



# Technical report for the Operations Research study on clinical mentoring in Jigawa State

July 2013

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## ABBREVIATIONS

AKTH	Aminu Kano Teaching Hospital
BEOC	Basic Emergency Obstetrics Centre
CEOC	Comprehensive Emergency Obstetrics Centre
CHEW	Community Health Extension Worker
DfID	Department for International Development
DQA	Data Quality Assurance
EDD	Expected Due Date
FHC	Facility Health Committee
GHSB	Gunduma Health Systems Board
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
HMIS	Health Management Information System
HRH	Human Resources for Health
JCHEW	Junior Community Health Extension Worker
LGA	Local Government Area
MDGs	Millennium Development Goals
MNCH	Maternal, Newborn and Child Health
MVA	Manual Vacuum Aspiration
NMW	Nurse/Midwife
PAN	Pediatrics Association of Nigeria
PATHS2	Partnership for Transforming Health Systems Phase II
PHC	Primary Health Centre
SOGON	Society for Gynecologists in Nigeria
UK	United Kingdom
UNICEF	United Nations Children's Fund
WHO	World Health Organization

## SECTION ONE: EXECUTIVE SUMMARY

Health workforce is one of the key building blocks of the health system. Skilled manpower is crucial for the provision of effective healthcare services. Increasing the number of skilled health-care personnel remains a priority and is crucial to attain strategies such as the Millennium Development Goals (MDGs). But training and capacity building for full time health staff has remained a challenge in Africa. Work based training has been identified as a modality for transferring skills and knowledge among health workers. There is considerable evidence that work-based training has been successfully utilized to transfer knowledge and skills in several fields such as management of HIV/AIDS, neonatal care and family planning. Clinical mentoring is an aspect of work based training which applies practical training to build capacity among health care workers. A clinical mentor is typically a clinical practitioner e.g. a doctor or nurse with relevant experience, knowledge and skills that are transferable for the professional development of other less experienced health care workers. To be effective, clinical mentors typically remain practicing clinicians. A clinical mentoring intervention is expected to be beneficial for the mentors, the mentored health workers, health service delivery and the health facilities in which clinical mentoring is taking place.

A clinical mentoring programme was initiated in July 2012 in Jigawa State. The clinical mentoring intervention involves a partnership between the Jigawa State Government through the Gunduma Health Systems Board (GHSB) and the Partnership for Transforming Health Systems Phase 2 (PATHS2). This clinical mentoring intervention involves once weekly visits by clinical mentors to five selected health facilities across Jigawa State by consultant obstetricians and pediatricians. After 6 months, a post-implementation evaluation was undertaken early in 2013 with the following objectives: (i) determine whether there has been a significant increase in the knowledge and clinical skills of mentored health workers as a result of the implementation of clinical mentoring (ii) determine whether the clinical mentoring programme has considerable benefits for improving the functioning and operations of health facilities in order to provide better quality maternal, newborn and child health services.(iii) determine whether clinical mentoring has impacted beneficially on maternal and newborn health statistics as well as other health performance parameters and finally to determine how the clinical mentoring programme could be improved. Pretest questionnaires were administered to test the knowledge of the health workers recruited into the clinical mentoring programme in Jigawa State. These same questionnaires were also used as a 'posttest' to evaluate the *improvement* in knowledge of the mentored health workers after a 6 months period. In addition, in-depth interviews were carried out with the mentored health workers. In-depth interviews were also held with Gunduma health system officials in Jigawa State. Key informant interviews with the clinical mentors and health facility departmental in-charges (obstetrics & pediatrics) were also carried out using semi-structured key informant interview guidelines. Operational and service statistics from the health facilities participating in the clinical mentoring intervention were reviewed 6 months before the start of the programme as well as 6 months after. These were the key methodological approaches utilized for the operations research study/evaluation of the clinical mentoring programme in Jigawa State.

Findings across the health facilities show improvement for most of the studied health parameters. All the facilities recorded some form of improvement of their health indices

during the evaluation period. New interventions were introduced for the first time during the clinical mentoring intervention. For instance, mortality review meetings were introduced in Hadejia General Hospital, Gwaram Cottage hospital and Basirka PHC; manual vacuum aspirations were also introduced at Basirka PHC. Furthermore maternal deaths decreased at Ringim General Hospital, Hadejia General Hospital and Garki PHC. Neonatal deaths also decreased at Garki and Basirka PHCs. While these indices suggest improvements, it is difficult to ascribe these benefits solely to this intervention as there could be other activities taking place in the health facilities that could be responsible for these improved health service statistics or could have contributed considerably. Some indices were unfortunately worse off in some health facilities. For example, there was an increase in neonatal deaths at Hadejia and Gwaram hospitals. However the officers in charge of all the maternity and pediatrics units of the studied health facilities expressed satisfaction with the clinical mentoring intervention; emphasizing the successes and advantages arising from the mentoring visits. Some of the benefits that were emphasized include increased confidence of health workers, better community mobilization for service utilization and reduced number of referrals. The clinical mentors introduced innovations such as clinical protocols e.g. MgSO<sub>4</sub> protocols for eclampsia management, manual vacuum aspirations, and mortality review meetings in health facilities participating in the clinical mentoring programme. The clinical mentors also indicated some benefits for them through participating in clinical mentoring e.g. through being exposed to a wider variety of clinical cases as well as increased work fulfillment through transferring knowledge and clinical skills to less skilled clinical staff. In addition, the mentored health workers indicated that clinical mentoring had a 'significant' or 'very significant' positive impact on such health facility activities as teaching of clinical staff, outpatient clinics, ward rounds, supportive supervision etc.

There are some emerging issues arising from this evaluation, including the need to provide temporary accommodation for doctors e.g. in the form of a "doctors' lodge" within the clinical mentoring health facilities to be utilized by the mentors when necessary. PATHS2 working through its service delivery team could support the Jigawa State government in addressing the nutritional health challenges (particularly for pediatric patients) among the population especially within the health facilities PATHS2 supports. Also there is need to undertake a "value for money" assessment of the clinical mentoring intervention as it has been implemented in Jigawa State. This will provide information about the cost-effectiveness or otherwise of clinical mentoring as well as provide suggestions on maximizing the clinical benefits for the patients, health facilities and the wider health system. There is also need to hold regular clinical mentors' review meetings to create opportunities for sharing experiences, discuss challenges as well as best practices.

In summary, this evaluation has shown that there are clear benefits arising through clinical mentoring for all stakeholders, which in this case include the Jigawa state government through the Gunduma health system, managers of the health facilities, mentored health workers, clinical mentors as well as patients attending the health facilities.

## SECTION TWO: INTRODUCTION

### 2.1 Background

<sup>1</sup>Human resources for health comprise of all persons who are primarily engaged in activities which seek to improve the health of populations. The health workforce is one of the key building blocks of the health system and consumes a substantial size of resource allocation to the health system. Availability of skilled manpower is crucial to the provision of effective healthcare services and hence improving the effectiveness of the health workforce is critical to improving health systems performance<sup>1</sup>. A key strategy in strengthening health systems is the development of a knowledgeable and skilled health workforce<sup>2</sup> but human resources for health has remained a challenge across developing countries. In many low and middle income countries in particular, health workers are crucial for the implementation of health interventions<sup>3</sup>, but in these countries health workers are inadequate in numbers and skill mix. In sub-Saharan Africa, the estimated workforce of public health practitioners is 1.3% of the world's health workforce addressing 25% of the world's burden of disease<sup>4</sup>.

Evidence suggests that the burden of disease continues to increase especially in developing countries but the number of skilled health workers is not keeping pace<sup>5</sup>. Inadequate health worker performance especially across the developing world is an urgent and pressing problem, resulting in millions of children and adults dying prematurely despite the existence of health interventions that could prevent these high mortality rates<sup>3</sup>. Poor practices among health workers are partly responsible for the low use of health facilities by different populations and consequently improving health worker performance will likely increase the use of health services<sup>3</sup>. Training and increasing the number of skilled health-care personnel, therefore, remains a priority and is crucial to attain strategies such as the Millennium Development Goals as well as achieving high quality performance among health workers in resource constrained settings<sup>3</sup>.

Conventional training however has its challenges in Africa. Bringing health workers for a centralized training tends to disrupt services and diminish the few available staff to provide care to patients<sup>6</sup>. In addition, most training programs involve training of 1–2 individuals from an institution even though the effective implementation of what was taught requires a multidisciplinary team working together as part of the health system<sup>2</sup>. Meaningful health training programmes accommodating full time health staff has remained a challenge in Africa<sup>5</sup>. Clearly, new training methods are needed.

There are few countries that practice continuing education for health workers following initial clinical training<sup>7</sup>. Most recently-trained health care providers have minimal access to more experienced health providers for consulting, diagnoses, reviewing cases and solving problems<sup>8</sup>. But to ensure high quality health care, there is need for continuous clinical training even after the initial training. Work based training has been identified as a modality for transferring/attaining skills and knowledge required in the work environment. The key objective of such work based training is knowledge and skills transfer while causing minimum disruption to work processes. This approach makes the training to be contextual

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<sup>1</sup> Health workforce and human resources for health are used interchangeably throughout the report.

within the work place, using locally identified needs or gaps for hands-on training<sup>2,9</sup>. Work-based training approaches have been successfully implemented in several fields such as management of HIV/AIDS<sup>10</sup>, neonatal care<sup>11</sup> and family planning<sup>12</sup>. There is however paucity of literature on the implementation of work-based training programmes especially in the context of maternal and newborn care in Nigeria.

Clinical mentoring is an aspect of work based training; it applies a system of practical training and consultation in order to strengthen professional development among health care workers. A clinical mentor is typically a clinical practitioner e.g. a doctor or nurse with relevant experience as well as expertise and skills that are transferable for the professional development of other less experienced health care workers<sup>7,13</sup>. Clinical mentoring has been applied in many resource-constrained settings to improve access to and scale up of HIV care and antiretroviral therapy<sup>7</sup>. When selected as clinical mentors, experienced clinicians from higher health care levels are typically not separated from their routine clinical practice to be full-time mentors. But for clinical mentors to be effective, they must remain practicing clinicians. In addition, the roles and responsibilities of clinical mentors are typically integrated into the mentors' routine clinical practice. Furthermore there are opportunities during clinical mentoring to undertake supportive supervision activities such as discussing workload, organization of care and treatment services as well as data management and record keeping. Clinical mentoring is an integral part of continuing education and should start where initial training ends i.e. taking place at health facilities where health workers manage patients<sup>8</sup>. Ideally, clinical mentors develop close relationships with clinical and health facility management staff and thus assist in tackling important problems in the work environment that may impact on the quality of care at the health facility. Clinical mentoring is expected to be mutually beneficial to both the mentor and the mentored health worker, plus it provides valuable feedback to improve health care service delivery<sup>7,14</sup>.

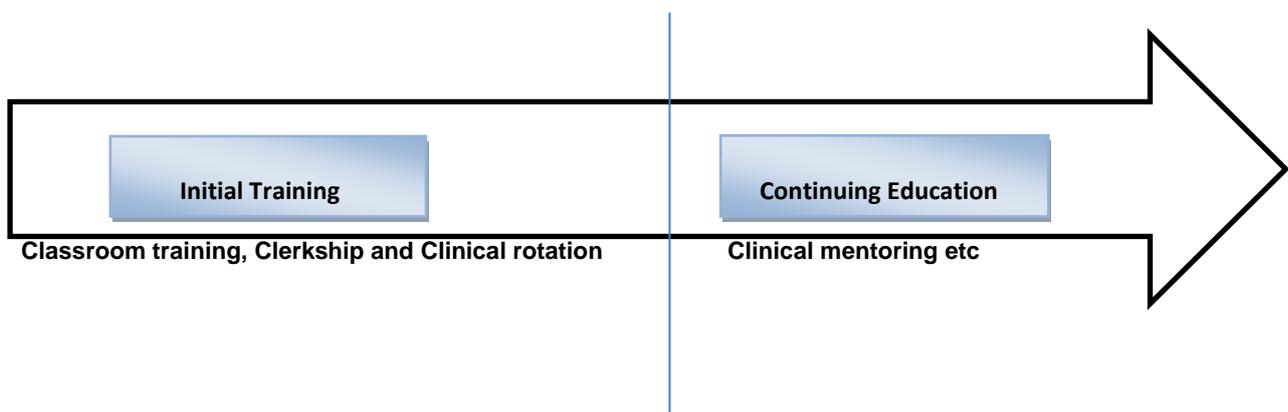


Figure 1 - The continuum of training and education for health workers within an ideal health system

The inadequate numbers and capacity of health workers at different levels within the Nigerian health system is a major challenge that requires urgent attention and action. While Nigeria has one of the largest numbers of human resources for health (HRH) in Africa, there are significant disparities in the health status as well as access to health services among different population groups across Nigeria<sup>15</sup>. In northern Nigeria in particular, human resources for health is inadequate with insufficient numbers of skilled workers to provide basic maternal, newborn and child health (MNCH) services.

The maternal mortality rate for Nigeria is estimated at 545 per 100,000 live births<sup>16</sup>. But studies have shown a wide regional variation in maternal and newborn indices within Nigeria. Maternal mortality rates for northern Nigeria have been estimated to be as high as 1,271 maternal deaths per 100,000 live births<sup>17</sup> in four states of northern Nigeria (Jigawa, Katsina, Yobe, and Zamfara). Child survival indices have not fared better. According to UNICEF, about 2300 under-5 year old children die daily, making Nigeria the second largest contributor to the under-5 mortality rate in the world. The deaths of newborn babies in Nigeria represent a quarter of the total number of deaths of children under-five<sup>18</sup>. The majority of these occur within the first week of life, mainly due to complications during pregnancy and delivery; reflecting the link between newborn survival and the quality of maternal care. In a recent study, under-5 mortality rates for three states in Northern Nigeria was reported to be 160 per 1,000 live births which is higher than the national figure of 157 per 1,000 live births<sup>19</sup>.

Jigawa State is within the north western part of Nigeria. According to the 2006 census, the State has a total population of 4,348,649 inhabitants. The population growth of the state is estimated at 3.5% with about 48% of the population under the age of fifteen. The state has 27 Local Government Councils and the vast majority of the population (~80%) resides in rural settings<sup>20</sup>. The State's health system replicates the WHO-recommended "District Health System" which is a system used by many developing countries to provide quality health services to communities. This approach integrates the health system, bringing both primary and secondary care services under one management structure<sup>21</sup>. In Jigawa State, this district health system is called the 'Gunduma health system'. But Jigawa State suffers from an acute shortage of health manpower. As at July 2008, Jigawa State had 1.5 doctors per 100,000, far below the national average of 20 doctors per 100,000. Maternal mortality rates as high as 2284 deaths per 100,000 live births have been reported from a tertiary health center located within rural settings in the State<sup>22</sup>.

## **THE INTERVENTION – CLINICAL MENTORING IN THE GUNDUMA HEALTH SYSTEM IN JIGAWA STATE**

The clinical mentoring programme was initiated in July 2012 in Jigawa State. It is a partnership between the Jigawa State Government through the Gunduma Health Systems Board and the Partnership for Transforming Health Systems Phase 2 (PATHS2). The clinical mentoring intervention typically involves once weekly visits by clinical mentors to five selected health facilities by consultant obstetricians and pediatricians. These experienced and highly skilled health personnel visit primary and secondary level health facilities and mentor some health workers recruited into the clinical mentoring programme. The mentored health workers include doctors, nurses, midwives and community health extension workers. A typical visit of a mentor could involve teaching during ward rounds, carrying out surgeries,

as well as conducting outpatient clinics. The emphasis during each activity is the transfer of knowledge and skills from the mentors to the mentees i.e. health workers being mentored. The mentor also organizes meetings such as maternal death review meetings and clinical seminars with the ultimate aim of transferring knowledge. Clinical seminars are organized on relevant topics around maternal, new born and pediatric care. The mentors also meet with the managers of the health facilities particularly if there are operational problems that need to be addressed so as to improve maternal, newborn and pediatric care within the health facility. The health facilities participating in the clinical mentoring programme in Jigawa State are located in three clusters within the State. Within the PATHS2 cluster system, a cluster consists of a group of 13 selected health facilities that provide graded levels of emergency and obstetric care as well as referral services for the purpose of reducing maternal mortality within a population of 500,000 persons. Three clusters were selected: Birnin Kudu, Hadejia and Ringim. For each cluster, two health facilities were selected (which could be a comprehensive emergency obstetric centre [CEOC], a basic emergency obstetric centre [BEOC] or a PHC) except for Hadejia cluster which has only a CEOC

**Table 1 – List of health facilities within Jigawa State participating in the clinical mentoring intervention**

<b>S/N</b>	<b>Name of health facility</b>	<b>Classification of health facility</b>	<b>LGA</b>	<b>Cluster</b>
1.	<b>Hadejia General Hospital</b>	<b>CEOC</b>	<b>Hadejia</b>	<b>Hadejia</b>
2.	<b>Ringim General Hospital</b>	<b>CEOC</b>	<b>Ringim</b>	<b>Ringim</b>
3.	<b>Garki PHC</b>	<b>BEOC</b>	<b>Garki</b>	<b>Ringim</b>
4.	<b>Gwaram Cottage Hospital</b>	<b>BEOC</b>	<b>Gwaram</b>	<b>Birnin Kudu</b>
5.	<b>Basirka PHC</b>	<b>PHC</b>	<b>Gwaram</b>	<b>Birnin Kudu</b>

## **2.2 Objectives of the evaluation**

The key objectives of the “6 months post-implementation evaluation” of the clinical mentoring programme in Jigawa State are as follows:

1. To determine whether there has been a significant increase in the knowledge and clinical skills of mentored health workers as a result of the implementation of clinical mentoring.
2. To determine whether the clinical mentoring programme has considerable benefits for improving the functioning and operations of health facilities in order to provide better quality maternal, newborn and child health services.
3. To determine whether clinical mentoring has impacted beneficially on maternal and newborn health statistics as well as other health performance parameters.
4. To determine how the clinical mentoring programme could be improved .

## 2.3 Activities/approaches conducted during the evaluation

### Methodology

A quasi-experimental design was used to conduct the evaluation. Purposive sampling technique was used to recruit clinical mentors through the professional network of PATHS2's consultant on clinical mentoring. Health workers selected for participation in the clinical mentoring programme were selected by purposive sampling of the health workers that routinely work in the selected health facilities. Questionnaires for the evaluation were developed and these were pretested between 28<sup>th</sup> and 29<sup>th</sup> January, 2013 within the study site i.e. Jigawa State. Some of the questionnaires were modified following the pretest exercise. An 'introduction to clinical mentoring programme' was included at the start of each questionnaire. It was decided that some of the more difficult questions maybe translated to the local Hausa language to facilitate communication between the interviewer(s) and some of the respondents, particularly some health workers.

The actual evaluation took place from 25<sup>th</sup> February to the 5<sup>th</sup> March 2013. The location for the evaluation was specifically the following towns within Jigawa State: Dutse, the state capital and five towns where the health facilities were located (Hadejia, Gwaram, Ringim, Basirka, and Garki). Ethical clearance for the study/evaluation was obtained from the Jigawa State Ministry of Health. Informed consent was sought from each respondent prior to the start of the interview/data collection. Questionnaires were administered to respondents to elicit responses/information to address the objectives of the evaluation. 'Pretest' questionnaires were administered at the commencement of the clinical mentoring programme to test the knowledge of the health workers recruited into the clinical mentoring programme. These same questionnaires were also used as a 'posttest' to evaluate the *improvement* in knowledge of the mentored health workers after a 6 months period. In addition, in-depth interviews were carried out with the mentored health workers using semi-structured questionnaires to obtain qualitative data/feedback on their experience during the first 6 months after the start of the clinical mentoring programme. In-depth interviews were also held with two government officials working within the Gunduma health system in Jigawa State. These interviews were held to get the perspective/perceptions of the government on the effectiveness or otherwise of the clinical mentoring programme within the context of the state-wide health system. Furthermore, operational and service statistics from the health facilities participating in the clinical mentoring intervention were reviewed 6 months before the start of the programme as well as 6 months after. These operational and service statistics collected from the health facility were subject to data quality assurance (DQA) by comparing the data collected at the health facilities with data collected within the State level Health Management Information System (HMIS). The assessment of operational and service statistics was undertaken to check the impact (if any) of the clinical mentoring programme on particular key indicators e.g. number of referrals, number of maternal deaths, number of safe deliveries, number of neonatal deaths within the health facilities etc. Key informant interviews with the clinical mentors and health facility departmental in-charges (obstetrics & pediatrics) were also carried out using semi-structured key informant interview guidelines. The interviews were conducted, tape-recorded and subsequently transcribed. Coding and thematic analysis were carried out on the qualitative data collected during the evaluation. The unit of analysis for the evaluation is each health facility where clinical mentoring has been implemented within PATHS2 clusters in Jigawa State.

## 2.4 Structure of the report

The executive summary of the report is outlined in section one. Section two is the introduction section and this includes the background to and objectives of the assignment as well as approach/activities conducted during the assignment. The structure of the report is also included within the introduction section of the report.

The main findings from the evaluation are outlined in section three. First the perspectives/responses of the Gunduma Health Systems Board officials are presented followed by the perspectives/responses of the clinical mentors (Pediatrics and Obstetrics). The perspectives/responses of health workers in the health facilities participating in the clinical mentoring intervention are subsequently presented. Key selected health service statistics as well as the pre- and post-test scores for each participating health facility are then highlighted. Relevant qualitative data based on the responses of the health workers in-charge of both the obstetrics and pediatrics unit are also presented. These main findings from both qualitative and quantitative data are presented to address the objectives of the evaluation.

Key recommendations arising from the results of the evaluation are highlighted in section four. The emerging issues and lessons learnt from the evaluation are discussed in section five and six respectively. The next steps and conclusion to the report follow in section seven, while the appendices section (bibliography/references etc) conclude the report.

## SECTION THREE: MAIN FINDINGS

### A. THE PERSPECTIVES OF GUNDUMA HEALTH SYSTEMS OFFICIALS

The government officials working within the Gunduma Health System in Jigawa State in the interviews that were conducted during the evaluation acknowledge that the human resources for health system within the State have multifarious challenges, including but not limited to the following: (i) Lack of skilled health care professionals and inadequate training of the health workers within the state. (ii) Attrition of health workers, including doctors and midwives. (iii) Preference of health workers to reside and work in urban areas due to the availability of social amenities in contrast to rural communities which typically lack these basic amenities.

The Gunduma Health officials acknowledge that while these problems exist, there are concerted efforts to address these and other human resources for health (HRH) challenges within the state.

#### **Benefits of the clinical mentoring programme within the context of the Jigawa State HRH situation:**

The Gunduma Health Systems officials indicate that the mentoring programme has given rise to considerable benefits within the State. Specifically, the mentoring programme has resulted in an increase in the number of health professionals providing services to clients that need these services. These increased professional services as a result of the mentoring

intervention has led to better quality of services as well as a significant reduction in referrals out to higher level health facilities i.e. tertiary health facilities. One of the Gunduma health officials interviewed remarked:

*“The clinical mentoring programme has actually helped in addressing some of the health workforce gaps identified within the state. We are happy because of its impact on the State’s health system.”*

#### **Key lessons learnt as a result of the implementation of clinical mentoring:**

The Gunduma officials indicated that one of the key lessons learnt from the implementation of clinical mentoring was the increased focus the mentoring visits has given to maternal, newborn and child health issues within the health care delivery system of the State. Furthermore, it was stated that the programme has increased awareness within the Gunduma Health Board about the need to explore other approaches/strategies to address the HRH situation and to ensure increased health professionals’ presence within the State’s health system. A Gunduma Health Official stated:

*“...perhaps a key outcome of the implementation of clinical mentoring will be that Jigawa State better understands other ways to tackle the HRH situation...maybe the State can provide budgetary allocations for clinical mentors under its own program rather than under a supported program.”*

#### **Challenges envisaged in the expansion of the program to other health facilities within the State:**

A key challenge identified was the challenge associated with recruiting more consultants and then persuading these consultants to agree to work within the State. The consultants currently recruited within the clinical mentoring intervention in the State come from Tertiary health facilities from nearby States. Retaining the existing consultants in addition to recruiting more poses a real challenge to the possible expansion of the clinical mentoring intervention within the Jigawa State.

Furthermore, there may be bottlenecks arising from securing agreements with the management of the mentors’ institutions before clinical mentors are released to visit the health facilities where they can be assigned to provide mentoring services.

The budgetary implications of retaining and recruiting more mentors/consultants could also be a limiting factor for a possible expansion of the clinical mentoring to other health facilities within the State.

In addition, the mentors typically visit the health facilities in which they are assigned for a day and travel back to the primary location on the same day. This current arrangement whereby they visit, provide services and travel back on the same day naturally limits the time spent providing services.

#### **Suggestions to improve on the implementation of the clinical mentoring programme**

The key suggestion from the Gunduma Health Systems officials was that the clinical mentoring intervention needs to be effectively integrated into the existing district health system within the State. This integration it was argued would ensure sustainability, greater

ownership by the State and more benefits to the State's health system. In connection with this suggestion, one of the Gunduma Health officials remarked:

***“The main suggestion I have is on integrating the clinical mentoring program into the district health system within the State so that it works through an existing system.”***

It was also suggested that the clinical mentors spend more days and mentoring hours providing services to their assigned health facilities. It was argued that the increased patient flow in the health facilities participating in the clinical mentoring programme warranted that the clinical mentors should spend more visiting hours and days providing services.

Furthermore it was suggested that Jigawa State needs to have a long term plan of developing a pool of consultants to sustain the clinical mentoring programme. To address the issue of consultants having to travel on the day assigned to provide services and then travel back afterwards thus reducing the number of hours available to provide services, it was proposed that there should be provision of adequate accommodation for the clinical mentors to address this identified challenge, enabling clinical mentors to follow up on some cases as maybe appropriate. It was also mentioned that there is need to improve on the status of the hospitals in term of equipment and infrastructure to stimulate the interest/morale of existing health working as well as visiting consultants.

## **B. THE PERSPECTIVES OF THE PEDIATRIC CLINICAL MENTORS**

### **Assessment of health workers to be mentored and identification of specific areas for improvement:**

The pediatrics mentors indicated that the majority of pediatric cases that were encountered in the health facilities participating in the clinical mentoring programme were malnutrition cases. However the general consensus among the mentors was that following an initial assessment of health workers at the start of the mentoring intervention, the manpower in terms of capacity to handle malnutrition cases was inadequate, especially in terms of administering nutritional supplements e.g. F-75 and F-100. A pediatrics mentor working within Birnin Kudu cluster remarked:

**“A key area identified for improvement was the management of children with severe malnutrition...about 70% of pediatric cases that are encountered during mentoring visits is due to malnutrition.”**

In addition, pediatrics clinical mentors identified the management of cerebral malaria; severe anaemia and treatment of different types of infections are specific areas for improvement during their clinical mentoring visits.

### **Significant changes implemented as clinical mentors:**

Clinical mentors mentioned that they had introduced standard treatment guidelines for the management of different pediatric cases in the health facilities in which they provide mentoring services. A pediatric clinical mentor stated:

**“In health facilities in which we visit, we have developed and introduced treatment protocols, some of which are on the notice boards in some wards...”**

Specifically, a significant change that was identified as a result of the mentoring visits is the introduction of nasogastric (NG) tubes for feeding patients of severe malnutrition. Prior to the visits by the clinical mentors, some health workers erroneously utilized IV fluids in managing severe malnutrition pediatric cases. Another key change attributable to the mentoring visits is the introduction of weighing pediatric patients during each visit which was not the case prior to the start of the clinical mentoring intervention. The approach of always measuring the pediatric patients has now ensured the proper calculation of pediatric dosages and has contributed to growth monitoring as part of best practices towards managing pediatric cases. In connection with this, some clinical mentors mentioned that they had been part of and in some cases spearheaded campaigns to convince the management of health facilities to acquire weighing scales for use within pediatrics department. Furthermore, it was mentioned by more than one pediatric clinical mentor that greater emphasis has now been placed on better documentation and record keeping which can easily be observed as currently practiced by many of the mentored health workers. The consultant pediatrician also narrated that there are clear benefits in mentoring other cadres besides doctors i.e. nurses and CHEWs because these cadres of health workers spend most of their time providing care and support to patients and therefore there is need to update their knowledge and skills on basic clinical practice. In narrating the changes arising from the mentoring visits, a pediatrics mentor remarked:

*“A good part of the mentoring visits for me is seeing the improvement in the mentee’s knowledge, skills and confidence...”*

#### **Benefits of clinical mentoring intervention to mentor’s primary place of work:**

Most clinical mentors mentioned that as a result of the clinical mentoring intervention there is an increase in their clinical experience which subsequently will result in increased knowledge sharing in their primary place of work. A pediatrics mentor stated:

*“During the mentoring process, I’ve learnt of new cases and how to overcome them...it is a learning process for everyone with clear benefits even for my primary place of work.”*

Furthermore, with the training of health workers at the lower levels of health care i.e. primary and secondary, this will reduce the number of referrals cases that are received at the tertiary health centres. Reducing the workload of the health workers at these tertiary health facilities will consequently ensure that specialized cases can be more adequately handled by the health professionals at these tertiary health facilities.

#### **Regularity of mentors’ review meetings:**

It is important that clinical mentors meet regularly to share experiences and discuss challenges. Most clinical mentors indicated that mentors’ review meetings were not regular despite the need for such meetings. Many clinical mentors that were interviewed confirmed that mentors’ meetings had only held twice since the inception of the program. A clinical mentor remarked:

*“I suggest that the mentors’ review meetings should be done regularly, maybe monthly or quarterly to review challenges and share experiences...”*

### C. THE PERSPECTIVES OF THE OBSTETRIC CLINICAL MENTORS:

#### **Assessment of health workers to be mentored and identification of specific areas for improvement:**

Obstetrics clinical mentors when interviewed mentioned that the preliminary assessment that was conducted at the start of the clinical mentoring programme provided guidance to them and thus assisted in identifying specific areas for improvement within the rank of obstetrics health workers to be mentored. Specific areas that were identified include management of pre-eclampsia and eclampsia, post-partum hemorrhage as well as different types of infections. Clinical mentors mentioned that a key objective at the start of the mentoring visits was to ensure that there was an improvement in the obstetrics skills of mentored health workers especially on basic emergency obstetric care.

#### **Significant changes implemented as clinical mentors:**

Many of the clinical mentors indicated that a key impact that can be attributed to the mentoring visits is the introduction of infection prevention practices in the health facilities where they visit. Mentors mentioned that such emphasis on infection prevention is to minimize or eliminate the possibility of clients/patients picking up hospital-based infections when visiting the health facility. In addition, clinical mentors indicated that other significant changes introduced include updating treatment guidelines within the health facility on a range of emergency obstetric situations in order to reduce maternal, newborn and child mortality within the surrounding communities/catchment populations of the health facilities. A clinical obstetrics mentor remarked:

*“We as mentors have introduced clinical protocols to guide the health workers in the conduct of their work...e.g. protocols for magnesium sulphate, management of post-partum hemorrhage, and the management of the third stage of labour etc.”*

A key impact of the mentoring visits is in the improved response of mentored health workers to emergency cases. The clinical mentors indicated that health workers that have been mentored tend to respond more quickly to emergency obstetric cases.

#### **Benefits of clinical mentoring intervention to the clinical mentor’s primary place of work:**

Some mentors mentioned that while working in their mentoring centre, they have encountered cases that have not been seen at their primary place of work. These the mentors argued has created unique teaching opportunities to teach their subordinates i.e. residents in their primary place of work; which ultimately results in increased knowledge sharing. A clinical mentor narrated:

*“...the patient profile seen here differs from my primary place of work, and I have come across some interesting cases during my mentoring visits.”*

In addition, clinical mentors mentioned that they are more familiar with working with doctors albeit younger and less experienced doctors in tertiary health facilities. However the clinical mentoring programme has provided the opportunity to work with lower cadres of health

workers and gives a different perspective on how patient care and support could be provided especially at lower levels of health care. One clinical mentor narrated:

***“...I usually work directly with doctors in my primary place of work but now I’m working with nurses, community health extension workers (CHEWs) etc which changes one’s approach to working at your primary place of work and builds confidence.”***

However when questioned whether the management of their primary place of work supported their participation in the clinical mentoring programme, in some cases, some mentors mentioned that their hospital were not aware or indifferent but that their colleagues were encouraging and supportive. A clinical mentor remarked:

***“The management of my primary place of work is unaware of my participation in clinical mentoring here...though colleagues are encouraging; it is my one day off per week that is being used to fulfill my responsibilities under the clinical mentoring programme...”***

Another clinical mentor narrated:

***“...I search for a day I am less busy in my primary place of work to come and perform my work responsibilities as a clinical mentor here.”***

Generally the clinical mentors declared that both their primary place of work and their mentoring centre were benefiting from the clinical mentoring intervention. The enthusiasm of the mentored health workers to learn and build their capacity was cited as a key incentive for the clinical mentors. An obstetrics clinical mentor stated:

***“The health workers here have keen interest and are ready to learn what they are taught, and to show their interest they contact us by phone when they encounter problems even if we are away! That gives us much joy...thus it makes me enjoy mentoring outside my usual work setting.”***

#### **Regularity of mentors’ review meetings:**

Similarly to what was mentioned by the pediatrics clinical mentors, it was stated that mentors review meetings were not regular despite the clear need for it. The clinical mentors highlighted the usefulness of discussing with colleagues participating in the mentoring programme to exchange ideas, share experiences and discuss challenges. A clinical obstetric mentor remarked:

***“We have had it twice, however I want to suggest that it should be quarterly so that experiences can be shared and challenges addressed.”***

#### **Suggestions to improve the clinical mentoring programme by pediatric and obstetric mentors:**

Almost all the clinical mentors that were interviewed mentioned that there was need to engage more consultants as clinical mentors to support the mentoring programme. One of the clinical mentor even suggested that it would be more appropriate to assign just one mentor to cover a health facility and not one mentor covering more than one health facility as is currently the case. This will ensure that the clinical mentor concentrates on the cases and health workers to be mentored in just one assigned health facility and this would give rise to greater impact. A clinical mentor remarked:

*“I believe that each clinical mentor should have only one duty station...”*

Another suggestion that was highlighted was that temporary accommodation should be provided for the clinical mentors to allow the mentors follow up on cases when and where necessary. The current set-up whereby mentors travel from their primary location, provide services and have to travel back the same day limits the quality and quantity of care provided to patients.

In addition, a common suggestion among all the mentors interviewed was that their payments should be reviewed and paid on time. Situations where their payment is delayed serves as a disincentive and affects the morale of the clinical mentors with direct consequences on the services provided during their mentoring visits. It was proposed that payment incentives should be introduced to improve on the motivation of the clinical mentors. Criteria for computing additional payments could be based on recommendations by the hospital management; based for example on the impact a particular clinical mentor is having at the health facility, number of complicated cases treated/managed per week or month over and above a set target etc.

Furthermore, it was recommended that certain skills should be restricted to particular cadres of health workers. An example cited was that while it was commendable to introduce manual vacuum aspirations (MVAs) to the health facilities especially at primary care level, it was equally important to restrict such skills to particular cadres who are expected to possess *and responsibly utilize* such skills i.e. only nurses and midwives and exclude cadres e.g. CHEWs and JCHEWs etc who may not require such skills. This it was argued will limit the possibility of abuse of such skills e.g. for abortions etc. It was also recommended that the benefits of the mentoring visits should be extended beyond the health workers in the mentoring centres, such that health workers working in surrounding health facilities could be invited on the days that the consultants visit and learn alongside the health workers in the clinical mentoring centre. Furthermore, the communities within the catchment areas of the health facilities should be enlightened further about the visit of the consultants to ensure that a larger proportion of community members access the services/expertise of the visiting consultants. A clinical mentor stated:

*“There is need to create more opportunities and sensitize community leaders in the surrounding communities while also liaising with the health facility in-charges to assist in mobilizing community members so as to better utilize the expertise and services offered by the clinical mentors.”*

#### **D. THE PERSPECTIVE OF THE MENTORED HEALTH WORKERS**

As mentioned earlier, five health facilities within Jigawa State have participated so far in the clinical mentoring intervention. A total of 33 health workers as follows: **Hadejia General Hospital** (8 health workers), **Ringim General Hospital** (8 health workers), **Gwaram Cottage Hospital** (6 health workers), **Garki PHC** (6 health workers) and **Basirka PHC** (5 health workers) were interviewed during this evaluation to get their perspective/responses on the impact of and benefits arising from the clinical mentoring visits. Table 2 outlines some questions and responses from the 33 health workers across the 5 participating health facilities.

**Table 2 - Background questions and responses by mentored health workers**

S/N	Question	Options	N (%)
1	How many years have you been working in this health facility?	1– 2 years 3– 5 years >5 years	13 (39.4%) 6 (18.2%) 14 (42.4%)
2	Did the clinical mentor make an adequate assessment of your level of knowledge at the start of the intervention?	Yes No	32 (97%) 1 (3%)
3	How often to you get feedback on your work performance from the clinical mentor in your health facility?	Twice a week Once a week Once in two weeks Once a month Twice a month Never	3 (9.1%) 22 (66.7%) 2 (6.1%) 2 (6.1%) 1 (3.0%) 3 (9.1%)
4	Does the duration of each clinical mentoring visit to your health facility suit the needs of the facility?	Yes No	20 (60.6%) 13 (39.4%)
5	Does the number of visits per week suit the needs of the health facility?	Yes No	10 (30.3%) 23 (69.7%)
6	Does clinical mentoring provide adequate opportunities for continuing training and education?	Yes No	32 (97%) 1 (3%)
7	Does clinical mentoring provide adequate opportunities to share experiences among health workers?	Yes No	31 (93.9%) 2 (6.1%)

**Table 3 – Perception of impact of clinical mentoring on a set of health facilities activities**

Table 3 highlights the responses of 33 mentored health workers (across the 5 participating health facilities) on perceived levels of impact of the clinical mentoring intervention on a set of health facility activities as reported during structured interviews with these health workers:

S/N	HEALTH FACILITY ACTIVITY	LEVEL OF IMPACT	N (%)
1	Teaching during ward rounds	Very significant Significant Average Negligible Zero	16 (48.5%) 11 (33.3%) 4 (12.1%) 1 (3%) 1 (3%)
2	One on one teaching of health workers by the mentor in the health facility	Very significant Significant Average Negligible Zero	10 (30.3%) 13 (39.4%) 8 (24.2%) 2 (6.1%) 0 (0%)
3	Clinical seminars on relevant maternal and child health care	Very significant Significant	8 (24.2%) 8 (24.2%)

	topics/services	Average Negligible Zero	6 (18.2%) 3 (9.1%) 8 (24.2%)
4	Mortality/death review	Very significant Significant Average Negligible Zero	12 (36.4%) 8 (24.2%) 6 (18.2%) 3 (9.1%) 4 (12.1%)
5	Outpatient clinics	Very significant Significant Average Negligible Zero	14 (42.4%) 10 (30.3%) 7 (21.2%) 1 (3%) 1 (3%)
6	Assessing individual patient care/management and planning further action e.g. referrals	Very significant Significant Average Negligible Zero	17 (51.5%) 11 (33.3%) 3 (9.1%) 1 (3%) 1 (3%)
7	Integrated supportive supervision	Very significant Significant Average Negligible Zero	11 (33.3%) 17 (51.5%) 4 (12.1%) 0 (0%) 1 (3%)
8	Use of standard clinical guidelines/protocols	Very significant Significant Average Negligible Zero	11 (33.3%) 14 (42.4%) 4 (12.1%) 2 (6.1%) 2 (6.1%)

For each participating health facility, some selected health service statistics as well as the pre- and post-test scores for mentored health workers before and after the start of the clinical mentoring visits are presented below:

- **Hadejia General Hospital**

**Table 4 - Key selected health services statistics within Hadejia general hospital**

S/N	Name of health facility	Statistics/Data from hospital records between January to December 2012												Total	
		Jan	Feb	March	April	May	June	Total	July	Aug	Sept	Oct	Nov		Dec
1	Normal deliveries	211	271	290	263	264	246	1545	244	104	132	210	190	212	1092
2	Manual Vacuum Aspirations (MVAs)	14	10	53	32	34	31	174	15	11	19	28	17	20	110
3	Maternal deaths	13	14	6	17	10	11	71	9	9	6	8	7	4	43
4	Neonatal deaths	1	4	4	0	0	2	11	6	0	4	0	1	3	14
5	Mortality review meetings	0	0	0	0	0	0	0	1	1	1	1	1	1	6
6	Referrals out of the hospital (Obstetrics)	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table 4 shows selected health service statistics within Hadejia General Hospital during the evaluation period. When 6 months before with 6 months after the start of the mentoring visits are compared, maternal deaths within the health facility drop from 71 to 43. There are no recorded referrals out of the obstetrics department but mortality review meetings have been held every month since the start of the mentoring intervention. The number of normal deliveries that occurred in Hadejia GH appeared to drop during the evaluation period and neonatal deaths increased marginally from 11 to 14.

Table 5 - Test scores for health workers enrolled within the clinical mentoring programme

S/N	Name	Station	Cadre	Pretest %	Posttest%
1	HRS	Hadejia GH	Nurse/Midwife	33.3	69
2	SBG	Hadejia GH	Nurse/Midwife	54.2	71
3	IMH	Hadejia GH	Nurse/Midwife	56.3	58
4	BU	Hadejia GH	Nurse/Midwife	43.8	81
5	FA	Hadejia GH	CHEW	39.6	85
6	MAM	Hadejia GH	CHEW	52.1	77
7	HNU	Hadejia GH	Nurse/Midwife	31.3	50
8	HI	Hadejia GH	CHEW	50.0	85

Table 5 shows the pre- and post-test scores for the health workers enrolled into the clinical mentoring programme within Hadejia General Hospital. The scores indicate that within the health facility and across all cadres of health workers, there was a significant increase in the mean test scores from 45% to 72% when comparisons are made at the start of the clinical mentoring intervention and six months after. The mean scores among the nurses/midwives cadre increased from 43.8% to 65.8% while the mean score among CHEWs increased from 47.2% to 82.3%. These significant increases in the mean test scores before and after the start of clinical mentoring suggest a positive impact of the intervention on the knowledge of the mentored health workers.

#### E. PERSPECTIVES OF THE HEALTH WORKER IN-CHARGE OF THE PEDIATRICS DEPARTMENT

##### Activities of the clinical mentor and benefits to the health facility:

During interviews, it was reported that the resident doctor identifies and selects cases that need the expertise/attention of the consultant/clinical mentor. The health worker in-charge of the pediatrics department indicated that the pediatrics clinical mentor assigned to Hadejia General Hospital *conducts ward rounds, examines patients* as well as *gives nutritional advice to patients and their care-givers*. The health worker in-charge of the pediatric unit specifically stated that health workers within the unit have learnt how to better manage patients which has led to reduced number of pediatric cases referred out of the hospital to tertiary health facilities. It was also indicated that accessibility of the consultant pediatrician to health workers within the unit now ensures that if/when patients need urgent attention, the health workers can effectively handle the situation and if need be the consultant pediatrician is contacted by phone to provide guidance on what to do.

##### Effect of clinical mentoring on health workers' ability to provide patient care and support

It was reported by the health worker in charge of the pediatric unit that health workers within the unit are more motivated, dedicated and confident in managing pediatric cases. Specifically it was mentioned that appropriate baseline investigation and tests are now carried out and the consultant pediatrician ensures during his visits that health workers are more productive and efficient in their activities.

The pediatric unit in-charge narrated:

***“The mentoring visits have resulted in the consultant showing health workers the way things should be done properly.”***

Similarly a mentored health worker within the pediatric unit in Hadejia General Hospital stated:

***“...my capacity has been built and I have added in experience.”***

Furthermore, it was reported that the review of pediatric cases and management of patients by health workers within the pediatric unit is much better. There is a more positive attitude among hospital staff since the clinical mentor has suggested more appropriate ways of working better and more efficiently.

#### **Changes in the utilization of protocols/standard practice, impact on patient flow and referrals**

It was reported by the health worker in-charge of the pediatric unit that the consultant has **introduced growth charts** and emphasized that information on charts should be displayed on notice boards. Furthermore the consultant pediatrician with support from the hospital's management **introduced ambu-bags into the pediatric wards** and has also suggested to hospital management that there is need for an examination high table to be introduced into the pediatric ward. The health worker in-charge of the pediatrics department felt that mortality cases within the health facility have reduced because of the introduction of appropriate standard practices.

#### **F. PERSPECTIVES OF THE HEALTH WORKER IN-CHARGE OF THE OBSTETRICS DEPARTMENT:**

##### **Activities of the clinical mentor and benefits to the health facility:**

It was reported by the health worker in-charge of the obstetrics department that the clinical mentor **conducts ward rounds** and the **review of complicated cases**. The consultant also **carries out surgeries** and **high risk deliveries** when present in the health facility. It was also mentioned that the clinical mentor has introduced new skills and updated the knowledge of the health workers working within the obstetrics unit; specifically the consultant obstetrician has provided assistance in the management of eclampsia patients using magnesium sulphate.

##### **Effect of clinical mentoring on health workers' ability to provide patient care and support:**

It was reported by the health worker in-charge of the obstetrics unit that there is improved staff capacity on how to manage different and difficult cases encountered within the health facility. Furthermore, it was mentioned that there is better and more positive attitude among health workers and it appears that health workers are more active towards their work responsibilities because of the clinical mentoring visits. Better documentation practices have also been observed among health workers.

## **Changes in the utilization of protocols/standard practice, impact on patient flow and referrals**

The health worker in-charge of the obstetrics unit credits the visits by the consultant obstetrician as being responsible for the introduction of the use of magnesium sulphate as the standard treatment for pre-eclampsia and eclampsia. Caesarean section (C/S) deliveries are now routinely carried out for some pregnancies especially when there are abnormal conditions that complicate vaginal delivery. There were also anecdotal reports that there is an increase in patient flow as a result of the visits by the consultant obstetrician. The health worker in-charge remarked:

***“There is an increase in patient flow especially to see the consultant, particularly in the outpatient department.”***

Furthermore it was mentioned that the obstetric unit has observed a decrease in the number of referrals as a result of the mentoring visit. The health worker in-charge of the obstetrics unit stated:

***“Referrals has reduced, an example is in the cases of prolonged labour...”***

- **Ringim General Hospital**

**Table 6 - Key selected health services statistics within Ringim General Hospital:**

S/N	Name of health facility	Statistics/Data from hospital records between January to December 2012												Total	
		Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec		
1	Normal deliveries	72	68	97	107	86	108	538	97	122	106	123	106	110	664
2	Manual Vacuum Aspirations (MVAs)	12	9	12	13	8	14	68	15	24	8	15	21	12	95
3	Maternal deaths	7	1	4	10	5	0	27	2	5	0	0	1	5	13
4	Neonatal deaths	3	0	0	0	0	0	3	2	0	0	1	0	0	3
5	Mortality review meetings	0	0	0	1	0	1	2	0	1	0	0	0	1	2
6	Referrals out of the hospital (Pediatrics)	8	6	4	0	3	2	23	2	6	0	1	2	2	14

Table 6 shows that there was substantial improvement in selected health service statistics within Ringim General Hospital when comparing 6 months before and 6 months after the start of the clinical mentoring programme. Normal deliveries and manual vacuum aspirations within the health facilities increased during the evaluation period while maternal deaths decreased from 27 to 13. There was however no change in neonatal deaths within the evaluation period. Significantly there was a drop in referrals out of the pediatrics department 6 months before and 6 months after the start of clinical mentoring in the facility.

Table 7 - Test scores for health workers enrolled within the clinical mentoring programme

S/N	Name	Station	Cadre	Pretest %	Posttest%
1	TR	Ringim GH	Nurse/midwife	54.1	60.0
2	MIM	Ringim GH	Nurse/midwife	66.6	81.0
3	EM	Ringim GH	Nurse/midwife	62.4	81.0
4	RZ	Ringim GH	Nurse/midwife	68.6	83.0
5	UA	Ringim GH	Nurse/midwife	60.3	77.0
6	KB	Ringim GH	Nurse/midwife	54.1	79.0
7	OAE	Ringim GH	Doctor	74.9	87.0
8	HI	Ringim GH	CHEW	45.8	52.0

Table 7 shows the pre- and post-test scores for the sample of health workers enrolled into the clinical mentoring programme within Ringim General Hospital. The test scores improved across all the cadres of health workers enrolled into the clinical mentoring programme with the mean test scores for all cadres increasing from 61% to 75% after a 6 months period. The resident doctor's mean score increased from 75% to 87% while the mean score of the CHEW increased from 46% to 52%. The mean test score for the nurse and midwives cadre also increased from 61% to 77%.

#### G. PERSPECTIVES OF THE HEALTH WORKER IN-CHARGE OF THE PEDIATRICS DEPARTMENT

##### Activities of the clinical mentor and benefits to the health facility:

The health worker in-charge of the pediatrics department indicated that during the clinical mentoring visits, the clinical mentor **conducts ward rounds**; the health workers discuss problems concerning the patients encountered within the unit and the clinical mentor **gives clinical advice as appropriate**. The clinical mentor **conducts general outpatient clinics** and **reviews patients especially complicated cases**. He also **conducts mortality reviews** of cases and **holds mortality review meetings** with health workers working within the pediatric unit. The health worker in-charge of the pediatric unit remarked:

*"The clinical mentoring program has been very beneficial because we have seen a lot of changes on how to better treat pediatric patients..."*

##### Effect of clinical mentoring on health workers' ability to provide patient care and support

As a result of the mentoring visits, it was reported that health workers spend more time providing service as well as counseling patients and their care-givers. It was reported that the consultant visits has improved patient care and management and examples cited include cases of congenital heart disease. The health worker in-charge of the pediatric unit stated:

*"...his coming has improved our knowledge particularly in things we did not do properly before e.g. he helps to change the drugs to more appropriate medications for our patients."*

Another health worker interviewed within the pediatric unit in the hospital remarked:

*“I feel more confident because from what he has taught me I have seen improvements as the patients recover and improve quickly. This makes me more dedicated and enthusiastic...”*

### **Changes in the utilization of protocols/standard practice, impact on patient flow and referrals**

The health worker in-charge of the pediatrics department stated that the visits by the clinical mentor have given rise to considerable changes in the utilization of standard practices within the obstetrics unit. The consultant pediatrician introduced and encouraged the use of nasogastric (NG) tubes for managing malnourished children. He also emphasized the weighing of pediatric patients during each visit which was emphasized as crucial especially for calculating the appropriate doses of drugs for pediatric patients. It was mentioned by the in-charge that since the clinical mentor started coming, there were less referrals out of the pediatric department. Furthermore it was mentioned that as a result of the clinical mentoring programme within the health facility, there has been an increase in patient flow. The health worker in-charge of the pediatric department narrated:

**“There are clearly more patients coming...a specific case in point is that a health worker at a nearby health facility referred a patient and insisted that the patient visits on the day the consultant comes to this health facility...”**

## **H. PERSPECTIVES OF THE HEALTH WORKER IN-CHARGE OF THE OBSTETRICS DEPARTMENT**

### **Activities of the clinical mentor and benefits to the health facility:**

It was reported by the health worker in-charge of the obstetrics department that during clinical mentoring visits, the consultant obstetrician **conducts ward rounds** and **holds clinical discussions** with health workers working within the obstetrics department, **thereby updating the knowledge of the health workers. Treatment of patients as well as risk diagnosis of cases** at the obstetrics unit are also undertaken by the clinical mentor in addition to **carrying out different forms of deliveries** and he has particularly helped with cases of retained placenta when such cases arise and he is present at the health facility. The health worker in-charge of the unit mentioned that the clinical mentor has taught health workers on how to better handle patients particularly in the management of post-partum hemorrhage and the management of eclampsia using magnesium sulphate.

### **Effect of clinical mentoring on health workers’ ability to provide patient care and support:**

It was mentioned that as a result of the visits by the clinical mentor, most health workers currently show more dedication which is especially illustrated by more time spent with patients providing care and support. Furthermore, it was reported that there is more confidence among the health workers leading to proper management of cases at the hospital.

## Changes in the utilization of protocols/standard practice, impact on patient flow and referrals

The health workers indicated that there has been an increase in infection control measures as wards are washed regularly with disinfectants based on the advice of the visiting clinical mentor. The health worker in-charge of obstetrics unit narrated:

*“There is increased emphasis on hygiene through improved infection control measures...”*

Furthermore, there has been an improvement in the management of post-partum hemorrhage as well as an emphasis on the removal of retained placenta. Health workers also mentioned that the clinical mentor taught them the proper use of misoprostol. The health worker in-charge of the obstetrics department reported that there is an increase in patient flow and decrease in referrals out of the health facility as more patients visit the hospital and especially request to meet the visiting consultant.

- **Garki PHC**

**Table 8 - Key selected health services statistics within Garki PHC:**

Name of health facility		Garki										LGA		Garki		Estimated Catchment Population		21,118
Statistics/Data from hospital records between January to December 2012																		
S/N	Key selected health services/parameters	Jan	Feb	March	April	May	June	Total	July	Aug	Sept	Oct	Nov	Dec	Total			
1	Normal deliveries	49	42	50	58	42	33	274	17	44	40	47	58	54	260			
2	Manual Vacuum Aspirations (MVAs)	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
3	Maternal deaths	0	0	0	0	1	0	1	0	0	0	0	0	0	0			
4	Neonatal deaths	2	4	0	1	1	2	10	0	2	0	0	0	0	2			
5	Mortality review meetings	0	0	0	0	1	1	2	2	2	0	1	0	1	6			
6	Referrals out of the hospital*																	
*Data not available																		

Table 8 shows selected health service statistics within Garki PHC 6 months before and 6 months after the start of the clinical mentoring programme. There was a decrease in both maternal and neonatal deaths within the health facility however a drop in normal deliveries was also recorded. The number of mortality review meetings held at the health facility increased from 2 to 6 after the start of the mentoring visits. From the health facility records, there was no documentation of referrals out of both the pediatrics and obstetrics department within the health facility.

**Table 9 - Test scores for health workers enrolled within the clinical mentoring programme**

S/N	Names	Station	Cadre	pretest %	Post test%
1	HY	Garki PHC	CHEW	45.8	70.8
2	HD	Garki PHC	Nurse/Midwife	47.8	58.3
3	JS	Garki PHC	CHEW	47.8	64.6
4	MS	Garki PHC	Doctor	62.4	75.0
5	ZM	Garki PHC	CHEW	66.7	81.3
6	BA	Garki PHC	Nurse/Midwife	56.2	72.9

Table 9 shows the pre- and post-test scores for the sample of health workers enrolled into the clinical mentoring programme within Garki PHC. There were substantial improvements in the mean test scores across all cadres when considering 6 months before and 6 months after the start of the clinical mentoring visits with mean scores for all cadres increasing from

54.5% to 70.5%. The mean test score for the resident doctor increased from about 62% to 75%. In addition, the mean test scores for the nurses and midwives cadre increased from 52% to 66% while the mean test score for the community health extension worker (CHEW) cadre increased from 47% to 68%.

## **I. PERSPECTIVES OF THE HEALTH WORKER IN-CHARGE OF THE PEDIATRICS DEPARTMENT**

### **Activities of the clinical mentor and benefits to the health facility:**

The health worker in-charge of the pediatrics department reported that during the mentoring visits, the clinical mentor ***examines patients during ward rounds and attends to complicated cases***. He ***ensures that pediatric patients are weighed and proper dosage calculation is undertaken for pediatric cases*** as well as ***providing adequate counseling to patients/care-givers***. The health worker in-charge of the pediatric department in particular remarked:

***“There is improved capacity among our health workers to better manage cases such as malnutrition, severe gastroenteritis and sepsis/infections...”***

### **Effect of clinical mentoring on health workers’ ability to provide patient care and support:**

The health worker in-charge of the pediatrics unit indicated that more confidence and dedication has been observed among the mentored health workers due to the impact of the visits by the clinical mentor. The health worker in-charge of the pediatrics unit narrated:

***“There is more confidence in handling pediatric cases...for example, as a result of the coming of the clinical mentor there has been better education about cases of spinal bifida which is seen as superstitious.”***

### **Changes in the utilization of protocols/standard practice, impact on patient flow and referrals**

A key change that is attributed to the visits by the clinical mentor is the increased division of labour within the unit. It was reported by the health worker in-charge of the department that there is better assessment and treatment of pediatric patients within the health facility. In addition communities with populations that access health services from the health facility have been enlightened about the existence of a visiting consultant or “senior doctor” which has given rise to increase flow of patients than had been previously experienced. The health worker in-charge of the pediatrics unit stated:

***“Due to the consultant visiting, the attention of community members has been drawn to the existence of even greater clinical expertise at the health facility... so there is increased patient flow.”***

Severely malnourished cases which are prevalent and are typically referred out are now being handled at the health facility. Furthermore it was reported that referrals out of the health facility has reduced as cases previously referred out were now handled within the health facility.

## J. PERSPECTIVES OF THE HEALTH WORKER IN-CHARGE OF THE OBSTETRICS DEPARTMENT

### Activities of the clinical mentor and benefits to the health facility:

The health worker in-charge of the obstetrics department reported that during the mentoring visits, the clinical mentor **conducts ward rounds, examines patients and reviews/handles any complicated cases** that the other health workers are unable to cope with. The clinical mentor also **attends to patients in outpatient clinics** within the health facility. He also **carries out surgeries, conducts high risk deliveries and manages eclampsia patients with magnesium sulphate**. Health workers indicate that the clinical mentoring has given rise to benefits for the health facility and the health worker in-charge of the obstetric department remarked:

*“The clinical mentor has built our capacity and taught us skills we did not have or have long forgotten...”*

### Effect of clinical mentoring on health workers’ ability to provide patient care and support:

It was reported that the consultant’s visits has given rise to positive changes and improved the general attitude of health workers to patients visiting the health facility. In particular, the mentored health workers come across as being more confident in handling cases and display more dedication to work.

### Changes in the utilization of protocols/standard practice, impact on patient flow and referrals

The introduction of magnesium sulphate as the standard treatment for eclampsia patients within the health facility has been attributed to the visits by the clinical mentor. Also proper documentation and improved charting of medications has resulted as a result of the clinical mentoring intervention. Health workers reported an increase in patient flow especially within the outpatient department as well as a decrease in referrals out from the health facility.

The health worker in-charge of the obstetrics unit stated:

*“...the number of referrals out of the health facility has reduced e.g. in the cases of prolonged labour.”*

- Gwaram Cottage Hospital

Table 10 - Key health services statistics within Gwaram Cottage Hospital:

Name of health facility		Gwaram Cottage Hospital						LGA	Gwaram						Estimated Catchment Population		10,412
Statistics/Data from hospital records between January to December 2012																	
S/N	Key selected health services/parameters	Jan	Feb	March	April	May	June	Total	July	Aug	Sept	Oct	Nov	Dec	Total		
1	Normal deliveries	24	24	30	18	37	17	150	41	59	50	52	43	46	291		
2	Manual Vacuum Aspirations (MVAs)	1	4	0	4	1	1	11	3	4	7	0	0	3	17		
3	Maternal deaths	0	0	1	1	0	3	5	1	3	1	1	3	0	9		
4	Neonatal deaths	0	0	0	0	0	1	1	0	0	0	0	0	1	1		
5	Mortality review meetings	0	0	0	0	0	0	0	0	0	0	0	1	1	2		
6	Referrals out of the hospital*																

\*Data not available

Table 10 shows that there was substantial improvement in selected health service statistics within Gwaram Cottage Hospital when comparing 6 months before and 6 months after the start of the clinical mentoring programme. The number of normal deliveries and manual vacuum aspirations increased during the evaluation period. However there was no change in the recorded number of neonatal deaths while the number of maternal deaths increased from 5 to 9.

**Table 11 - Test scores for health workers enrolled within the clinical mentoring programme:**

S/N	Name	Station	Cadre	Pretest %	Posttest%
1	AJM	Gwaram Cottage Hospital	Doctor	64.5	85
2	NSA	Gwaram Cottage Hospital	Nurse/Midwife	81	77
3	OSZ	Gwaram Cottage Hospital	Nurse/Midwife	66	79
4	KTO	Gwaram Cottage Hospital	Nurse/Midwife	75	77
5	AR	Gwaram Cottage Hospital	CHEW	57	77
6	AT	Gwaram Cottage Hospital	CHEW	61	83

Table 11 shows the pre- and post-test scores for the sample of health workers enrolled into the clinical mentoring programme within Gwaram Cottage Hospital. The mean test score within the health facility when considering all cadres of health workers increased from 67.4% to 79.7%. The mean test score for the resident doctor increased from 64.5% to 85%. Furthermore, the mean test score for the nurse/midwives cadre increased marginally from 74% to 78% while the mean test score for the community health extension workers (CHEW) cadre increased from 59% to 80%.

#### **K. PERSPECTIVES OF THE HEALTH WORKER IN-CHARGE OF THE PEDIATRICS DEPARTMENT**

##### **Activities of the clinical mentor and benefits to the health facility:**

It was reported by the health worker in-charge of the pediatrics department that the clinical mentor **conducts ward rounds, holds clinical discussions** with health workers where he teaches and transfers updated knowledge to the health workers on how to manage pediatric cases. The consultant pediatrician also **attends to pediatric patients within the outpatient department**, mostly referral-in patients as well as **conducts mortality review meetings**. The mentoring visits have resulted in better quality of services rendered and improved turnout of patients. The health worker in-charge of the pediatric unit remarked:

***“The mortality rate in the pediatric ward is reducing, turnout of patients is increasing and referrals out of the hospital has decreased while referral from other health facilities has increased.”***

It was also indicated that specific best practices have been introduced by the clinical mentors; specifically the introduction of the weighing of pediatric patients which is crucial for the calculation of dosages as well as for growth monitoring was mentioned.

### **Effect of clinical mentoring on health workers' ability to provide patient care and support:**

Health workers mentioned that since the commencement of the mentoring visits, clinical cases are handled more carefully and meticulously i.e. better baseline investigations are carried out with better documentation and record keeping. Also due to the impact of the clinical mentors, the health workers are more confident and carry out their work with more enthusiasm.

### **Changes in the utilization of protocols/standard practice, impact on patient flow and referrals**

The health worker in-charge of the pediatrics department indicated that the clinical mentor introduced the practice of weighing pediatric patients every time these patients visit the health facility. The clinical mentor also introduced protocols for managing malnutrition cases, severe malaria as well as sepsis. With respect to the specific changes introduced by the consultant pediatrician, the health worker in-charge of the pediatric department stated:

*"There have been some changes in the treatment protocols for e.g. malnutrition; we have been taught that we should be careful with the use of IV fluids and insert NG-tubes especially for severely malnourished pediatric patients."*

It was also reported that patient flow into the pediatric unit has increased as many clients visit the health facility specifically to see the consultant pediatrician, leading to reduced referrals out to other health facilities but increased referrals to the health facilities from other surrounding facilities.

## **L. PERSPECTIVES OF THE HEALTH WORKER IN-CHARGE OF THE OBSTETRICS DEPARTMENT**

### **Activities of the clinical mentor and benefits to the health facility:**

The health worker in-charge of the obstetrics department reported that the consultant obstetrician **holds clinical meetings, makes clinical presentations to health workers and conducts ward rounds**. It was also reported that when there are labour cases and he is present, **he carries out deliveries, particularly high risk deliveries**. It was mentioned that he **provides corrective management of cases** within the health facility when necessary. The health worker in-charge of the obstetric department narrated:

*"Prior to the coming of the clinical mentor, we were not guided properly..."*

### **Effect of clinical mentoring on health workers' ability to provide patient care and support:**

It was suggested by the health worker in-charge that as a result of the visits by the clinical mentor, the health workers were gaining confidence and show more patience when dealing with obstetric cases at the health facility. Furthermore, a more positive attitude among health workers is noticeable coupled with more dedication to work. The health worker in-charge of the obstetric department stated:

***“The attitude among health workers has improved positively because whenever he visits the workload is reduced...his coming has also made us more dedicated to work.”***

The health worker in-charge of the obstetrics department stated remarked that a high burden of anaemia in pregnancy which it is prevalent in the area has been tackled with the assistance of the clinical mentor. It is acknowledged by health workers, including the health facility management that the visits by the clinical mentor have improved the knowledge of the health workers on how to manage the problem. In addition, the consultant obstetrician has provided guidance on how to treat cases of malaria in pregnancy which was a challenge prior to the clinical mentoring visits.

**Changes in the utilization of protocols/standard practice, impact on patient flow and referrals**

It was reported that the clinical mentor introduced a protocol for the management of eclampsia using magnesium sulphate as well as treatment guidelines for malaria in pregnancy. Patients it was reported come specifically to see the consultant on his visiting days and thus the health facility has recorded an increase in patient utilization. In addition, fewer number of referral out cases was reported by the health workers because of the kind of emergency obstetric care and management available at the hospital, attributable in part to the visits by the consultant obstetrician.

- **Basirka PHC**

**Table 12 - Key selected health services statistics within Basirka PHC**

Name of health facility		Basirka PHC						LGA Gwaram						Estimated Catchment Population		7,250
Statistics/Data from hospital records between January to December 2012																
S/N	Key selected health services/parameters	Jan	Feb	March	April	May	June	Total	July	Aug	Sept	Oct	Nov	Dec	Total	
1	Normal deliveries	18	33	30	34	33	48	196	41	31	40	28	28	26	194	
2	Manual Vacuum Aspirations (MVAs)	0	0	0	0	0	0	0	0	0	1	3	1	1	6	
3	Maternal deaths	0	0	1	0	0	1	2	0	2	0	0	0	0	2	
4	Neonatal deaths	0	0	0	0	0	4	4	0	0	0	0	1	0	1	
5	Mortality review meetings	0	0	0	0	0	0	0	2	4	2	1	2	11		
6	Referrals out of the hospital (Obstetrics)	3	3	2	5	2	3	18	3	3	4	4	0	5	19	

Table 12 shows selected health service statistics within Basirka PHC 6 months before and 6 months after the start of clinical mentoring. There is almost no significant difference in the number of normal deliveries carried out within the health facility. However the number of manual vacuum aspirations (MVAs) and the mortality review meetings undertaken within the health facility increased during the evaluation period. While there was no difference in the number of mortality deaths before and after the start of the mentoring visits, the number of recorded neonatal deaths decreased from 4 to 1.

Table 13 - Test scores for health workers enrolled within the clinical mentoring programme:

S/N	Name	Station	Cadre	Pretest %	Posttest%
1	UB	Basirka PHC	Doctor	66	86
2	OR	Basirka PHC	Nurse/Midwife	64	79
3	RA	Basirka PHC	Nurse/Midwife	62	75
4	GH	Basirka PHC	CHEW	41	69
5	LSA	Basirka PHC	CHEW	45	79

Table 13 shows the pre- and post-test scores for the sample of health workers enrolled into the clinical mentoring programme within Basirka PHC. The mean test scores for all cadres of health workers increased significantly from 55.6% to 77.6% when comparing 6 months before and 6 months after the start of the clinical mentoring visits. The mean test score for the resident doctor increased from 66% to 86%. Furthermore, the mean test score for the nurse/midwives cadre increased from 63% to 77% while the mean test score for the CHEW cadre increased from 43% to 74% when comparing test scores before and after the start of the clinical mentoring programme within the health facility.

#### M. PERSPECTIVES OF THE HEALTH WORKER IN-CHARGE OF THE PEDIATRICS DEPARTMENT

##### Activities of the clinical mentor and benefits to the health facility:

The clinical mentor *conducts ward rounds, reviews and handles complicated pediatrics cases*. He also *organizes clinical seminars* and *holds clinical discussions with health workers* where opportunities arise for the health workers to update their knowledge. As a result, standards of care within the pediatric department have improved. The health worker in-charge of the pediatric department remarked:

**“The clinical mentoring programme has introduced newer clinical modalities e.g. the introduction of quinine for the management of severe malaria, better management of diarrheal disease, thus resulting in improved standards of care.”**

##### Effect of clinical mentoring on health workers’ ability to provide patient care and support:

It was reported by the health worker in-charge of the pediatrics department that the visits by the consultant has improved the confidence of health workers towards providing care and support to pediatric patients. Also it was indicated that as a result of the mentoring visits, there is more dedication among health workers to their job responsibilities. The health worker in-charge of the pediatric department stated:

**“..the visits by the consultants have improved the dedication by health workers to their work.”**

## **Changes in the utilization of protocols/standard practice, impact on patient flow and referrals**

The health worker in-charge of the pediatrics department reported that due to the visits by the clinical mentor, there are better responses to treatment and care based on the treatment guidelines issued by the visiting consultant pediatrician. The use of weighing scales for weighing pediatric patients for the appropriate calculation of dosages as well as for growth monitoring has been attributable to the visits by the consultant pediatrician. An increase in patient flow illustrated by an increased workload within the pediatrics department was also reported by the health worker in-charge of the pediatrics department. Community members from surrounding communities are also encouraged to come on the visiting days of the consultant/clinical mentor.

## **N. PERSPECTIVES OF THE HEALTH WORKER IN-CHARGE OF THE OBSTETRICS DEPARTMENT:**

### **Activities of the clinical mentor and benefits to the health facility:**

The health worker in-charge of the obstetrics department reported that the clinical mentor **provides direct clinical services to patients** that need obstetric care, through **out-patient clinics** as well as by **conducting minor surgeries, deliveries** etc. The consultant obstetrician also **holds clinical seminars** where ample opportunities occur for the transfer of knowledge to health workers within the health facility. In addition, the clinical mentor **reviews and manages complicated cases**. Health workers indicated that proper and standard procedures of care are now followed as a result of the mentoring visits by the consultant obstetrician. The health worker in-charge of the obstetrics department remarked:

*“Prior to the inception of the clinical mentoring program, certain procedures were not done correctly...”*

### **Effect of clinical mentoring on health workers’ ability to provide patient care and support:**

The visiting consultant it was reported has improved the confidence of and health workers’ capacity to handle obstetric cases. For example, health workers suggest that as a result of the mentoring visits, there is improved skill in eclampsia and pre-eclampsia management. The health worker in-charge of the obstetric unit stated:

*“Due to the mentoring visits by the consultant, we have learnt how to manage patients with pre-eclampsia and eclampsia as well as how to manage patients with sepsis, severe bleeding etc.”*

In addition, health workers working within the obstetric department now also have the opportunity to call the consultants through the phone when the need arises for advice to deal with complicated cases.

## Changes in the utilization of protocols/standard practice, impact on patient flow and referrals

The consultant obstetrician introduced magnesium sulphate protocols for the management of pre-eclampsia and eclampsia. Also manual vacuum aspirations (MVAs) are now carried out within the health facility due to the provision of MVA kits by the health facility management on the advice of the clinical mentor. Patient flow was reported to have increased as a result of patients/clients coming to the health facility specifically to see the consultant/clinical mentor. A key specific change introduced by the clinical mentor is an emphasis on the need to write down the expected due date (EDD) for expectant mothers. The health worker in-charge of the obstetric department remarked:

*“Specifically, we now write the expected due date (EDD) for prospective mothers...and to help us with this the clinical mentor came with a calendar so that the EDD for clients can be easily calculated.”*

### **Multivariate analysis on test scores of health workers across health facilities:**

**Table 14: Comparing mean test scores across health facilities and health worker cadre pre/post clinical mentoring**

Facility	Cadre	Test time	Number of health workers per cadre	Mean	Standard Deviation	95% CI	
Garki PHC	CHEW	Pre test	3	53.423	11.5190	41.90	64.94
		Post test	3	72.220	8.4215	63.80	80.64
	NMW	Pre test	2	52.000	5.8831	46.12	57.88
		Post test	2	65.620	10.3096	55.31	75.93
	*DR.	Pre test	1	62.400			
		Post test	1	75.000			
Ringim General Hospital	CHEW	Pre test	1	45.760			
		Post test	1	52.000			
	NMW	Pre test	6	61.013	6.1234	54.89	67.14
		Post test	6	76.833	8.4951	68.34	85.33
	*DR.	Pre test	1	74.880			
		Post test	1	87.000			
Gwaram Cottage Hospital	CHEW	Pre test	2	59.000	2.8284	56.17	61.83
		Post test	2	80.000	4.2426	75.76	84.24
	NMW	Pre test	3	74.000	7.5498	66.45	81.55
		Post test	3	77.667	1.1547	76.51	78.82
	*DR.	Pre test	1	64.500			
		Post test	1	85.000			
Basirka PHC	CHEW	Pre test	2	43.000	2.8284	40.17	45.83
		Post test	2	74.000	7.0711	66.93	81.07
		Pre test	2	63.000	1.4142	61.59	64.41

	NMW	Post test	2	77.000	2.8284	74.17	79.83
	*DR.	Pre test	1	66.000			
		Post test	1	86.000			
Hadejia General Hospital	CHEW	Pre test	3	47.220	6.6977	40.52	53.92
		Post test	3	82.333	4.6188	77.71	86.95
	NMW	Pre test	5	43.750	11.5071	32.24	55.26
		Post test	5	65.800	12.0291	53.77	77.83

\*No standard deviation values because the number of health workers per cadre enrolled in clinical mentoring in each health facility  $\leq 1$

The test scores of health workers in the study health facilities (pre- and post-clinical mentoring) were compared using a 3 way analysis of variance method. Relationship between the facility of the health worker, the cadre of the health worker and the change in test score following the clinical mentoring intervention was also tested.

The mean test scores of the health workers increased significantly after clinical mentoring across all cadres and health facilities. Furthermore, P values less than 0.05 ( $P < 0.05$ ) indicate significance and thus suggest that these factors significantly influence the change in test scores of health workers following the clinical mentoring intervention. Data from table 15 show that the P-values for facility, health worker cadre and test time were  $< 0.05$  indicating that these factors individually influence the change in test scores following the clinical mentoring intervention. Hence a particular cadre of health worker is likely to show more significant changes in test scores following clinical mentoring than other cadres e.g. a doctor or nurse is likely to have a more significant change in test scores than for example a CHEW. In addition, the time the test is taken and the health facility in which a health worker is stationed are factors that will influence the change in test scores of mentored health workers and by extension the uptake of clinical knowledge following a clinical mentoring intervention. Furthermore, the interaction of the health facility that a mentored health worker is stationed plus the cadre of the health worker will also significantly influence the change in test scores since  $< 0.05$  as highlighted in table 15.

**Table 15: Relationship between factors that influence clinical mentoring**

Factors influencing clinical mentoring	Degree of freedom	Mean square	P value
Facility	4	179.531	.046
Cadre	2	480.205	.002
Test time	1	3637.183	.000
Facility*Cadre	7	227.602	.007
Facility*test time	4	139.665	.102
Cadre*test time	2	108.498	.212
Facility*cadre*test time	7	42.514	.725

## SECTION FOUR: DISCUSSION AND RECOMMENDATIONS

This report highlights the successes, challenges and some suggestions on how to improve the clinical mentoring programme in Jigawa State. There are clear benefits arising through the clinical mentoring intervention for all stakeholders including the Jigawa state government through the Gunduma health system, managers of the health facilities, mentored health workers, clinical mentors as well as patients attending the health facilities. This programme has shown a novel system for mentoring in maternal and newborn health similar to other successful experiences recorded in the fields of HIV/AIDS<sup>10</sup>, neonatal care<sup>11</sup> and family planning<sup>12</sup>.

The Jigawa state government has through the clinical mentoring programme found a way that can be used to address the critical human resource for health situation in the State. As remarked by the government officials interviewed, clinical mentoring has resulted in an increase in the number of health professionals providing quality health services to clients attending the health facilities within the State. A key recommendation arising is that the Jigawa State government should fully integrate this programme into its existing Gunduma health system structure to encourage its sustainability. This should involve providing support and supervision for the clinical mentoring intervention in health facilities across the state. Continuous supervisory visits are necessary and these should be scheduled for the health facilities participating in the clinical mentoring intervention. These supervisory visits should include officials from the Gunduma Health Systems Board as well as members of the Facility Health Committee (FHCs) of the health facilities (where existing). Practically it would be easier to assign clinical mentors to provide oversight to each 'district' within Jigawa State and be accountable to the respective Gunduma district board for sustainability purposes. However it is appropriate that the Gunduma Health officials assess, discuss and plan for the best approaches to ensure the sustainability of the clinical mentoring intervention.

The clinical mentoring intervention clearly requires duplication in health facilities across other parts of Jigawa State as well as replication in other States across the country. This will require more skilled health personnel especially consultant obstetricians and pediatricians. A large pool of this cadre of personnel exists within tertiary health facilities and the management of these tertiary health institutions could be approached to request for the services of consultants that can serve as clinical mentors. Specifically with respect to expanding the clinical mentoring programme in Jigawa State, tertiary health facilities that could be approached include Aminu Kano Teaching Hospital (AKTH), Kano and Abubakar Tafawa Balewa University Teaching Hospital Bauchi. The ability of such tertiary health centers to officially release their consultants to serve in this programme will provide more highly skilled personnel that could be drafted to other areas and thus expand the clinical mentoring programme. This possible negotiation between Jigawa State government and the management of tertiary health institutions can be explored for mutual benefit. Another source of consultants for this programme is partnership with relevant professional associations which in this case are Society for Gynecologists in Nigeria (SOGON) and the Pediatrics Association of Nigeria (PAN). These associations are quite concerned about the poor maternal, newborn and child health indices in Nigeria, especially in the northern parts of the country. Their members are quite willing to serve as clinical mentors thus transferring some of their knowledge and skills to low cadre health workers. SOGON as an example has just

launched its own version of a similar programme whereby its members (all of whom are consultant obstetricians and gynecologists working in Nigeria) provide their services to state health facilities and PHCs. For successful duplication and expansion, Jigawa State could approach such associations and sign memoranda of understanding with them. Their members could utilize their periods of annual leave from their primary places of work or even spend their sabbatical leave serving as clinical mentors.

The benefits of clinical mentoring were further reiterated by the officers in charge of all the maternity and pediatrics units of the studied health facilities. All of these respondents expressed satisfaction with the programme stressing the successes and advantages arising from the mentoring visits. Some of the benefits that were emphasized to have accrued through this programme were the increased confidence of health workers, better community mobilization for service utilization and reduced number of referrals. One common request from the managers is the need to increase the number of visits of the mentors to more than once per week. Although this maybe a good recommendation, operationalizing this could be a challenge since the mentors are primarily employed elsewhere. However, increasing the number of visiting days could be possible if the number of clinical mentors providing mentorship services is increased from the pool of available consultants working elsewhere as discussed earlier. This programme appears to be a 'win-win situation' for all the stakeholders since even the clinical mentors benefit from the programme by being exposed to a wider variety of clinical cases, increased work fulfillment through transferring knowledge and clinical skills to lower cadres of health workers/less skilled clinical staff as well as gaining experience working and teaching professional groups other than doctors.

There is need to ensure consistent and prompt payment of the clinical mentors' allowance to motivate them. Jigawa State could also supplement these payment/stipends as well as introduce other payment incentives e.g. pay for performance into the clinical mentoring programme within the State. Some clinical mentors also recommend that their visits should be to one particular health facility, enabling mentors to concentrate on one health facility and thus provide optimal mentoring services as maybe appropriate. This approach is likely to result in even better health outcomes per health facility. The mentors mentioned some difficulties they encounter securing permission from their primary working place. This can be resolved by making formal requests for the services of the consultants as well as fully institutionalizing the clinical mentoring programme. There is clearly also the need for a clinical mentors review meeting where mentors can interact and learn from each other. The frequency of these mentors' review meetings was suggested as quarterly which is a pragmatic recommendation. In addition as a consequence of clinical mentoring, the mentors have introduced many new concepts, encountered interesting cases and have a lot of success stories that need to be shared with colleagues within the Medical and Public Health community. As an example, clinical mentors have introduced innovations such clinical protocols e.g. MgSO<sub>4</sub> protocols for eclampsia management, manual vacuum aspirations, and mortality review meetings etc in health facilities participating in the clinical mentoring programme; where these were not previously taking place. How did they do it? What were the challenges? How can someone else do it? All these need to be written up and disseminated for the wider world to learn from.

The knowledge test scores improved across all the cadres of health workers in the post-test (i.e. 6 months after the start of the intervention) compared to the pre-test (at the beginning of

the intervention). These findings indicate that knowledge transfer took place between the mentors and the mentees. It also demonstrates that it is possible to transfer knowledge across a huge disparity of professional cadres e.g. from doctors to community health extension workers (CHEWs). These findings show the effectiveness of work based training as recommended by Matovu et al 2013 and Patel et al 2009. The health workers learnt new skills and acquired new knowledge without leaving their working place. Furthermore the learning process took place in a workplace setting as well as in groups, rather than the usual one or two days didactic trainings that usually take place at settings outside of the trainees' normal working place/station. A better trained health workforce on maternal and newborn health is likely to be more effective in providing care to women and children. However, it should also be noted that the posttest was done 6 months after the start of implementation of the clinical mentoring programme. Further studies are recommended to evaluate long term retention of the knowledge gained as a result of work based training through clinical mentoring. The mentored health workers clearly indicate that there are clear benefits for them accruing from the programme. Most of them confirmed that an adequate assessment of their knowledge was made at the start of the intervention. In addition, most of mentored health workers felt that the number of visits per week were not suitable for the needs of the facility. This further corroborates the need to recruit more mentors so that more frequent visits could be arranged. When asked to assess the various activities carried out by mentors (such as teaching, outpatient clinics, ward rounds, supportive supervision etc), most of the health workers indicated that clinical mentoring has a 'significant' or 'very significant' positive impact on these activities. Though these assessments by the mentored health workers maybe subjective, it is indicative of the positive perception of the mentored health workers on the impact of clinical mentoring on the various activities carried out within the health facilities. In addition, as recommended by some clinical mentors, the benefits of the clinical mentoring visits should be extended beyond the health workers in the mentoring centres, such that health workers working in surrounding health facilities could be invited on the days that the consultants visit to learn alongside the health workers in the clinical mentoring health centre.

Reviews of the findings across the health facilities show improvement for most of the studied health parameters. Significantly a number of maternal and newborn health indices improved during the period under assessment. *All* the facilities recorded some form of improvement of their health indices during the period. New interventions were introduced for the first time during this programme. For instance, mortality review meetings were introduced in GH Hadejia, Gwaram Cottage hospital and Basirka PHC; manual vacuum aspirations were also introduced at Basirka PHC. Furthermore maternal deaths decreased at Ringim General Hospital, Hadejia General Hospital and Garki PHC. Neonatal deaths also decreased at Garki and Basirka PHCs. While these indices have shown improvements, it is difficult to ascribe this development solely to this intervention as there could be other parallel activities going on in the health facilities (such as improved supply of medications or blood transfusion services etc) that could have been the reason for these improved health service statistics or could have contributed. Some indices were unfortunately worse off in certain health facilities. For example, there was an increase in neonatal deaths at Hadejia and Gwaram hospitals. However, it is important to note that this evaluation was conducted just six months after the commencement of the clinical mentoring intervention. It is therefore not surprising if the

successes are not universal. Perhaps a further review/evaluation done at a later period will demonstrate further improvement of these indices.

## **SECTION FIVE: EMERGING ISSUES**

Despite the advantages of the clinical mentoring intervention, there are a number of issues that need to be addressed; first is the issue of accommodation for the mentors. A situation where the clinical mentors travel over long distances, conduct mentoring activities and travel back to their primary residence on same day is less than desirable, especially when necessity dictates otherwise. It is also not advantageous to the patients who may need further monitoring such as those that have had surgeries. As a solution, the government can provide some form of “doctors’ lodge” to provide overnight accommodation for the doctors which is easily facilitated by the fact that the clinical mentors visit on different days, making it easier to accommodate them.

Second, the pediatric mentors highlighted malnutrition among children as prevalent and recurring in all the health facilities involved in the evaluation and also mentioned the lack of availability of the required nutritional supplements e.g. F75 and F100 as challenges. This issue needs to be effectively handled by the Gunduma health system. In addition, PATHS2 working through its service delivery team could provide support to the Jigawa State government in its attempts at addressing the nutritional health challenges among the population especially within the health facilities PATHS2 supports.

The Jigawa State government should highlight the benefits of clinical mentoring as demonstrated in this report and emphasize the advantages to tertiary health facilities. These include exposing the consultants working within these tertiary health facilities to a wider variety of clinical cases than those seen in tertiary health centres as well as providing more opportunities for research and training for a variety of health workers including medical doctors, nurses and midwives. Furthermore, training of health workers at the state level will also reduce the number of referrals to the teaching hospitals whose facilities are already overstretched as shown by the common scenario where most beds are occupied and thus unavailable to admit more patients including those needing critical care.

While this six months post-implementation evaluation has objectively brought to light the benefits and successes of clinical mentoring in Jigawa State, there is need to undertake a “value for money” assessment of the clinical mentoring programme as it has been implemented in Jigawa State. A proper value for money assessment will provide further information about the cost-effectiveness or otherwise of the clinical mentoring programme. It will also proffer possible suggestions about ways of more appropriately utilizing financial resources within a clinical mentoring programme while maximizing the clinical benefits for the patients and advantages for the health facilities as well as for the wider health system.

As recommended by most of the clinical mentors, there is need to regularly hold clinical mentors’ review meetings for the mentors to create opportunities for sharing experiences, discuss challenges as well as best practices. These clinical mentors review meetings could be supported by PATHS2 through its service delivery team as part of a quality assurance mechanism. In addition there is need to periodically evaluate the clinical mentoring

intervention which would build on this initial assessment, thus further emphasizing the benefits and successes of clinical mentoring while also highlighting challenges which need to be addressed in order to continually improve maternal and child health outcomes.

## **SECTION SIX: LESSONS LEARNT**

1) It is possible for different stakeholders in health to come under one umbrella and jointly achieve similar objectives. This study has clearly shown that there are innovative ways through which we could solve the myriad of problems confronting the health care systems in the developing countries. This is indeed a simple innovation yet its impact is so great. It has turned out to be beneficial for all the stakeholders.

2) Whereas professional groups in the health sector commonly fight among themselves especially on issues that relate to salaries and position, this innovative programme was able to show that training is possible across such professional groups. It has also shown that knowledge can be transferred even when there is a wide disparity of professional training e.g. from doctor (consultant) to CHEW. From the findings of this evaluation, it appears that the lower cadre health workers are very enthusiastic about learning on the job. The clinical mentoring intervention also showed that training is possible with health workers (with different backgrounds and workplaces) transferring knowledge and skills across different levels of the health systems e.g. consultants from tertiary hospitals teaching clinical staff of primary health centres and the former acquiring additional knowledge by practicing within the primary health care system.

3) The initial pretest at the commencement of the clinical mentoring activity was administered and assessed by the mentors. As the questionnaire covered major thematic areas around maternal and newborn care, it enabled the mentors to identify the weak areas in terms of gaps in knowledge and clinical skills among the health workers to be mentored. These areas were then identified as areas of concentration in the training and mentoring of the health workers. These identified areas for improvement were effectively addressed as demonstrated in the posttest scores six months later.

4) While the clinical mentoring programme has proven to be beneficial, the programme has some areas that need to be addressed. These include integrating clinical mentoring within the Gunduma Health System to ensure sustainability, recruiting more clinical mentors (thus covering more days and perhaps expanding to new areas), providing accommodation for them (thus ensuring they stay longer when they visit if necessary) and continuously reviewing the programme to ensure best practice.

5) Considerable financial resources were expended to ensure the successful implementation of clinical mentoring in Jigawa State. As discussed, there is a clear need to undertake a 'value for money' assessment so as to determine and probably establish the cost-effectiveness of clinical mentoring. More importantly, the Jigawa State Government should make adequate financial provisions for the continuous implementation of clinical mentoring within its annual budget cycle to ensure its sustainability beyond the life of the PATHS2 programme. The financial involvement of the Jigawa State Government in supporting the

clinical mentoring intervention could be gradual and incremental over time using the “counterpart funding approach”.

## **SECTION SEVEN: CONCLUSION AND NEXT STEPS**

In the past, clinical mentoring has been used to build the capacity of health workers in areas such as HIV/AIDS and family planning, but this evaluation has illustrated that clinical mentoring can also be successfully applied to address health workforce challenges and improve maternal and child health outcomes within developing countries. This evaluation has shown that clinical mentoring could be used to address the wide gap that currently exists in the supply mix for human resource for health especially within the northern part of Nigeria. Clinical mentoring as an example of work based training has tremendous advantages whereby training is undertaken in environments where the trainees normally work and among the team members that the health workers are used to. The training is thus delivered within an appropriate context and environment thereby facilitating improved learning outcomes. Clinical mentoring has the potential to produce a technically well trained workforce that can provide quality health care for newborn, children and women of reproductive age, thus reducing newborn, child and maternal mortality; which is especially important for countries across the developing world.

As a follow up to this evaluation of the clinical mentoring intervention, it is recommended that these findings should be shared with relevant officials within the Gunduma Health System in Jigawa State to encourage expansion and duplication of clinical mentoring in other health facilities where it is not currently being implemented. Also it is important that these findings should also be shared with other States which are planning to implement clinical mentoring within their health systems and this will promote and support replication in these States. The findings of this evaluation should also be shared with stakeholders as a valuable form of feedback, including but not limited to individuals who participated in the evaluation (mentors, managers of health facilities and mentored health workers). Furthermore, PATHS2 should also explore other avenues for the dissemination of these findings to interested audiences within and outside the Nigerian Health sector (such as workshops, conferences, maternal and child health technical working group meetings, National Council on Health meetings etc) as well as through national and international peer reviewed publications.

It is important to share the lessons learnt, follow through on the key recommendations as well as address the emerging issues arising from the evaluation to ensure that possible improvements to the clinical mentoring programme are implemented. As earlier suggested, a value for money assessment is necessary to establish the cost-effectiveness or otherwise of the clinical mentoring intervention especially as it has been implemented in Jigawa State. It will also be beneficial to undertake future evaluations of the clinical mentoring intervention especially at a later time when clinical mentoring in Jigawa state has become even more established. Hopefully, the gains especially in the form of significantly improved health outcomes would be more pronounced and thus can be more readily demonstrated as well as disseminated for the wider Public Health community to learn from.

## BIBLIOGRAPHY/REFERENCES

- Beaglehole R and Dal Poz M R. **Public health workforce: challenges and policy issues.** *Human Resources for Health* 2003, 1:4.
- Matovu J, Wanyenze RK, Mawemuko S, Okui O, Bazeyo W and Serwadda D. **Strengthening health workforce capacity through work-based training.** *BMC International Health and Human Rights* 2013, 13:8 doi:10.1186/1472-698X-13-8
- Rowe AK, de Savigny D, Lanata CF and Victora CG. **How can we achieve and maintain high-quality performance of health workers in low-resource settings?** *Lancet* 2005; 366: 1026–35.
- Addressing Africa's health workforce crisis. An avenue for action.** High-level Forum on the Health Millennium Development Goals; 2004. Available at: <http://www.hlfhealthmdgs.org/Documents/AfricasWorkforce-Final.pdf>
- Mokwena K, Mokgatle-Nthabu M, Madiba S, Lewis H and Ntuli-Ngcobo B. **Training of public health workforce at the National School of Public Health: meeting Africa's needs.** *Bulletin of the World Health Organization* 2007; 85:949–954.
- Gaye PA, Nelson D: **Effective scale-up: avoiding the same old traps.** *Human Resources for Health* 2009, 7:2.
- WHO: **WHO recommendations for clinical mentoring to support scale-up of HIV care, antiretroviral therapy and prevention in resource-constrained settings.** Geneva: 2006.
- Davis DA, Thomson MA, Oxman AD and Haynes BB. **Changing physician performance: A systematic review of the effect of continuing medical education strategies (1995).** *JAMA* 274 (9) 700 – 5.
- Patel MS, Phillips C: **Strengthening field-based training in low and middle-income countries to build to build public health capacity: Lessons from Australia's Master of Applied Epidemiology program.** *Aust New Zeal Health Pol* 2009, 6:5
- Workneh G, Scherzer L, Kirk B et al. **Evaluation of the effectiveness of an outreach clinical mentoring programme in support of paediatric HIV care scale-up in Botswana.** *AIDS Care*. 2013; 25(1):11-9. doi: 10.1080/09540121.2012.674096.
- Bergh A, Rooyen E and Pattinson RC. **Scaling up kangaroo mother care in South Africa: 'on-site' versus 'off-site' educational facilitation.** *Human Resources for Health* 2008, 6:13 doi: 10.1186/1478-4491-6-13.
- Özek B, Saat Z, Tugay Temiz A and Kinzie B. **On the job training through follow up visits to improve the quality of family planning services.** *The European Journal of Contraception and reproductive health care* 1998; 3 (4): 201-206.
- Murray M. **Beyond the myths and magic of mentoring.** San Francisco; CA: Jossey – Bass Publishers.
- Standing Committee on Postgraduate Medical and Dental Education: **Supporting doctors and dentists at work: An enquiry into mentoring.** 1998; London; SCOPME report.
- Chankova, Slavea, Ha Nguyen, David Chipanta, Gilbert Kombe, Ali Onoja, and Kayode Ogungbemi. September 2006. **A Situation Assessment of Human Resources the Public Health Sector in Nigeria.** Bethesda, MD: The Partners for Health Reform *plus* Project, Abt Associates Inc.
- National Population Commission (NPC) (2009) ICF Macro. Nigeria demographic and health survey 2008. Abuja, Nigeria: National Population Commission and ICF Macro.
- Doctor HV, Findley SE and Afenyadu GY. **Estimating maternal mortality in Northern Nigeria by the sisterhood method.** *International Journal of Population Research* 2012; doi:10.1155/2012/464657
- Available at: [http://www.unicef.org/nigeria/children\\_1926.html](http://www.unicef.org/nigeria/children_1926.html). Accessed on 28<sup>th</sup> April, 2013

Doctor HV, Bairagi R, Findley SE, Helleringer S and Tukur D. **Northern Nigeria Maternal, Newborn and Child Health Programme: Selected Analyses from Population-Based Baseline Survey.** *The Open Demography Journal* 2011; 4: 11-21.

Available at: <http://www.jigawastate.gov.ng/contentpage.php?id=82>. Accessed on 28<sup>th</sup> April, 2013.

Available at:

[http://www.prrinnmnch.org/documents/ExecutiveSummary\\_Gundumastory\\_final\\_Jun10.pdf](http://www.prrinnmnch.org/documents/ExecutiveSummary_Gundumastory_final_Jun10.pdf). Accessed on 28<sup>th</sup> April, 2013

Tukur J, Jido TA and Awolaja BS. **Maternal mortality in rural Northern Nigeria.** *Tropical Doctor* 2008; 37: 1–1 DOI: 10.1258/td.2006.006356.

The Partnership for Transforming Health Systems Phase Two (PATHS2) is a six-year development initiative that aims to ensure Nigeria achieves important health-related Millennium Development Goals.

Funded by UKAID from the Department for International Development, PATHS2 is working in partnership with the Government of Nigeria and other stakeholders to improve the planning, financing, and delivery of sustainable health services for those most in need. In addition to its work at the Federal level, the PATHS2 programme is implemented in the five states of Enugu, Jigawa, Kaduna, Kano, and Lagos. PATHS2 follows the successful PATHS programme, which was implemented from 2002 to 2008.

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