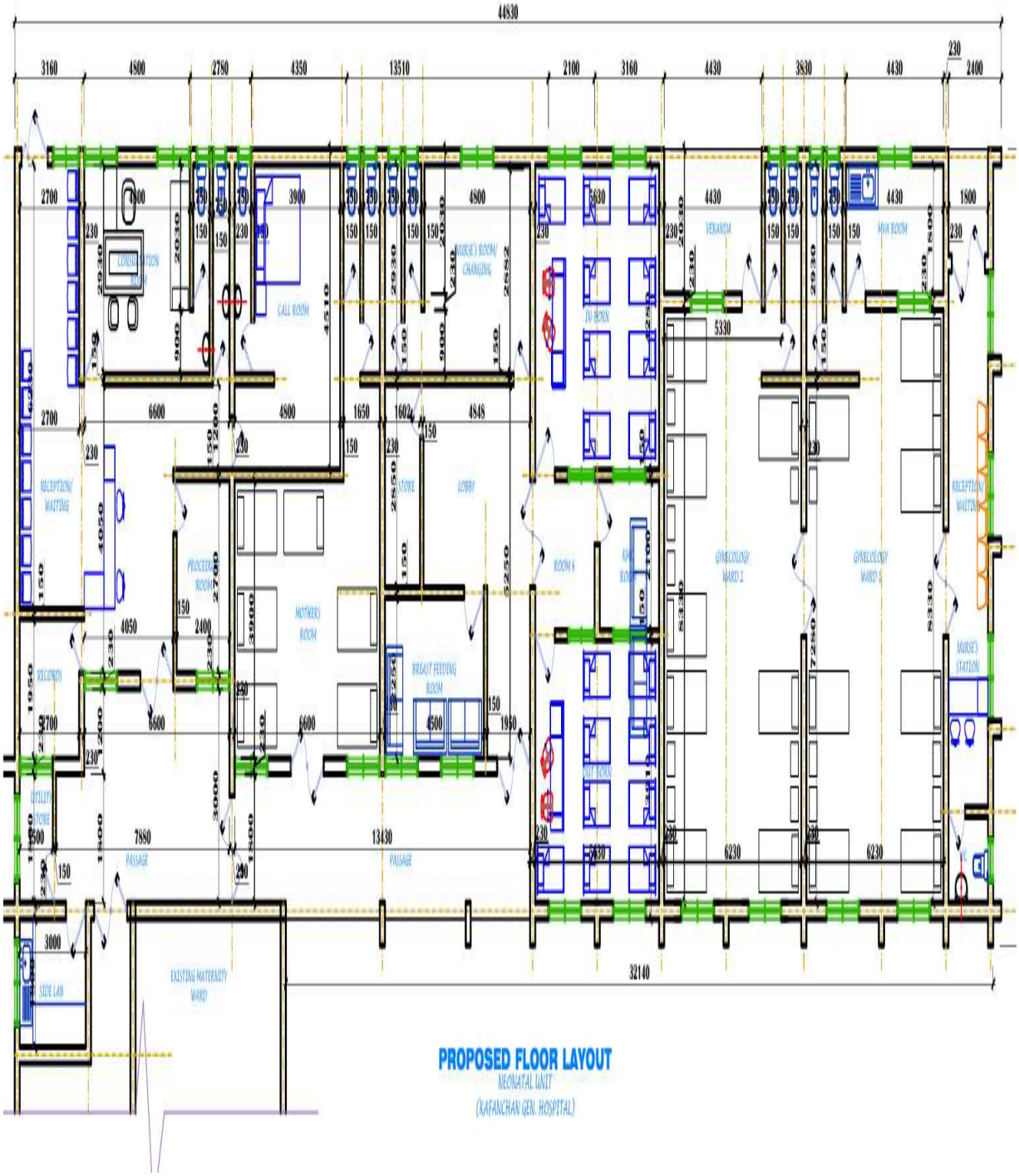


Figure 1C. Architectural Plan of the Proposed Remodel of Hajiya Gambo Sawaba General Hospital (HGSGH) Zaria Neonatal Unit.



With availability of funding support, Yusuf Dantsoho Memorial Hospital YDMH was selected and the proposal was implemented to establish a level II neonatal healthcare facility with the capacity to admit 15 neonates (Fig, 2A) with fully equipped distinct inborn (Fig 2B) and outborn (Fig 2C) wards, breastfeeding area, mothers' room, Kangaroo Mother's room, consulting room, resuscitation/ procedure area and ensuite call rooms. The unit also received level-appropriate equipment for services (Fig, 2D).

Figure 2A. Entrance of the remodeled Neonatal Unit Yusuf Dantsoho Memorial Hospital Kaduna

Figure 2B. Inborn ward Neonatal Unit Yusuf Dantsoho Memorial Hospital Kadu

Figure 2C. Outborn ward Neonatal Unit Yusuf Dantsoho Memorial Hospital Kaduna

Figure 2D. Equipment: Oxygen splitter, CPAP Machine, Incubator, phototherapy machines, infusion pump and cots in the Neonatal Unit Yusuf Dantsoho Memorial Hospital Kaduna

Selected staff, including doctors (Medical officers) and nurses underwent target-oriented training programme to impart appropriate level knowledge and skills (essential newborn care and advanced newborn care) towards operationalizing the unit and to equip them to provide appropriate level newborn care. The training programme included a full training on neonatal life support and management of common newborn illnesses with protocols to support staff. Training on use of equipment, machines and materials was also provided as part of the package. They continue to receive on- site mentoring and support (Fig. 3) and plan is on for them to undertake short rotational job- need targeted posting at a level III or level IV neonatal units within the state.

Figure 3. On- site, on the Job mentoring and staff training at Yusuf Dantsoho Memorial Hospital

Discussion The establishment of neonatal units to provide optimal standard, appropriate level in- patient care for common causes of morbidities and mortalities remains an important strategy to better outcomes, reduce sequalae and mortalities. The lack of neonatal units in any healthcare system creates a huge gap in the comprehensive and successful care of newborns.

Establishing functional and standard neonatal care units is capital intensive, which explains why their availability and adequacy in developing countries remains challenging. Establishment of neonatal units requires robust short-, intermediate- and long- term plans and strategies to explore numerous stakeholders' collaboration, engagement and inputs. The structural design of a neonatal unit must take into consideration all the necessary requirements to result in the construction of a safe and optimally functional unit with all the component sections for provision of comprehensive appropriate level of care and support. Availability of a befitting structure and appropriate equipment are very important requirements for a neonatal unit. Equally

important is the availability of appropriate mix of highly skilled staff to provide quality services. The collaboration of government with partners and technical experts led to the successful establishment of the unit. Of particular interest is the approach to training the clinical human resource including doctors and nurses for the unit. A multi- level approach was adopted which included a six-days advanced newborn care training to equip providers with skills to operationalize the neonatal unit. The training also targeted improving knowledge on common neonatal conditions, use of protocols and skills to operate tools and equipment. This is followed by a clinical rotation in a level IV facility by individual staff to shadow appropriate staff and learn skills and improve knowledge. Facility also received mentors who visited at intervals to mentor providers and also carry out on the job training. A visiting neonatologist was also engaged to support staff and service provision.

A number of challenges were encountered with human resource training. These include the inadequacy of employed clinical staff to be trained due to gross in- state, in- country shortage and local and international migration of qualified care providers. Fewer staff than projected were trained and mobilized. Staff recruitment also faced challenges due to unmotivating pay package and lack of incentives. While these challenges still persist, we continue to explore solutions including sourcing for support to provide incentives to staff to work in the facility while mentoring is ongoing to support unit staff on skills and day to day running of the unit.

Conclusion: Establishment of neonatal units require robust short-, intermediate- and long-term plans and strategies to explore numerous stakeholder engagement and inputs. Notwithstanding the numerous challenges, the collaboration of appropriate stake holders resulted in the successful establishment of the unit. Established unit requires ongoing support and mentoring to provide and maintain efficient services and also to address evolving challenges

Author Contributions; AI conceptualized and designed the study with assistance from SM, NMI, NI and TS. AI drafted the manuscript and all authors contributed and revised the manuscript. All authors reviewed and approved the final version of the manuscript.

Competing interests: The authors declare no competing interests and have nothing to disclose.

Acknowledgement. The authors acknowledge the support of Eng Saidu Balarabe and his team for the architectural design and UNICEF for supporting the establishment of the facility.

Competing interests: The authors declare no competing interests and have nothing to disclose.

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