OBSERVATIONS AND RECOMMENDATIONS REGARDING THE NEONATAL INTENSIVE CARE UNIT AT RAFIDIA HOSPITAL
PALESTINIAN HEALTH SECTOR REFORM AND DEVELOPMENT PROJECT

SHORT-TERM TECHNICAL ASSISTANCE REPORT

Prepared by:
Dr. Hatem Khammash
Associate Professor of Pediatrics – Al-Quds University
Consultant Pediatrician/Neonatologist
Head of Neonatal Department
Makassed Islamic Charitable Hospital

Mr. Iyad Al Sayed Ahmad, RN
Assistant Head Nurse – NICU
Makassed Islamic Charitable Hospital

March 11, 2013
OBSERVATIONS AND RECOMMENDATIONS REGARDING THE NEONATAL INTENSIVE CARE UNIT AT RAFIDIA HOSPITAL
PALESTINIAN HEALTH SECTOR REFORM AND DEVELOPMENT PROJECT

SHORT-TERM TECHNICAL ASSISTANCE REPORT

Contract No. 294-C-00-08-00225-00
**ACRONYMS**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP</td>
<td>Blood Pressure</td>
</tr>
<tr>
<td>CMV</td>
<td>Conventional Mechanical Ventilation</td>
</tr>
<tr>
<td>CPAP</td>
<td>Continuous Positive Airway Pressure</td>
</tr>
<tr>
<td>EBM</td>
<td>Evidence Based Medicine</td>
</tr>
<tr>
<td>HFV</td>
<td>High Frequency Oscillatory Ventilation</td>
</tr>
<tr>
<td>HMD</td>
<td>Hyaline Membrane Disease</td>
</tr>
<tr>
<td>IMV</td>
<td>Intermittent Mandatory Ventilation</td>
</tr>
<tr>
<td>MOH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>NICU</td>
<td>Neonatal Intensive Care Unit</td>
</tr>
<tr>
<td>NLS</td>
<td>Neonatal Life Support</td>
</tr>
<tr>
<td>NRP</td>
<td>Neonatal Resuscitation Program</td>
</tr>
<tr>
<td>NWG</td>
<td>Neonatal Working Group</td>
</tr>
<tr>
<td>OJC</td>
<td>On the job coaching</td>
</tr>
<tr>
<td>PALS</td>
<td>Pediatric Advance Life Support</td>
</tr>
<tr>
<td>RDS</td>
<td>Respiratory Distress Syndrome</td>
</tr>
<tr>
<td>SiPAP</td>
<td>Synchronized Inspiratory Positive Airway Pressure</td>
</tr>
<tr>
<td>SOW</td>
<td>Scope of Work</td>
</tr>
<tr>
<td>STTA</td>
<td>Short-Term Technical Assistance</td>
</tr>
<tr>
<td>TPN</td>
<td>Total Parenteral Nutrition</td>
</tr>
<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
</tbody>
</table>
ABSTRACT

This consultancy was initiated in June 2011. In September 2011, the assignment ceased due to a US Congressional hold on funds to the United States Agency for International Development (USAID) West Bank/Gaza Mission, and the subsequent suspension of activities under the Palestinian Health Sector Reform and Development Project (the Project). With the release of funds, the consultancy assignment resumed in June 2012 and lasted through the end of December 2012.

The Project initiated this assignment in response to the need for short-term technical assistance (STTA) support for the neonatal intensive care unit (NICU) at the Ministry of Health’s (MOH) Rafidia Hospital in Nablus. Two consultants, a pediatric specialist physician and a neonatal nurse, were recruited to carry out this assignment in tandem – targeting both doctors and nurses in their capacity building interventions.

The consultants carried out a series of lectures, trainings, presentations and on-the-job coaching (OJC) among Rafidia NICU physicians and nurses. Ward rounds, consultations and bedside teaching were carried out for daily interaction and follow up. Protocols on Neonatal Sepsis, the use of Continuous Positive Airway Pressure (CPAP) in managing Respiratory Distress Syndrome (RDS), infection control, and Total Parenteral Nutrition (TPN) were the focus of this consultancy. Additionally, the consultants facilitated the formation of a Neonatal Working Group (NWG), and began the development of a NICU Procedural Manual, which has subsequently been finalized by the Project for distribution to the Ministry of Health (MOH).
SUMMARY OF RECOMMENDATIONS

1. Continue to provide comprehensive technical assistance to Rafidia Hospital, including in administration, health information system technical support, medical and nursing aspects.
2. Regionalization (creating multiple levels of neonatal care by region) and defining the scope of care of each NICU.
3. NICU protocols and guidelines to be integrated to guide therapy among all units in the West Bank and Gaza.
4. Continue support of the new NICU working group and help in its activities in improving neonatal training and care at MOH hospitals.
5. Continuous medical education of current staff (medical/nursing) and a program of exchange between units - especially with Makassed Hospital, would be beneficial.
6. More training for NICU nurses is needed. Support for nurses to obtain higher diploma in neonatology offered by MOH College of Nursing and Bethlehem University. The recruitment of neonatologist nurse specialist is also needed.
7. Improving the nurse to patient ratio would improve care and help in infection control.
8. Continue to coach nurses to empower them with better knowledge and skills.
9. The inclusion of a nurse aid as a new position within the hospital. The nurse aid would support nurses with non-nursing tasks to allow nurses more time to provide nursing care.
10. Provide the hospital with the following equipment:
    a. Bactec system for blood culture.
    b. Blood gas machine in NICU.
    c. More CPAP equipment.
    d. Resuscitation equipment (laryngoscopes, blades and ambo bag)
    e. Transport incubators.
11. Re-organization of the current space to improve the accommodation of patients.
12. Continue support for infection control policy and provide supplies for hand hygiene and disposables.
13. Ensure that necessary reusable material and supplies are present with no shortages.
SECTION I: INTRODUCTION

The Palestinian Health Sector Reform and Development Project is a five-year initiative funded by the U.S. Agency for International Development, designed and implemented in close collaboration with the Palestinian Ministry of Health. The Project’s main objective is to support the MOH, selected non-governmental organizations, and selected educational and professional institutions in strengthening their institutional capacities and performance to support a functional and democratic Palestinian health sector able to meet its priority public health needs. The Project works to achieve this goal through three components: (1) supporting health sector reform and management, (2) strengthening clinical and community-based health, and (3) supporting procurement of health and humanitarian assistance commodities.

This consultancy assignment was intended to provide support to the medical and nursing staff of the NICU at Rafidia Hospital in Nablus. The consultants provided bedside coaching and formal presentations and lectures in several aspects of care. The consultants also conducted needs assessments in order to create recommendations in improving the status of neonatal intensive care at Rafidia Hospital and expand these recommendations to all MOH hospitals. The assessment of service delivery at the NICU focused on equipment usage and the areas in need of protocols. The nursing consultant also concentrated on improving the role of nurses by working closely with them on day to day activities.

There was an obvious need for developing and enhancing the NICU at Rafidia Hospital. The unit is an extremely busy referring center for all the units in the north of the West Bank. It was obvious that neonatal care is a rapidly expanding field of medicine, placing great demand on staff (medical and nursing) for continuous development in their knowledge and skills. Efforts were needed to help both nurses and doctors to bridge this gap. Bedside coaching was offered to support them in better use of equipment and protocols were developed for better care and outcome of newborn infants.
SECTION II: ACTIVITIES CONDUCTED

Neonatologist activities

1) Meeting with the team at Rafidia Hospital;
   a. Director of hospital
   b. Director of Nursing
   c. Head of Pediatrics
   d. Head of Neonatology
   e. Head nurse of NICU and pediatric senior staff, residents and nurses.

   Meeting to introduce mission and assess needs and problems, provide support and discuss activity plans and resolve difficulties. It was important to have these meeting to explore collaboration between health institutions.

2) Participation in ward rounds and provide consultations on day to day care. The ward rounds were utilized to provide bedside teaching and used as an opportunity to evaluate the current practices and problems.

3) CPAP training at Rafidia Hospital;
   a. Lecture to review concept and practice
   b. Lecture on the current machine used and different aspects.
   c. These lectures were taken to bedside for nurses (they were very busy and understaffed to attend any lecture in classroom)
   d. Demonstration of application for use on patients
   e. Provide support and follow-up after use with back-up after first use.
   f. Follow-up of subsequent use.
   g. Provide protocol for CPAP and proper use of machine.

4) Respiratory distress syndrome management lecture provided in Pulmonary Scientific Day (see Annex C1: RDS Presentation). The hand-out of the lecture was given as evidence based medicine (EBM) protocol of the management of hyaline membrane disease (HMD).

5) Infection control and sepsis protocol lectures and discussion; every opportunity was taken to emphasize infection protocol practices and sepsis management. These discussions were carried out both during coaching and in conference room lectures. Data was collected on microorganisms causing sepsis and drug resistance in order to formulate a protocol based on the current status (see Annex C2: Neonatal Sepsis Protocol).
   a. Lecture on neonatal sepsis; group discussion of current practice of sepsis management at Rafidia Hospital and suggestions were made based on data collected.
   b. Residents and nurses were empowered to collect data and start change.
   c. Discussion was done with Rafidia Hospital at every level to emphasize infection control implementation.

6) Discussion about feeding protocol and nutrition and total parenteral nutrition (TPN).
   a. Lecture was presented about TPN and feeding of the very low birth weight infants.
b. Sit down discussion with pediatric staff and nursing staff and pharmacy.
c. Protocol of feeding management and TPN (Total Parenteral Nutrition) was introduced.

7) Took part in a Pulmonary Scientific Day where a presentation was made on the management of premature infants with RDS and conducted a breakout session discussion on neonatal cases (see Annex C3: Pulmonary Scientific Day Agenda).

8) Worked on the establishment of a neonatal working group (NWG) among NICU units, and facilitated the first meeting (see Annex C4: NWG Agenda).
   a. Meeting with all practicing pediatricians in most of the units in West Bank in preparation for the working group session.
   b. Open discussion was carried out and led by consultant about difficulties and ways for better communication and upgrading skills and practices.
   c. Discussion on protocols and guidelines for care in neonatal units in the West Bank.


10) Lecture on hypoxic ischemic encephalopathy and asphyxia - current management and protocol of resuscitation and hypothermia management using simple resources.

**Neonatal nurse activities**

1. Meeting with the nursing staff with discussion of needs
2. Supervised the nurses using different types of machines used in the NICU including the SiPAP (non-invasive ventilation support for the respiratory-compromised neonatal and infant patients) and high frequency oscillator.
3. Empower nurses for better use of equipment.
4. Bed side coaching regarding cases admitted to NICU.
5. Playing a role model in the delivery of care for those very tiny babies.
6. Improve communication strategy between the staff.
7. Initiate communication skills with the families.
8. Supervise nurses’ writing of notes and use of the HIS.
9. Supervise the nurses using the respiratory devices, mainly the SiPAP machine.
10. Teaching the ideal method of reading blood gases, and the way we modify the ventilator parameters accordingly.
11. Supervise the fixation and care of central venous and arterial lines.
12. Address the importance of patient identification.
13. Initiate new method of safe patient transportation by the use of isolate or cot.
14. Starting a continuous education committee focused on increasing the nurses’ knowledge.
15. Different sessions with the infection control committee.
16. Different sessions with the pharmacist regarding the administration of medication.
17. Initiate a line of communication between the medical staff at Rafidia Hospital and Makassed Hospital for easy referral of patients.
SECTION III: FINDINGS, CHALLENGES, RECOMMENDATIONS, AND NEXT STEPS

A. Findings
Some of the findings of this consultancy had been previously noted by the Project and by prior consultants. They are reiterated here to revalidate them and to encourage continued efforts toward fulfilling the identified needs.

1- Administrative
   a. Patients were admitted to NICU up to one month, regardless of the condition.
   b. Many patients were admitted with respiratory infections that are dangerous to chronic patients in nursery.
   c. Admission of well patients to rule out sepsis.
   d. Many very tiny premature infants with no proper support of medical and nursing.
   e. Patients were admitted with surgical and neurosurgical problems and been managed and operated, regardless of support and experience.
   f. Lack of continuity of care by doctors (senior doctors and residents)
   g. Lack of leadership in the department was noted during first part of consultancy with a better change in second part of consultancy.
   h. Lab support was not adequate, especially microbiology, due to lack of modern system for blood cultures.
   i. Surveillance cultures and microbiology support providing continuous reports is lacking.

2- Nursing staff
   a. Understaffed and overworked with nurse patient ratio 1:8-10 at start of consultancy; however this improved in the second part of consultancy to 1:6-8. This is still not appropriate and is not sufficient for adequate patient care.
   b. Nursing personnel also perform non-nursing tasks, e.g. cleaning, stocking of supplies, in addition to their nursing responsibilities.

3- Equipment
   a. CPAP machine was not used
   b. Ventilators are not used as effective with lack of proper knowledge and protocol.
   c. Lack of blood gas machine
d. High frequency ventilator not used

e. Patient monitors were not used initially in the first part of consultancy with better use in the second part of consultancy.

4- Protocol and procedures
   a. Lack of protocol reference

   b. Infection control policy was not present in the first part of consultancy and poor adherence to infection control procedure. However, dramatic change was noted in second part of consultancy with policy in place and better adherence by staff to policy.

   c. No breast feeding policy

   d. No nutrition and TPN protocol.

5- Emergency response
   a. Lack of proper emergency readiness

   b. Lack of some important equipment for emergency with lack of proper check-up for readiness and lack of check lists.

   c. Pediatric advance life support (PALS), neonatal life support (NLS) or neonatal resuscitation program (NRP) certifications not obtained by many staff, especially the senior staff. In the second part of consultancy most of the residents had certification with PALS through Operation Smile.

6- Labor and delivery
   a. Readiness for resuscitation may be an issue. The equipment are not in standing order and items needed to be cleaned and sterile.

   b. No protocol used (no NLS training and updating with new NRP guidelines for care and resuscitation).

   c. Breast feeding and bonding between mom and baby was not done. (MOH adopted World Health Organization (WHO) steps of breast feeding). No discussion after resuscitation with problems and finding identified was done.

   d. The overhead units not used to maximum capacity, as heat regulation and Apgar score timer (no proper training for use).

   e. Transport of well and sick babies are been done in primitive way.

B. Challenges
Many of challenges were identified by other consultants and pertinent to the above finding.
1) The unit and physical space made it difficult to organize patients (out born/inborn/isolation/well babies for observation). Lack of sinks around the unit for better infection control.

2) Administrative problems and lack of continuity of care.

3) Nurses
   a) Understaffing; nurses will do the basic needs of the patients only.
   b) Nurses are doing many non-nursing tasks
c) There was a big gap between the doctors and nurses and lack of acceptance of each other.

d) Nurses were willing to learn, but they lack the background and basic knowledge regarding their job.

e) The nurse-patient ratio is very high, therefore nurses do only the basic needs of the patients.

f) Lack of disposables was a big barrier in implementing the guidelines of infection control.

g) The change of the specialists daily made the care plan for the patients not safe.

4) Shortage of supplies and materials

5) Lack of important equipment
   a. Blood gases machine
   b. Bactec system for blood cultures
   c. Transport incubators
   d. Cots

6) Team work and relationship between nurses and doctors.

7) Continuous education and upgrading knowledge and skills of senior staff and residents; better utilization of residency training program

C. Recommendations

1) Continue with support of Rafidia Hospital in all aspects starting with administrative, HIS support, medical and nursing aspects. This valuable support of the Project has to continue and is still needed to show full effect.

2) The Project needs to discuss with MOH to consider regionalization of care for MOH hospitals and to be opened for transfer patients to other facilities for expert care (pediatric surgery, neurosurgery). Consider transfer of tiny babies to specific units for better experience of units and better patient outcome and less morbidity.

3) Finalize the guidelines protocol of the NICU to guide therapy among all units in the West Bank and Gaza.

4) Continue support of the newly formed NWG and help in its activities in improving neonatal training and care in the West Bank.

5) Continuous medical education of current staff (medical nursing) and a program of exchange between units especially with Makassed Hospital would be beneficial.

6) More training and recruitment of neonatologist (support of sub-specialist program at Makassed Hospital)

7) Support for nurses to obtain higher diploma

8) Better organization of the medical team; allocate doctors (senior and junior staff persons) for specific period as one to two months. This will help for continuity of care and better nursing care plan.

9) Improve nurse ratio to patient would improve care and help in infection control.

10) Empower nursing staff with better training and knowledge and skills. Need to continue with bedside coaching.

11) Nurse aid a new job to help with non-nursing tasks may help to free nurses to better nursing care.

12) Provide the hospital with more equipment helpful to the care
a. Bactec system for blood culture (will help in shorten use of antibiotic use and earlier result to modify antibiotics according sensitivity.
b. Blood gas machine in NICU to do blood gases more frequently as appropriate to modify care accordingly and do more capillary blood gases to lessen blood withdrawal and un-necessary anemia and blood transfusion.
c. More CPAP equipment to be used for more patients as team are more confident in use of the current machine available.
d. Resuscitation equipment (laryngoscopes, blades and ambo bag) for better emergency response.
e. Transport incubators for better transport of in-patient/out-patient transport.

13) Organization of the current space to accommodate patients in better way.
14) Continue support policy of infection control and support it by providing supplies for hand hygiene and disposables

D. Next Steps
All the above recommendation needs to be implemented for improvement of care and successful future missions.

1) Continue with the current mission and provide medical and nursing bedside coaching.
2) Help in exchange program among specialist, residents and nurses with Makassed Hospital
3) Procurement of equipment (Blood Gas Machine, Bactec system for blood cultures and other missing equipment's)
4) Support the positive changes in administration and leadership of the unit among nurses and doctors
5) Better utilization of residency training program with better coaching and supporting resident education activities.
ANNEX A: SCOPE OF WORK

Short-Term Consultancy Agreement Scope of Work

SOW Title: Physician Consultancy, Neonatologist
Work Plan No:
SOW Date:  July 5, 2011, 2011
SOW Status:  Final
Consultant Name:  Dr. Hatem Khammash
Job Classification: Short-Term Local Professional Consultant
Reporting to: Amal Daoud, Director/ Hospital Support

I. Flagship Project Objective

The Flagship Project is a five-year initiative funded by the U.S. Agency for International Development (USAID), and designed in close collaboration with the Palestinian Ministry of Health (MoH). The Project’s main objective is to support the MoH, select non-governmental organizations, and select educational and professional institutions in strengthening their institutional capacities and performance to support a functional, democratic Palestinian health sector able to meet its priority public health needs. The project works to achieve this goal through three components: (1) supporting health sector reform and management, (2) strengthening clinical and community-based health, and (3) supporting procurement of health and humanitarian assistance commodities.

The Flagship Project supports the MoH in implementing health sector reforms needed for quality, sustainability, and equity in the health sector. By addressing key issues in governance, health finance, human resources, health service delivery, pharmaceutical management, and health information systems, the MoH will strengthen its dual role as a regulator and main health service provider. The Flagship Project also focuses on improving the health status of Palestinians in priority areas to the MoH and public, including mother and child health, chronic diseases, injury prevention, safe hygiene and water use, and breast cancer screening for women.

II. Specific Challenges to Be Addressed by this Consultancy:

Within the project’s scope to strengthen the quality improvement systems within Palestinian Health Institutions to deliver better secondary health care services, the USAID funded Flagship project procured equipment for the neonatology departments (Neonatal ICU) in three MoH Hospitals: Rafidia, Ramallah and Alia Hospitals. Based on listed needs of the MoH secondary healthcare management, Rafidia Hospital NICU received: 20 Baby Incubators, 10 Patient Monitors, A Nasal CPAP (Continuous Positive Airway Pressure), and a High Frequency Ventilator. Both Alia and Ramallah Hospitals’ NICU received Nasal CPAPs. MoH presented the need for such equipment in year one of the projects as priority equipment and the project responded to this need. Following the delivery of the equipment and conduction of the appropriate operational training for the medical staff, it was noticed that nurses and the doctors at Rafidia had some challenges in utilizing some equipment; specially the CPAP and the High frequency ventilators. Ramallah and Alia Hospitals’ NICU(s) also faced some challenges too.

Based on recent projects’ STTA specialists reports, who came to support these services related to NICU and breathing therapy, and the procurement team continuous follow up field visits to the site, it was evident that the staff still faces a challenge of utilization of these equipment. They are unconformable to use them on their own, and therefore, an urgent need was identify to recruit specialized local expert to build the capacity of the cadre in those department and develop a system for continuous training for proper utilization to ensure patient safety and improve quality care.

III. Objective and Result of this Consultancy

The short-term objective of this consultancy is to

- Establish principles and assist in implementing the First Steps in developing a system to build specified skills for high quality care in NICU in the MoH hospitals. This includes but is not limited to: enhancing physician and nursing skills in respiratory care, non-invasive
monitoring, and incubator control and care.

A longer term objective is to

- Introduce systems in the form of guidelines, protocols, and policies to govern these and other aspects of NICU care. Such aspects might include, but not be limited to, surfactant therapy, thermoregulation, and infection control.

IV. Specific Tasks of the Consultant

Under this Scope of Work, the Consultant shall perform, but not be limited to, the specific tasks specified under the following categories:

A. Background Reading Related to Understanding the Work and Its Context. The Consultant shall read, but is not limited to, the following materials related to fully understanding the work specified under this consultancy:

- Years 1 -3 implementation plans
- Performance Management Plan
- Approved annual reports
- Previous STTA consultants’ reports related to intervention
- Most recent quarterly report.

B. Background Interviews Related to Understanding the Work and Its Context. The Consultant shall interview, but is not limited to, the following individuals or groups of individuals in order to fully understand the work specified under this consultancy:

- Chief of Party (COP)
- Deputy Chief of Party (DCOP)
- Nadera Shibly, Director of procurement.
- Project’s Technical Teams as needed.
- Appropriate MoH Staff and Pediatric Hospital Staff.

C. Tasks Related to Accomplishing the Consultancy’s Objectives. The Consultant shall use his/her education, considerable experience and additional understanding gleaned from the tasks specified in A. and B. above to:

- Provide didactic instruction and intensive, ongoing bedside coaching and mentoring to assist nursing staff and doctors in proper use of the available NICU technology (monitors, respiratory equipment, incubators)
- Complement the instruction by developing a training package for future use that would address all aspects of use of the technologies, including:
  - Proper use of nasal CPAP machine, high frequency Incubators and ventilators.
  - Proper medical equipment management (responsibility to utilize, keep all relevant literature, monitor utilization, … etc.).
  - The responsibility of inventory management for NICU needs and supplies.
- In collaboration with the NICU team, develop clinical guidelines and/or policies and protocols for a few selected topics of care; for example, surfactant therapy.
- Within accomplishing the preceding Tasks, encourage an interdisciplinary approach to care among physicians, nurses, and respiratory therapy professionals.
- Draft progress reports in a timely manner.
- In the event that new priority tasks are introduced during the consultancy, the consultant will work with the Flagship project staff to revise the tasks and expected products to accommodate for the new priorities.
- In addition to the above-listed tasks, the Flagship Project welcomes additional contributions and creative ideas in support of the Flagship objectives.
V. Expected Products.
Within the first seven working days of the assignment, the consultant should provide the methodology for successfully completing the work (using Annex I: STTA Methodology). The substance of, findings on, and recommendations with respect to the above-mentioned task shall be delivered by the Consultant in a written report, policy statement, strategy, action plan, etc., for submission to USAID (using Flagship-provided STTA report template provided in the Welcome Packet).

A draft of this report is due no later than 3 business days prior to the consultant's last day of work (unless otherwise specified) and final no later than 7 business days after the consultant's last day of work. Please note that USAID requires a debrief to be scheduled prior to your departure. You will find a list of debrief topics in the STTA Methodology template to cover with your team leader before you meet with USAID.

Specific deliverables to be submitted with report:
- The training assessment and report on findings.
- The training methodology and schedule
- The drafted Protocols/ Policies, with possibility of adapting them to any other setting to host such service.

VI. Timeframe for the Consultancy.

The timeframe for this consultancy is on or about June 19, 2011 and will conclude on or about December 31, 2011.

VII. LOE for the Consultancy.

The total level of effort is a maximum of 30 days, up to 5 days per week.

VIII. Consultant Qualifications.

The Consultant shall have the following minimum qualifications to be considered for this consultancy:

Educational Qualifications
- Medical specialty in Neonatology or a related medical healthcare field.
- Valid licensed to practice and in good standing.

Work Experience Qualifications
- A minimum of 8 years of experience working within the health sector, in clinical field and dealing with protocols and guidelines.
- Knowledge and experience in healthcare services, in the West Bank and Gaza.
- Ability to work with and communicate with a wide variety of people.
- Excellent oral and written communication skills.
- Excellent writing and communication skills in English and Arabic.

IX. Other Provisions.

This Scope of Work document may be revised prior to or during the course of the assignment to reflect current project needs and strategies.
I. Health Sector Reform and Development Project Objective

The Project is a five-year initiative funded by the U.S. Agency of International Development (USAID), and designed in close collaboration with the Palestinian Ministry of Health (MoH). The Project’s main objective is to support the MoH, select non-governmental organizations, and select educational and professional institutions in strengthening their institutional capacities and performance to support a functional, democratic Palestinian health sector able to meet its priority public health needs. The project works to achieve this goal through three components: (1) supporting health sector reform and management, (2) strengthening clinical and community-based health, and (3) supporting procurement of health and humanitarian assistance commodities.

The Project supports the MoH in implementing health sector reforms needed for quality, sustainability, and equity in the health sector. By addressing key issues in governance, health finance, human resources, health service delivery, pharmaceutical management, and health information systems, the MoH will strengthen its dual role as a regulator and main health service provider. The Project also focuses on improving the health status of Palestinians in priority areas to the MoH and public, including mother and child health, chronic diseases, injury prevention, safe hygiene and water use, and breast cancer screening for women.

II. Specific Challenges to Be Addressed by this Consultancy

The scope for the Project includes strengthening improving quality and strengthening quality systems within the Palestinian health institutions to deliver better secondary health care services. Previously, the Project procured equipment for the neonatology departments (Neonatal ICU) in three MoH Hospitals; Rafidia, Ramallah and Alia Hospitals. These procurements were based on listed needs of the MoH secondary healthcare management. Rafidia Hospital NICU received: 20 Baby Incubators, 10 Patient Monitors, A Nasal CPAP (Continuous Positive Airway Pressure), and a High Frequency Ventilator. Both Alia and Ramallah Hospitals’ NICU received Nasal CPAPs. MoH presented the need for such equipment in Year One of the project as priority equipment and the project responded to this need. Following the delivery of the equipment and conducting appropriate operational training for the medical staff, it was noted that nurses and doctors at Rafidia had some challenges in utilizing some equipment; especially the CPAP and the High frequency ventilators. Ramallah and Alia Hospitals’ NICU(s) also faced some challenges too.

In addition, based on reports of STTA specialists, follow up field visits of the project procurement team, and observations of the project Hospital Support team, it is evident that the physicians and nurses in the NICU’s still face many challenges in proper utilization of the equipment, and also in general approach to patient care and especially critical care. They are unfamiliar with and uncomfortable with proper management of many conditions occurring in NICU patients.

Therefore, an urgent need was identified to recruit local neonatal nurse expert, in support of the ongoing intervention with the NICU, to build the capacity of the cadre in those departments and develop a system for continuous training for proper utilization to ensure patient safety and improve quality care.

III. Objective and Result of this Consultancy

This neonatal nursing consultancy will focus on improving MoH Neonatal Intensive Care Unit (NICU) nursing services at the secondary health care level.

The short-term objective of this consultancy is to

- Support the Medical Expert intervention in providing on-site mentoring, coaching, and teaching in proper NICU nursing care procedures and practices;
- Establish principles and assist in building a system to build specified skills for high quality care in NICU in the MoH hospitals. This includes but is not limited to: enhancing nursing skills in respiratory care, non-invasive monitoring, and incubator control and care.
A longer term objective is to: Introduce systems in the form of guidelines, protocols, and policies to govern these and other aspects of NICU care. Such aspects might include, but not be limited to, surfactant therapy, thermoregulation, and infection control.

IV. Specific Tasks of the Consultant

Under this Scope of Work, the Consultant shall perform, but not be limited to, the specific tasks specified under the following categories:

A. Background Reading Related to Understanding the Work and Its Context. The Consultant shall read, but is not limited to, the following materials related to fully understanding the work specified under this consultancy:
   - Workplan for Year 4
   - STTA Reports on NICU

B. Background Interviews Related to Understanding the Work and Its Context. The Consultant shall interview, but is not limited to, the following individuals or groups of individuals in order to fully understand the work specified under this consultancy:
   - Kirk Ellis, Chief of Party
   - Amany Dahir, Technical Programs Manager
   - Dr. Hatem Khammash
   - Dr. Harry Gunkel, Project Consultant
   - Other MoH related staff.
   - Abdul Hamid Qusrawi, HIS Manager

C. Tasks Related to Accomplishing the Consultancy’s Objectives. The Consultant shall use his/her education, considerable experience and additional understanding gleaned from the tasks specified in A. and B. above to:
   - Provide didactic instruction and intensive ongoing bedside coaching and mentoring to assist nursing staff in proper use of the available NICU technology (monitors, respiratory equipment, incubators)
   - In collaboration with the NICU team, develop clinical guidelines and/or policies and protocols for a few selected topics of care; for example, surfactant therapy.
   - Assist Project HIS team in optimizing the HIS system for neonatal patients and care and ensure proper documentations.
   - Within accomplishing the preceding tasks, encourage an interdisciplinary approach to care among physicians, nurses, and respiratory therapy professionals.
   - Draft progress reports in a timely manner.
   - In the event that new priority tasks are introduced during the consultancy, the consultant will work with the Project staff to revise the tasks and expected products to accommodate for the new priorities.
   - In addition to the above-listed tasks, the Project welcomes additional contributions and creative ideas in support of the Project objectives.
   - The consultant shall not provide advice or carry out activities that are, or could be construed as, the practice of medicine.

V. Expected Products.

Within four days of the consultant’s arrival the consultant should provide the methodology for successfully completing the work (STTA Methodology). The substance of, findings on, and recommendations with respect to the above-mentioned tasks shall be delivered by the Consultant in a written report, policy statement, strategy, action plan, etc. for submission to USAID (the Project-provided STTA report template). A draft or detailed outline of this report is due prior to the consultant’s final day of work and final no later than 7 business days after the consultant’s completion of consultancy.

More specific deliverables:
   - Weekly updates
   - Monthly reports on progress, including M&E data.
   - Any presentation presented or policies developed during consultancy.
VI. Timeframe for the Consultancy.
The timeframe for this consultancy is on or about July 9, 2012 to on or about September 25, 2013 in the West Bank.

VII. LOE for the Consultancy.
The days of level of effort are estimated to be 50 days, working up to 6 day work week maximum, including various shifts.

VIII. Consultant Qualifications.
The Consultant shall have the following minimum qualifications to be considered for this consultancy:

Educational Qualifications
- Minimal of BS degree, and currently licensed Nurse in good standing.
- Shall be certified in Pediatrics and/or Neonatal/Perinatal care.

Work Experience Qualifications
- Minimum of three years of work in neonatal intensive care.
- Successful involvement and participation in international health and/or development, with preference to the Palestinian health system context.
- Extensive experience in Quality Systems and implementation of policies and procedures.
- Excellent computer and reporting skills in Arabic and English.

IX. Other Provisions.
This Scope of Work document may be revised prior to or during the course of the assignment to reflect current project needs and strategies.
ANNEX B: CONSULTANT CV

HATEM MUSA KHAMMASH

P.O.Box 25170

SHUFAT – JERUSALEM

97300

Tel:(Bus.) (972)-2-6270222

PERSONAL DATA

Date of Birth : 
Place of Birth : 
Marital Status : 
Language Spoken : Arabic & English: Excellent

PRESENT APPOINTMENT

Head Division and Director of Neonatal Intensive Care Unit and Newborn Services at Makassed Islamic Charitable Hospital/ Jerusalem.

Associate Professor, School of Medicine, Al-Quds University – Palestine.

Head of Pediatrics School of Medicine, Al-Quds University – Palestine

Director of Master Pediatrics and Child Health Program – School of Medicine – Al-Quds University.

Consultant Pediatrician & Neonatologist at the Pediatric Department/ Makassed Islamic Charitable Hospital/ Jerusalem since May 1999. (Makassed Hospital is the main referral hospital for Jerusalem area and whole Palestine).

Consultant Pediatrician at Doctor's House Medical Center

PREVIOUS APPOINTMENT

Consultant Pediatrician & Neonatologist at the Pediatric Department/ Makassed Islamic Charitable Hospital/ Jerusalem since April 1993 - June 1997.

Director of the Neonatal Intensive Care Unit since May 1995- June 1997.

CERTIFICATES

American Board of Pediatrics & Subboard of Neonatal – Perinatal Medicine Re-certification April 2000

American Board of Pediatrics: Neonatology Sub-Board. September 1993

American Board of Pediatrics. October 1992


ECFMG Certificate March 1992


Licensate of Medical Council of Canada October 1991

Medical Council of Canada Qualifying Examination. June 1990

Medical Council of Canada Evaluating Examination. September 1985

FMGEMS Clinical part with 83 grade Basic part with 75 grade July 1984 July 1991

M.B.B.S School of Medicine/ University of Jordan /.
### TRAINING

- **July 1990 - June 1993**: Resident IV & V & VI in Pediatrics (Neonatology) at University of Toronto Integrated Neonatology Fellowship Program which include Hospital for Sick Children, Mount Sinai Hospital, Women's College Hospital - Toronto - Canada.
- **July 1987 - June 1990**: Resident I & II & III in general pediatrics - Hospital for Sick Children - Toronto - Canada.
- **July 1985 - June 1987**: Resident I & II in Pediatrics - Jordan University Hospital.
- **July 1984 - June 1985**: Rotating Internship - Jordan University Hospital - Amman - Jordan.

### OTHER EXPERIENCE

<table>
<thead>
<tr>
<th>June 2008 -</th>
<th>Course Coordinator and Instructor of Palestinian Child Health &amp; Pediatrics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Course organized with Royal college of Pediatrics and Child Health - UK</td>
</tr>
<tr>
<td>June 2002-</td>
<td>Instructor in Neonatal Resuscitation Program/ Organized by Juzoor Foundation – Palestine. (Several Courses)</td>
</tr>
<tr>
<td>June 2002-</td>
<td>Faculty Member in Acute Life Support In Obstetric Course (ALSO – Palestine) Organized by Juzoor and accredited by the American Academy of Family Physicians.</td>
</tr>
<tr>
<td>July 2001 – April 2005</td>
<td>Consultant with Maram Project Consultant for the Pre-Hospital</td>
</tr>
<tr>
<td>Emergency Protocol</td>
<td>Consultant for the Newborn care Protocol</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------------------------------------</td>
</tr>
</tbody>
</table>

| November 1992 | Instructor in the Neonatal Resuscitation Course to Ontario College of family physicians. |
| April 1992   | Instructor in the Neonatal Emergency Course provided by University of Toronto. |
| January 1992 - April 1992 | Introduction to Clinical Epidemiology Course / School of Public Health & Epidemiology / University of Toronto / Canada. |
| October 1991 | Regional Trainer for the Neonatal Resuscitation Course provided by the American Academy of Pediatrics and American Heart Association. |

**EDUCATION**

| 1984       | M.B.B.S School of Medicine - University of Jordan, Amman - Jordan.- One year premedical science. - Two years basic medical sciences. - Three years clinical sciences. |
| 1978       | Secondary School Certificate (Tawjihi) with distinguished degree. |
LICENSES
Licensed to practice Medicine in Jordan. September 1985
Educational License in Ontario. July 1987
General License in Pennsylvania. June 1992
General License in Palestine

PUBLICATIONS
Master supervision

1) Premature Delivery at Al- Maqassed Hospital Risk Factors Associated with the Occurrence of Between 2000-2002 BY Ishraf Abed-Al Hafedh Fararjeh thesis completed August 2004 (2nd Supervisor)

2) Mother's knowledge, Attitudes, and Practices in the Management of Childhood Fever in Hebron Pediatric Clinics 2008 by Kifa' Mohammed Othman Daa's (1st supervisor)

CONFERENCES & RESEARCH PRESENTATION

1. Canadian Pediatric Society Meeting - Ottawa - Canada. September 1992; Presentation of study "Surfactant therapy in full-term neonates with severe respiratory failure".

2. Hot Topics in Neonatology - Washington D.C - USA. December 1992; Presentation of study "Surfactant therapy in full-term neonates with severe respiratory failure".

3. S.P.R / A.P.S meeting - Washington D.C - USA. May 1993; Presentation of "Blunting of hypertensive response to endotracheal intubation in neonates with premedication".

4. Winner of Trainee Start-up Fund provided by the Hospital for Sick Children Research Institute/Toronto, Canada.

5. Guest Lecturer at 5th Pan-Arab Pediatric Societies Meeting April/1995.


8. The XXIII Pediatric Congress of UMEMP in Nicosia – Cyprus November/1996. Presentation of" Neonatal sepsis in the Palestinian population: A review of cases of neonatal sepsis during 1993 at Makassed Hospital".


12. 44th European Society of Pediatric Research Meeting Bilbao- Spain September 2003
13. 11th Pan-Arab Pediatric Societies Meeting in Manama – Bahrain December 2003
16. Presentation “the Health Condition of mothers and children in Palestine”
17. Presentation “Update in Neonatal resuscitation”
19. Ultrasound Imaging of Neonatal Brain – Imperial College – London Dec 5,6th 2005
20. Training of Trainer course “Teaching Pediatric Child Health and PALS course” Royal College and Pediatric Child health and Jordan Pediatric Society Amman – Jordan Nov 12-16 2006

**ADMINISTRATIVE SKILLS**

- Chief fellow in Neonatology at Woman’s College Hospital from July 1991 to June 1992.
- General Secretary for Pediatric Society 1994-98.
- Director of NICU at Makassed Hospital since May 1995.
- Vice President of the Pediatric Society – Medical Association – Jerusalem.

**MEMBERSHIPS**

- Member of ESPR since 2008
- Member of Jordan Pediatric Society since 1994.
- Full Fellow of the American Academy of Pediatrics and member of Perinatal - Neonatal section since 1993.
- Fellow of the Royal College of Physicians and Surgeons of Canada since 1991.
- Member of Ontario Medical Association 1991.
- Member of Canadian Pediatric Society since 1987.
- Member of Jordan Medical Association since 1984.
Curriculum Vitae

I. Personal Data
1. Name: Iyad Ali Al-Sayed Ahmad
2. Date of Birth [Redacted]
5. Sex Male
6. Marital Status [Redacted]
7. Contact Address
   - Contact Address Palestine. Bethlehem. Deheisheh camp
   - Phone/work 026270290
   - Cell Phone Number [Redacted]
   - E-mail Address [Redacted]

2. Education
1992-1996 Bethlehem University Bachelor of Science Major in Nursing
1998-1998 Makassed Hospital Neonatal Nursing
2003-2004 Saint John Hospital DON (diploma of ophthalmic nursing)
2010-2011 Juzoor & Al-Quds University DCH (diploma of child health)

Current position: assistant head nurse (NICU).

Current duties:
1- Assist in the nursing and treatment
2- Review the work of nurses during office hours
3- Help Section is responsible in maintaining patient files
4- Participate in the distribution of nursing tasks
5- Participating in education of nurses on how to use new devices and new equipment
6- Participate in the development of nursing skills through follow-up in books and scientific journals and scientific conferences
7- Help section in the official control work within the department to maintain the workflow
8- Official help section in the presence of a friendly relationship between the nurses and the professional section
9- Help section in the official program of work weekly and monthly for nurses
10- Command section in the absence of the responsible department
11- Strengthen the department responsible positions and new laws in place
12- Participating in giving educational lectures
13- Monitoring and education of nurses new to the routine of the department and the
    regulations and laws in the hospital
14- Participate in the evaluation of nurses
15- Participate in the development plans and development programs in the section
16- Education and guidance, nurses and staff in order to provide nursing Superchargers
17- Participation and work to implement the recommendations and guidance of the working
    committees in the hospital
18- Participating in the educational process in the hospital
19- Participating in advanced courses to give the recovery of newborns
20- Nurses Bedside teaching for the new respiratory machines (SiPAP, Bubble CPAP, and HFO).
21- Participate in the implementation of the recommendations of the Committee against the
    spread of infection

3. Employment History
   1997-2010    Makassed Hospital. Assistant Head Nurse NICU
   2005-2007    Emergency room in doctors house center/Jerusalem
   2007-2010    Emergency room in al-Zahra medical center/Jerusalem
   2010-2011    Emergency room in Al - baladna medical center
   2010         Clinical instructor at Bethlehem University/ post graduate
                Neonatal diploma

4. Courses and conferences
   2006         advanced cardiac life support at Makassed hospital/ CARE
   2010         NRP at Juzoor and Makassed hospital
   2010         Neonatal conference held at Holy Family Hospital

5. Volunteering
   2010         Training of nurses for SiPAP and CPAP at alia hospital

IV. Language    Arabic & English
V. Skills       computer
ANNEX C: LIST AND COPY OF MATERIALS DEVELOPED AND/OR UTILIZED DURING ASSIGNMENT

C1. RDS Presentation
C2. NWG Agenda
C3. Neonatal Sespis Protocol
C4. Pulmonary Scientific Day Agenda
C5. Update in Management of Hypoxic Ischemic Encephalopathy (presentation)
C6. Nasal CPAP and Neonatal SiPAP (presentations)
C7. Pediatric Respiratory Care Procedure
C8. Infant flow SiPAP Procedure
C9. Neonatal GI/Nutrition (presentation)
C10. Nourishing Low Birthweight Infant (TPN)
C11. NICU Nutrition Guidelines
C12. Infant flow SiPAP (Presentation)