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# Health Facility Assessment Sindh

## District Headquarter Hospitals Report

### 2015-16



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The HSS Component of USAID's MCH Program, a five year project, was launched in 2013 which was implemented by a consortium led by JSI Research and Training Institute Inc., and consortium partners: Contech International, RSPN and Heartfile working in collaboration with DOH Sindh to strengthen the health systems. The HFA along with capacity assessment, monitoring and evaluation and Health Information Systems readiness has helped in bringing transparency to the healthcare delivery system of Sindh. The structural reforms in the form of District Health and Population Management Teams (DHPMTs), District Action Plans (DAPs) and online integrated Dashboard are all steps in this direction.

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**Dr. Syed Hassan Murad Shah**  
Director General Health Services



# Acronyms & Abbreviations

|              |   |
|--------------|---|
| <b>AFB</b>   | Acid Fast Bacilli                                       |
| <b>AMS</b>   | Assistant Medical Superintendent                        |
| <b>ANC</b>   | Antenatal Care  |
| <b>APTT</b>  | Activated Partial Thromboplastin Time                   |
| <b>BHUs</b>  | Basic Health Units                                      |
| <b>BT</b>    | Bleeding Time   |
| <b>CCF</b>   | Congestive Cardiac Failure                              |
| <b>CCU</b>   | Cardiac Care Unit                                       |
| <b>CSO</b>   | Civil Society Organization                              |
| <b>CT</b>    | Clotting Time   |
| <b>CT</b>    | Computerized Tomography                                 |
| <b>DFID</b>  | Department For International Development                |
| <b>DGHS</b>  | Directorate General of Health Services                  |
| <b>DHDC</b>  | District Health Development Center                      |
| <b>DHIS</b>  | District Health Information Systems                     |
| <b>DHO</b>   | District Health Officer                                 |
| <b>DHQs</b>  | District Headquarter Hospitals                          |
| <b>DM</b>    | District Manager  |
| <b>DNS</b>   | Deflected Nasal Septum                                  |
| <b>DOH</b>   | Department of Health                                    |
| <b>ECG</b>   | Electrocardiogram                                       |
| <b>EML</b>   | Essential Medicines List                                |
| <b>FP</b>    | Family Planning   |
| <b>HFA</b>   | Health Facility Assessment                              |
| <b>HLD</b>   | High-Level Disinfectant                                 |
| <b>HMIS</b>  | Health Management Information System                    |
| <b>HR</b>    | Human Resources   |
| <b>HRH</b>   | Human Resource For Health                               |
| <b>HSS</b>   | Health Systems Strengthening                            |
| <b>IAT</b>   | Inventory Assessment Tool                               |
| <b>ICU</b>   | Intensive Care Unit                                     |
| <b>IMNCI</b> | Integrated Management of Neonatal and Childhood Illness |
| <b>IUCD</b>  | Intra-Uterine Contraceptive Device                      |

|               |  |
|---------------|--|
| <b>LHV</b>    | Lady Health Visitor                                    |
| <b>MCH</b>    | Maternal Child Health                                  |
| <b>MDGs</b>   | Millennium Development Goals                           |
| <b>MP</b>     | Malarial Parasite                                      |
| <b>MS</b>     | Medical Superintendent                                 |
| <b>NGO</b>    | Non-Governmental Organization                          |
| <b>NICU</b>   | Newborn Intensive Care Unit                            |
| <b>OPD</b>    | Out-Patient Department                                 |
| <b>PHDC</b>   | Provincial Health Development Center                   |
| <b>POL</b>    | Petroleum, Oils & Lubricants                           |
| <b>PPHI</b>   | Peoples Primary Healthcare Initiative                  |
| <b>PT</b>     | Prothrombin Time                                       |
| <b>RDT</b>    | Rapid Diagnostic Test                                  |
| <b>RMO</b>    | Resident Medical Officer                               |
| <b>RHCs</b>   | Rural Health Centers                                   |
| <b>SARA</b>   | Service Availability and Readiness Assessment          |
| <b>SARAT</b>  | Service Availability and Readiness Assessment Tool     |
| <b>SHC</b>    | Secondary Health Care                                  |
| <b>SOP</b>    | Standard Operating Procedure                           |
| <b>SPA</b>    | Service Provision Assessment                           |
| <b>STI</b>    | Sexually Transmitted Infection                         |
| <b>THQHs</b>  | Taluka Headquarter Hospitals                           |
| <b>UNICEF</b> | United Nations International Children's Emergency Fund |
| <b>USAID</b>  | United States Agency for International Development     |
| <b>WHO</b>    | World Health Organization                              |
| <b>WMO</b>    | Women Medical Officer                                  |

# Executive Summary

Health facility assessments (HFA) are increasingly used to measure the functioning and readiness of health facilities. In the province of Sindh, health systems are facing multiple challenges that range from aging healthcare infrastructure, deficient human resource to the dearth of medicines, supplies, and equipment. While the Government of Sindh is committed to implementing reforms agenda for improving the health of the people of Sindh, in the form of Sindh Health Sector Strategy 2012-2020, Essential Packages of Health Services, and contracting out of health facilities, a need for comprehensive facility level data was envisaged to lay down the foundation of these actions. With this in backdrop, Sindh's Department of Health (DOH) made a formal submission to Health Systems Strengthening (HSS) Component of USAID's Maternal Child Health (MCH) Program to conduct a comprehensive assessment of all the existing health facilities in the province.

The aim of the HFA was to assess the functioning of systems and structures in the public sector to generate evidence for informed planning, with specific objectives of assessing: 1) general facility readiness in terms of resources, 2) availability of healthcare services, 3) service specific readiness for a set of specialized services, and 4) providing specific recommendations on bridging the identified gaps. In the initial phase, a total of 929 health facilities (15 DHQ hospitals, 58 THQ Hospitals, 121 RHCs, 734 BHUs) were assessed in 23 districts of Sindh, excluding Karachi that is planned to be covered in the next phases of the assessment. Data collection was done using customized tools adapted from the Service Provision Assessment (SPA) of MEASURE-USAID and WHO's Service Availability & Readiness Assessment (SARA) methodology. In each district, a trained team comprising of a medical doctor and paramedic collected the data on paper-based questionnaires. Robust monitoring and quality assurance activities were carried out throughout the data collection exercise.

Overall the situation of general facility readiness of District Headquarter (DHQ) Hospitals was far below satisfaction. There were huge gaps in all the domains assessed, specifically related to the shortage of equipment and medicines, deficient infrastructure and non-availability of not just consultants but also diagnostic services. The state of facility management practices depicted that supervisory visits, though routinely undertaken at the DHQ Hospitals, were intended for inspection and control purpose instead of supportive supervision. Similarly, management meetings conducted at all the facilities lacked discussions on key agenda items like District Health Information System (DHIS) reporting and timeliness, quality of care, utilization, employment conditions, and issues related to budget and finance. The DHQ Hospitals also failed to maintain an effective liaison with their communities through community meetings to obtain their opinions and perceptions for improving service delivery. As an important component of facility management, the DHIS was operational at all the DHQ Hospitals with routine recording of information and reporting. Though the maintenance of DHIS tools was relatively satisfactory, however a complete set of these tools was not available at any of the DHQ Hospitals. Infection control and waste management practices were far below the acceptable standards, and guidelines for these practices were reported at only two DHQ Hospitals. Furthermore, none of the DHQ Hospital was using incinerator for waste management.

The assessment of human resources (HR) presented a dismal picture on the availability of all cadres and categories of staff at the DHQ Hospitals. Although the gap between standards and sanctioned posts

were minimal, there was high ratio of vacant positions (40%). Specifically, in the management staff positions, 69% gazetted, 74% non-gazetted and 87% of support staff positions were filled. Amongst the service providers, only 38% of specialist doctors, 47% of non-specialist doctors, 48% of nurses and 86% of paramedics' positions were filled at the DHQ Hospitals.

The situation was no different for a majority of the infrastructure components that were either missing or had issues of different severity levels. On average, less than one third of the infrastructure components available at the DHQ Hospitals were in good condition. Almost a similar proportion had various minor or major issues whereas a very small section was under construction. The scarcity of infrastructure components at ICUs (16% availability), indoors (23%), and operation Theaters (33%) – depicted the incapacitated situation of these key service delivery areas of secondary level hospitals. In the equipment domain, on average, 35% of the equipment items were available. There were certain service delivery areas where these deficiencies were more drastic e.g. in the ICUs, only 15% of the required items were available. This serious deficit of equipment as opposed to the required availability standards negatively affected the services rendered to patients, resulting in poor and sub-optimal quality of care. Moreover, large quantities of non-functional equipment were also identified during the assessment of the health facilities which could not be repaired due to lack of suitable arrangements at district level as well as budgetary constraints. The assessment of medicines and supplies was based on Essential Medicines List (EML) 2014, with a total of 343 items assessed for their availability and validity. Most of the medicines (20%) were not available on the day of survey. While inadequate budget allocation was one key reason along with weak supply and reporting mechanisms, cumbersome drug procurement procedures seemed to be another major cause.

Resource deficiencies have adversely affected the service delivery at health facilities. A closer look at the packages reveals certain areas that are more incapacitated than the others. As seen in maternal health, most facilities provide obstetric care services but under provide gynecological services. Additionally, there were three DHQ Hospitals where cesarean sections were not performed while more than half did not undertake assisted vaginal deliveries. Given the level of DHQ Hospitals – the largest referral facility in a district – inability to provide these life-saving services pose serious concerns for the Department of Health. Almost all services were provided by all the DHQ Hospitals but child health services were relatively better. Gaps were seen in the provision of growth monitoring services, a module that was an integral part of the Health Management Information System (HMIS) but has not been made a part of the DHIS, hampering the delivery of these services. Modern family planning methods were provided at almost all the DHQ Hospitals with minor supply deficiencies in implants and IUCDs. However, availability of tubal ligation and vasectomy services was on the low side.

This assessment has helped surface major deficiencies in the availability of resources needed for optimal operationalization of DHQ Hospitals of Sindh. In order to bridge the gaps and improve the service delivery at the DHQ Hospitals, a number of domain-specific recommendations need to be implemented. The database developed as a result of this assessment should also be used to support the implementation of health reforms agenda of the Government of Sindh. Last but not the least, there is a dire need for concerted advocacy efforts at all levels to translate the HFA recommendations into actions thereby ensuring better health outcomes for the people of Sindh.

# 1. Introduction & Methodology

Sindh is Pakistan's second most populous province, facing multiple challenges in the health sector that range from aging health infrastructure and deficient human resource to the dearth of medicines, supplies and equipment. Additionally, the 18<sup>th</sup> constitutional amendment has led to a multifold increase in the administrative and fiscal space of the province with a subsequent increase in responsibilities that have burdened its already weakened health system and structures.

The Government of Sindh's Department of Health is committed to not just implementing health reforms agenda envisaged in the Sindh Health Sector Strategy 2012-2020 but to also realize the 'Essential Package of Health Services' at primary healthcare level. Since the process of 'contracting out' has its peculiar data needs, the current technical assistance for HFA became a requisite by the DOH, Government of Sindh. Evidence generated through HFA shall be used for informed decision-making and actions.

The Health Systems Strengthening (HSS) component of USAID's MCH Program has conducted HFA in primary and secondary public sector healthcare facilities. The information gathered through this assessment provides a detailed picture of the functioning of healthcare delivery system and helps generate a comprehensive baseline of districts and facility based information for the DOH. The HFA thus provides basis for informed planning to ensure better management and efficient use of resources.

## 1.1 Objectives

The aim of the HFA is to assess functioning of systems and structures in public sector to generate evidence for informed planning. Specific objectives are:

1. To assess availability of healthcare services
2. To assess facility readiness in terms of following domains:
  - Facility management
  - Human resource
  - Basic amenities
  - Infrastructure
  - Drugs and supplies
  - Equipment
  - Diagnostics
3. To assess the service specific readiness for specialized services
4. To provide specific recommendations on bridging the identified gaps

## 1.2 Scope & Coverage

The HFA was conducted in 23 districts of Sindh. The assessment covered all District Headquarter Hospitals (DHQs), Taluka Headquarter Hospitals (THQs), Rural Health Centers (RHCs) and Basic Health Units (BHUs). This report presents HFA results of 15 DHQ Hospitals.

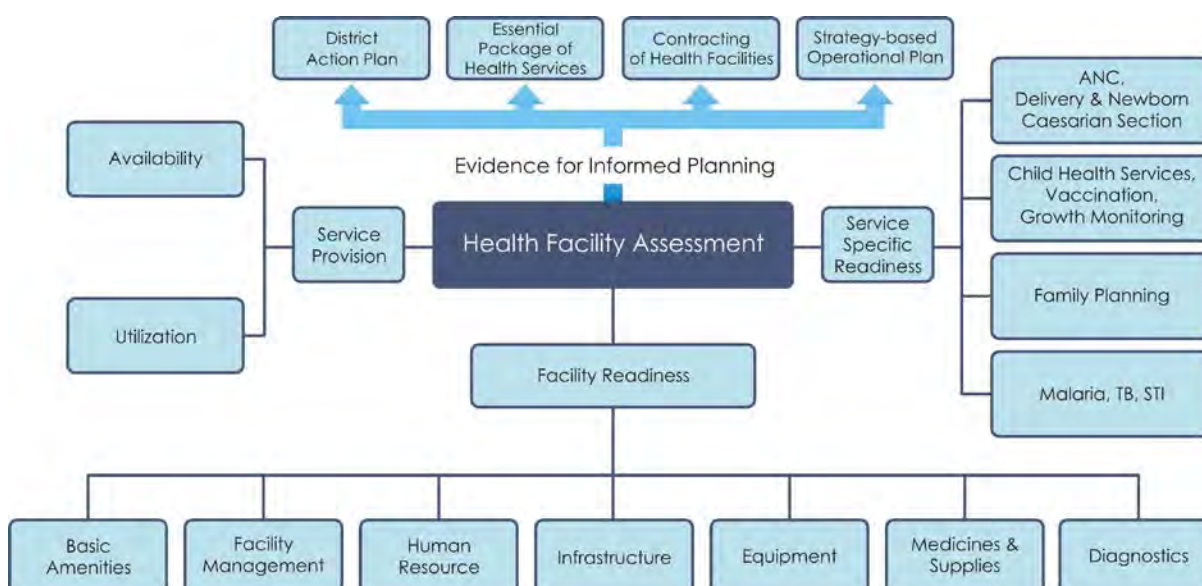
## 1.3 Survey Duration

The survey work started in August 2015 and was concluded by the end of December 2015.

## 1.4 HFA Conceptual Framework

Based on the focal areas of HFA that included assessing the service availability, facility readiness, and service specific readiness, a conceptual framework was developed for HFA (Figure 1). Using the World Health Organization's (WHO) building blocks, readiness was assessed in the areas of management, human resource, infrastructure, equipment & medical technologies, and drugs and supplies. The availability of services was assessed based on the stated responses of the facility managers and validated through the service utilization records of the facilities. Service specific readiness of the specialized services was also assessed as per the scope of the individual facilities.

**Figure 1: Conceptual Framework of Health Facility Assessment Sindh**

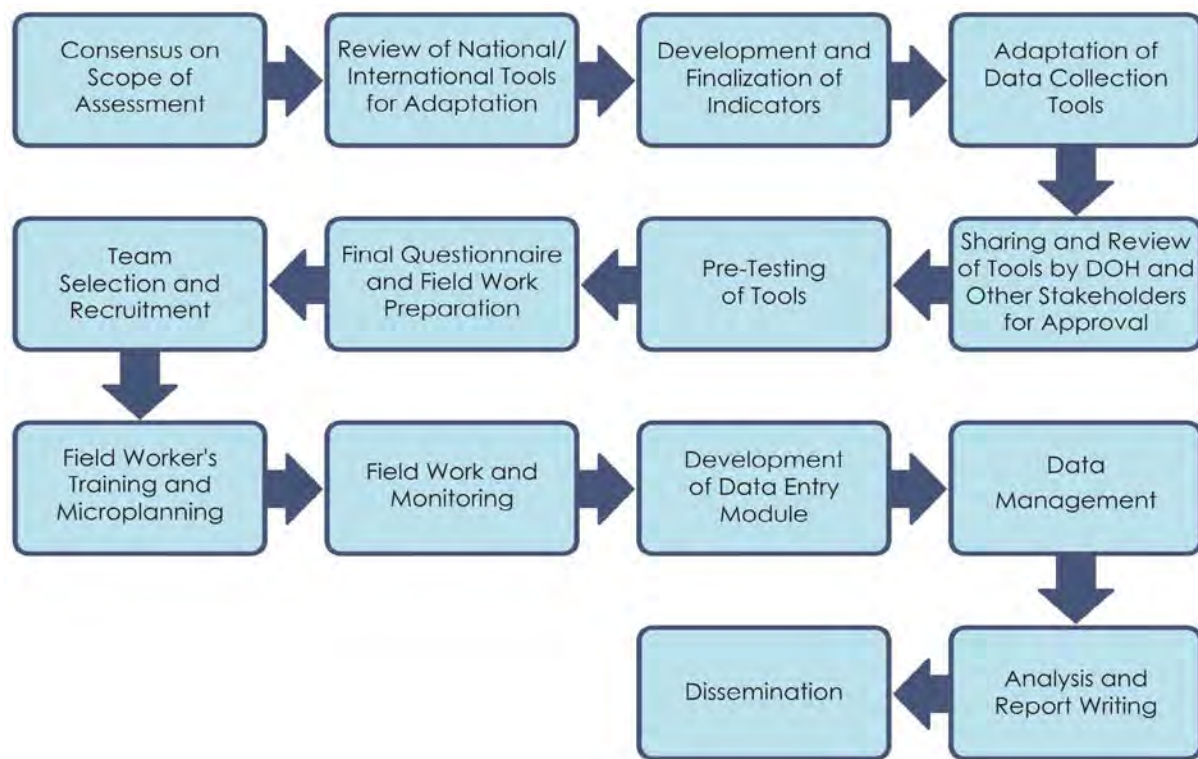


## 1.5 Methodology

To carry out this cross-sectional assessment, a number of quantitative techniques were used. The data was collected through interviews of personnel in charge of the health facility and other staff members, along with physical validation and observation of facility records. Starting from the first step of conceptualization and building consensus amongst the stakeholders, the process of the HFA followed a standardized methodology, explained as follows (Figure 2)



**Figure 2: HFA Activities**



### 1.5.1 Consensus on the Scope and Objectives

Consultative meetings were held during the design phase, with key stakeholders including the provincial Health Department, Peoples Primary Healthcare Initiative (PPHI) and partners of USAID's MCH Program. The scope, objectives and methodology were finalized in the light of their feedback.

### 1.5.2 Literature Review of HFA Questionnaires

The literature review of HFA questionnaires was conducted for the preparation of comprehensive assessments tools. In this regard, MEASURE Service Provision Assessment (SPA) Tool, WHO's Service Availability and Readiness Assessment (SARA)<sup>1</sup>, Health Facility Assessment Survey of Pakistan 2011-12<sup>2</sup> and documents of the DOH Sindh, including PCs-1<sup>3</sup>, Minimum Service Delivery Standards, and Human Resource Yardsticks<sup>4</sup> were reviewed to inform the questionnaire development process.

<sup>1</sup> Service Availability and Readiness Assessment (SARA). An annual monitoring system for service delivery, Version 2.2 December 2014, by WHO

<sup>2</sup> Health Facility Assessment Pakistan, (SD&MB, Equipment, Infrastructure Tools) 2011-12, TRF (DFID)

<sup>3</sup> PCs-1 Tando Muhammad Khan, Kamber, Badin and Shikarpur

<sup>4</sup> (Department of Health-Government of Sindh, 2010)

### 1.5.3 Development of HFA Indicators

HFA indicators were prepared to address the objectives and assessment areas. This indicator matrix provided comprehensive linkages of the HFA areas and objectives with the domains, subdomains, components and sub-components. It further included the operational definitions derived from the literature review. The matrix proved useful in the design phase for development of questionnaires, and in the analysis phase to conduct systematic and comprehensive analysis for ensuring that no important information was missed out.

### 1.5.4 Development of HFA Questionnaires

Draft questionnaires were prepared through the adaptation of the internationally standardized tools. These questionnaires were further updated and contextualized for making their content province-specific. Two questionnaires were developed for each health facility comprising Service Availability and Readiness Assessment Tool (SARAT) and Inventory Assessment Tool (IAT).

SARAT contained the following modules and sections:

- Facility information and information about data collection
- Service availability
- Basic amenities
- Facility management
- Human resource
- Diagnostics
- Service specific readiness

IAT recorded information about the following domains:

- Equipment
- Infrastructure
- Drugs and supplies

### 1.5.5 Sharing of Tools

Draft tools were shared with the provincial stakeholders (DOH and PPHI), partners of USAID's MCH Program, and UN agencies. Inputs were also received from the personnel in charge of the facilities at all levels through consultative meetings. Based on the feedback, HFA tools were updated and finalized by incorporating inputs received from the stakeholders.

### 1.5.6 Pre-Testing of Tools

Pre-testing of the HFA tools was conducted in district Tando Allah Yar. Both SARAT and IAT were filled at one DHQ Hospital, three RHCs, and 14 BHUs of the district.

### **1.5.7 Finalization of Tools & Field Work Preparation**

Based on the feedback of pre-testing, minor adjustments were made in the tools for their further use. Additionally, pre-testing also helped in the finalization of data collection strategy for all districts of Sindh province like team formation, number of days required for each type of facility, traveling modalities, and training requirements.

### **1.5.8 Selection & Recruitment of Data Collection Tools**

Each data collection team comprised of a doctor and a paramedic. The first step in the recruitment of data collection teams was review of the CVs and shortlisting of candidates for interviews. The HFA technical team conducted interviews of the shortlisted candidates for their selection. After the interviews, finalized candidates were recruited for data collection exercise.

### **1.5.9 Training and Micro-Planning**

A three days' training session was conducted separately for the doctors, who worked as team leaders, and for the paramedics. The first two days of the training focused on classroom-style training where the teams were informed about the survey and data collection tools. On the third day, teams were sent to the health facilities where they filled out their questionnaires to obtain hands-on understanding of the questionnaires before initiation of actual assessment work. After the field simulation, all the issues faced by the teams in filling out the questionnaires were discussed and explained by the trainers to bring all the teams on the same page.

At the end of the training, data collection teams, with the support of HSS cluster coordinators and field survey coordinator, prepared individual micro-plans for assessment of health facilities. All teams initiated their work at the DHQ Hospitals and after its completion, assessed the THQ Hospitals first, then the RHCs and finally ended with the BHUs.

### **1.5.10 Field Work & Monitoring**

The Directorate General of Health Services (DGHS) informed all the District Health Officers (DHO) about the initiation of the HFA while the PPHI Head Office forwarded similar information to their District Managers (DM). At the start of the survey, data collection team along with cluster coordinators met with the DHO as well as DM PPHI. The purpose of these visits was to obtain formal permission to initiate the survey, sharing of the micro-plans, validation of the list of health facilities included in the assessment and informing health facility persons in-charge.

Officials from DOH and PPHI, HFA technical team, and HSS cluster coordinators continuously monitored the data collection teams during their fieldwork. A structured monitoring checklist was used during monitoring of field data collection exercise. The logs of checklists provided insight into the working of field teams with feedback provided accordingly to the teams. During the monitoring visits, data collection was reviewed for completeness, proper recording of information and accuracy of recorded data. On-site technical support was provided to the teams to ensure quality of data. Furthermore, participatory meetings were held in clusters with data collection teams for review of their filled tools and provision of feedback on weak areas.

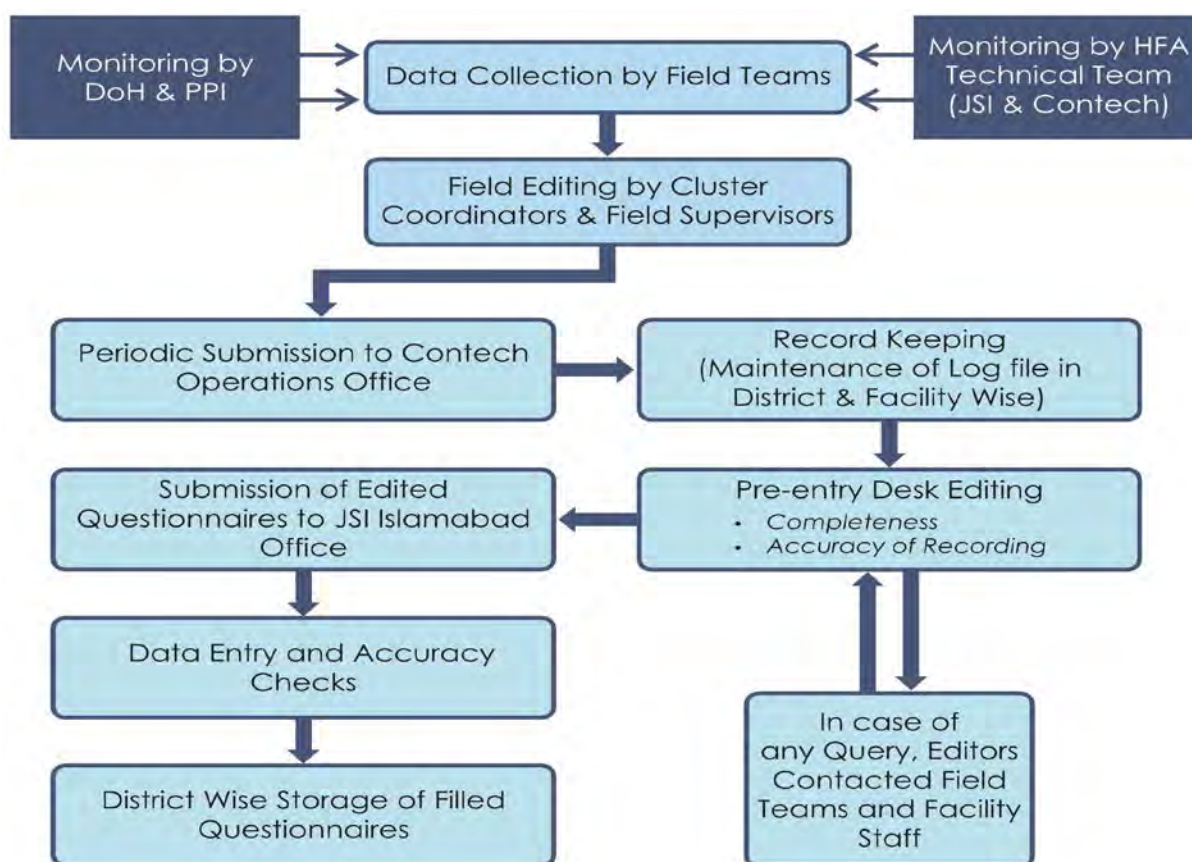
### 1.5.11 Development of Data Entry Module

A data entry module was prepared in CS-Pro, separately for SARAT and IAT. Prior to its use, it was tested and the errors identified in the coding process were rectified.

### 1.5.12 Data Management

Given the extensive amount of data, customized data management protocols were developed. These included collection of data from health facilities, its editing in the field, compilation of filled data collection tools from districts at the central office, desk editing, data entry in a customized module, and its storage. Data management protocols are illustrated in Figure 3.

**Figure 3: Data Management Protocols**



### 1.5.13 Analysis & Report Writing

Data analysis followed the design and development of objectives and conceptual framework of the HFA. Services availability outputs were developed as simple frequency tables based on stated responses and validation through facility utilization data. Analysis for general and service specific readiness focused on seven domains, through calculation of cumulative means at multiple steps to comment on the readiness at level of individual domains and overall facility readiness index. A separate report has been prepared that includes individual facility wise information on all the assessed indicators in the form of a database.

### **1.5.14 Dissemination**

HFA reports were finalized on the basis of feedback received from all the stakeholders. These reports were then formatted and graphically designed for printing. Power Point presentations reflecting the findings of HFA were prepared for dissemination in a provincial level seminar.

## **1.6 Quality Assurance**

Key measures taken to ensure quality of data were:

- Extensive review of literature to make tools context specific
- Extensive sharing of data collection tools with all stakeholders
- Pre-testing at a district scale at Tando Allah Yar
- Customized trainings and refreshers
- Technical support and on-site data editing by cluster coordinators especially in the initial days
- Monitoring and frequent interaction by HFA Technical Team to provide on-site hands-on support and continuous guidance
- Using structured checklists by all monitors to ensure uniformity in monitoring as well as providing feedback to teams on their weak areas identified
- Rigorous desk editing of tools received from the field before data entry
- Provision of feedback based on findings of desk editing
- Minimizing data entry errors through internal checks



## 2. Results

The results of HFA are compiled and presented under the headings of: 1) General Facility Readiness, 2) Service Availability, 3) Service Specific Readiness, and 4) Facility Database. The approach for results compilation and presentation is briefed at the start of each area, which is followed by the findings.

### 2.1 General Facility Readiness

General facility readiness focused on seven domains to assess general facility readiness in delivering its mandated services. These domains were basic amenities, facility management, human resource, diagnostics, infrastructure, equipment, and medicines & supplies. Each domain comprised of further sub-domains as well e.g. the facility management domain contained nine sub-domains including: external supervision, management meetings, community meetings, quality assurance, client opinion and feedback, fee for services, District Health Information System (DHIS), infection control, and waste management. Furthermore, each sub-domain contained multiple components e.g. management meetings consisted of five components including periodicity, meeting agenda items, record maintenance, decision-making, and follow-up of decisions. Likewise, certain components comprised of multiple sub-components/items e.g. meeting agenda items consisted of eight items.

#### 2.1.1 Domain I: Basic Amenities

The domain of basic amenities relates to the extent to which the physical conditions of a health facility are welcoming and favorable for the delivery of healthcare services. It includes communication services, water supply, power supply, transport for emergency services, client latrines, and general cleanliness.<sup>5</sup> The status of basic amenities assessed in 15 DHQ Hospitals is as follows.

##### 2.1.1.1 Communication Services

Communication services at health facilities were assessed by observing availability of functional communication equipment including landline telephone, *vfone* or facility paid/supported cellular phone. Functional landline phones were those that were accessible round the clock to the facility staff, to be used for the delivery of healthcare to the patients. Functioning communication equipment did not include private cell phones unless the facility had provided the cellular phone or reimbursed the cost. The assessment showed that majority of DHQ Hospitals had landline telephone (Table 1).

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<sup>5</sup> (Murray & Evans, 2003)

**Table 1: Communication services at DHQ Hospitals***Number of DHQ Hospitals having functional communication services*

| Type of Communication                              | Availability at DHQ Hospitals (n=15) |            |
|--|--------------------------------------|------------|
|  | Number                               | Percentage |
| Functional landline telephone                      | 11                                   | 73         |
| Functional facility-owned/supported cellular phone | Nil                                  | Nil        |
| <b>Total (any functional)</b>                      | <b>11</b>                            | <b>73</b>  |

### 2.1.1.2 Water Supply

As defined by the WHO/UNICEF Joint Monitoring Programme<sup>6</sup>, improved source of water includes: 1) piped water into dwelling, 2) piped water to yard/plot, 3) public tap or standpipe, 4) tube well or borehole, 5) protected dug well, 6) protected spring, and 7) rainwater. In 14 DHQ Hospitals, improved water sources were found either in the form of 'piped into facility or onto facility ground', through 'tubewell or borehole' (Table 2). Only one DHQ Hospital did not have water source available within the facility and water was brought to the facility in a cart.

**Table 2: Water supply at DHQ Hospitals***Number of DHQ Hospitals having improved water supply*

| Source of Water                             | Availability at DHQ Hospitals (n=15) |            |
|---|--------------------------------------|------------|
|   | Number                               | Percentage |
| Piped into facility or onto facility ground | 8                                    | 53         |
| Tube well or bore hole                      | 6                                    | 40         |
| Cart with small tank or drum                | 1                                    | 7          |

### 2.1.1.3 Power Supply

The power supply from WAPDA electricity grid was reported by all the DHQ Hospitals. However, interruption in the supply (break in power supply) was also reported by all the facilities, which was covered by fuel-operated generator in all 15 facilities whereas none had solar system installed as an alternate source of power (Table 3).

**Table 3: Power supply at DHQ Hospitals***Number of DHQ Hospitals having electricity supply and availability of alternative sources*

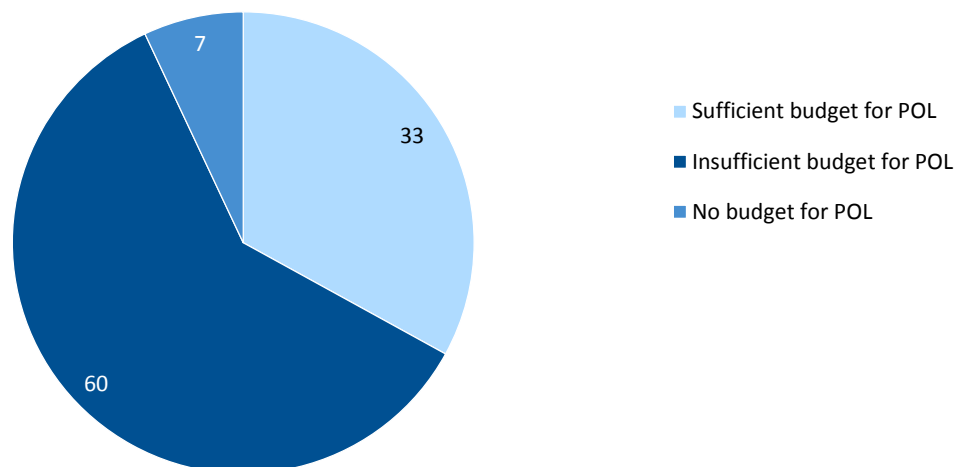
| Type of Power Supply                 | Availability at DHQ Hospitals (n=15) |            |
|--------------------------------------|--------------------------------------|------------|
|                                      | Number                               | Percentage |
| Supply from electricity grid (WAPDA) | 15                                   | 100        |
| <b>Major Alternative Source</b>      |                                      |            |
| Functional fuel-operated generator   | 15                                   | 100        |

<sup>6</sup> (WHO, UNICEF, n.d.)



Petroleum, oil and lubricants (POL) was reported sufficient at five DHQ Hospitals (33%), nine DHQ Hospitals (60%) reported insufficient budget for POL while one DHQ Hospital (7%) reported non-availability of budget for POL (Figure 4).

**Figure 4: Percentage of DHQ Hospitals having budget for POL for fuel-operated Generator**



#### 2.1.1.4 Client Latrine

Functional latrines– meeting improved sanitation criteria defined by UNICEF/WHO<sup>7</sup> (flush toilet, piped sewer system, septic tank, flush/pour flush to pit latrine, ventilated improved pit latrine, pit latrine with slab, composting toilet) – for clients in out-patients departments were available at all the assessed facilities. Separate latrine for females however was lacking in one third of the facilities (Table 4).

**Table 4: Client latrines at DHQ Hospitals**

*Number of DHQ Hospitals having functional client latrine*

| Client Latrine   | Availability at DHQ Hospitals (n=15) |            |
|--|--------------------------------------|------------|
|  | Number                               | Percentage |
| Functional client latrine in out-patient services area | 15                                   | 100        |
| Separate latrine for female clients                    | 10                                   | 67         |

#### 2.1.1.5 Transport Services

The facilities were assessed for availability of functional ambulance or emergency transport, i.e. any vehicle stationed at and operated by the facility. In addition to the availability of ambulance at the facility, it was also assessed if the facility had established linkages for patient transportation with other health facilities or ambulance services existing in the community, like EDHI ambulance. Functional ambulance services were available at all the DHQ Hospitals. Moreover facilities linkage with functional ambulances of other facilities or community was found at 12 DHQ Hospitals (Table 5).

<sup>7</sup> (WHO, UNICEF, n.d.)

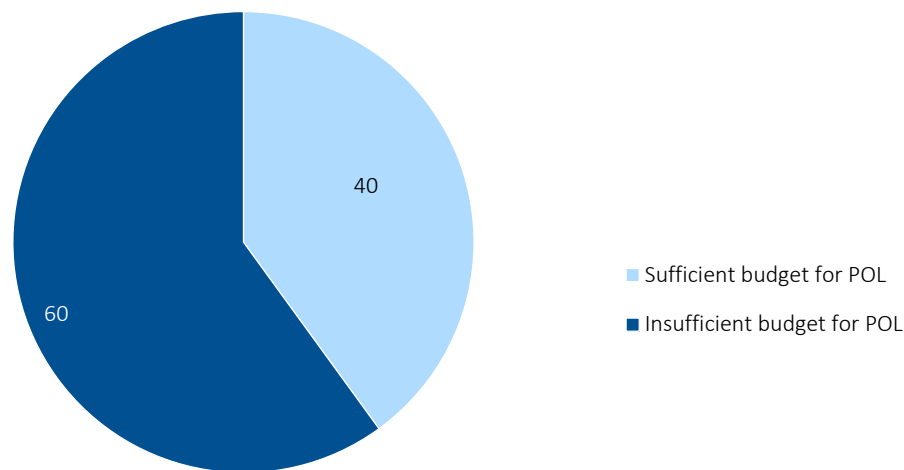
**Table 5: Emergency transport services at DHQ Hospitals**

*Number of DHQ Hospitals having emergency transport services*

| Ambulance Services  | Availability at DHQ Hospitals (n=15) |            |
|---|--------------------------------------|------------|
|   | Number                               | Percentage |
| Functional ambulance at the facility                                  | 15                                   | 100        |
| Linkage with functional ambulance at other facility or with community | 12                                   | 80         |

The availability of sufficient POL for ambulance was reported in only seven DHQ Hospitals (40%) whereas eight DHQ Hospitals (60%) had insufficient POL as shown in the Figure 5.

**Figure 5: DHQ Hospitals having budget for POL for Ambulance Services**



### 2.1.1.6 General Facility Cleanliness

High standards of cleanliness at healthcare facilities are conducive to ensuring quality and safe care. As per the facility cleanliness guidelines, routine programmed cleaning of surfaces and fittings should be carried out to ensure that the healthcare environment is visibly clean, and free from any dust and soil. Any areas contaminated with blood or body fluids need to be cleaned and disinfected. Similarly, healthcare waste should be segregated at the point of generation, according to its type, into categories such as sharps, non-sharps infectious waste, and non-sharps non-infectious waste. Sharps are to be placed immediately into sharps containers, which should be regularly collected for disposal, while non-sharps infectious waste should be buried in a pit fitted with a sealed cover.<sup>8</sup>

The general level of cleanliness and disposal of medical waste was assessed against a number of variables. Overall the status seemed to be just satisfactory as less than half of the DHQ Hospitals fulfilled all the general cleanliness requirements. Amongst the components of facility cleanliness, one of the major issues was related to proper storage of medical waste at the health facility (Table 6).

<sup>8</sup> (Adams, Bartram, & Chartier, 2008)

**Table 6: General cleanliness of DHQ Hospitals***Number of DHQ Hospitals meeting general cleanliness requirements*

| Components of Facility Cleanliness           | Availability at DHQ Hospitals (n=15) |            |
|--|--------------------------------------|------------|
|  | Number                               | Percentage |
| Cleanliness of floors                        | 8                                    | 53         |
| Cleanliness of counters, tables and chairs   | 12                                   | 80         |
| Proper storage of sharp waste                | 11                                   | 73         |
| Maintained sharp storage boxes               | 9                                    | 60         |
| Proper storage of medical waste (non-sharps) | 7                                    | 47         |
| <b>Hospitals having all of the above</b>     | <b>6</b>                             | <b>40</b>  |

### 2.1.1.7 Summary

Basic amenities included in the assessment were minimum facilities essential for provision of healthcare services. The status of a majority of assessed basic amenities at DHQ Hospitals was satisfactory but general cleanliness was poor mainly in the areas of storage of sharps and medical waste. Only one DHQ Hospital (District Jacobabad) lacked internal water source (water being supplied by cart) and four DHQ Hospitals lacked communication services, as no landline telephone was available round the clock in the hospital. Issues related to deficiency of budget for POL of generator and ambulance were commonly reported.

It was noted that there had been very little improvement in the availability of basic amenities over the last 5 years.<sup>9</sup> Basic amenities are now considered an important element of patient-centered care and satisfaction. Patients themselves perceive that non-clinical experience is twice as important as the clinical reputation in making hospital choices. Perhaps, this is because patients might not understand clinical quality.<sup>10</sup> Better amenities create environments preferred by the patients, providers, and staff members as they lead to provision of better care and services resulting in better health outcomes.<sup>11</sup>

## 2.1.2 Domain II: Facility Management

Facility management entails all actions and activities directed to optimize use of resources in order to deliver quality and patient centered healthcare. Facility management domain comprises of nine sub-domains: external supervision, management meetings, community meetings, quality assurance, client opinion and feedback, fee for services, District Health Information System (DHIS), infection control and waste management. Findings from assessment of each sub-domain are described in the following sections.

<sup>9</sup> (Technical Resource Facility, 2011-2012)

<sup>10</sup> (Goldman, Vaiana, & Romley, 2010)

<sup>11</sup> (Sodani, Kumar, & Sharma, 2010)

### 2.1.2.1 External Supervision

External supervision is a process of guiding, helping, training and encouraging staff to improve their performance in order to provide high quality healthcare services. It includes monitoring the work of clinical and non-clinical staff as well as quality of services provided.<sup>12</sup>

Majority of DHQ hospitals (13) reported having an external supervisory visit from the district, regional or provincial office in the month prior to the assessment, which was well within the stated norm (Table 7).

**Table 7: Situation of external supervision at DHQ Hospitals**

*Number and Percentage of DHQ Hospitals reporting supervisory visits along with duration since last supervisory visit*

| External Supervision | Availability at DHQ Hospitals (n=15) |            |
|----------------------|--------------------------------------|------------|
|                      | Number                               | Percentage |
| During last 1 month  | 13                                   | 87         |
| During 2-3 months    | 2                                    | 13         |

During a supervisory visit, the activities most commonly undertaken by external supervisors included discussion on staff performance, signature on registers, sharing report/feedback and supporting staff in evidence based decision making. Use of checklist during supervision and provision of feedback to facility were found to be areas of poor performance. The use of smartphone application based checklists was not reported by any of the DHQ Hospitals (Table 8).

**Table 8: Activities performed during supervisory visits of DHQ Hospitals**

*Number of DHQ Hospitals reporting supervisory visits and activities performed during last supervisory visit*

| External Supervisory Activities                   | Availability at DHQ Hospitals (n=15) |            |
|---|--------------------------------------|------------|
|   | Number                               | Percentage |
| Use of checklist for data quality                 | 7                                    | 47         |
| Signatures on registers                           | 11                                   | 73         |
| Report/Feedback                                   | 9                                    | 60         |
| Discussion on staff performance                   | 11                                   | 73         |
| Supporting staff in decision-making based on data | 11                                   | 73         |
| Hospitals having all of the above                 | Nil                                  | Nil        |

### 2.1.2.2 Management Meetings of Staff

Management meetings focus on what can be improved rather than on failures, and are oriented toward the patient, clinical procedures, outcomes and organizational performance.<sup>13</sup> All facilities had conducted management meetings of staff within the last three months and majority (87%) conducted the meetings on monthly basis which was according to required standard (Table 9).

<sup>12</sup> (Garrison, Caiola, Sullivan, & Lyman, 2004)

<sup>13</sup> (Shaw, 2003)

**Table 9: Frequency of management meetings at DHQ Hospitals**

*Number of DHQ Hospitals conducting management meetings of staff along with duration since last management meeting*

| Management Meetings of Staff | Availability at DHQ Hospitals (n=15) |            |
|------------------------------|--------------------------------------|------------|
|                              | Number                               | Percentage |
| During last 1 month          | 13                                   | 87         |
| During 2-3 months            | 2                                    | 13         |

Management meetings at a health facility are conducted with the agenda of developing an overall report of facility that would help in providing basic analysis of important performance indicators to the district managers and facility in-charge personnel. The records of most recent management meetings at health facilities showed lack of discussions on key priority agenda items. It was revealed that less than a quarter of DHQ hospitals discussed DHIS reporting & timeliness, quality of services, service utilization, diseases data, employment conditions or financial issues during meetings (Table 10).

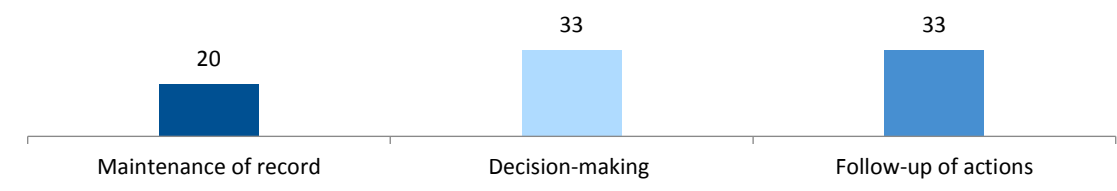
**Table 10: Activities/actions performed during management meetings at DHQ Hospitals**

*Number of DHQ Hospitals conducting management meetings of staff and activities performed during last management meeting*

| Agenda Items of Management Meetings | Availability at DHQ Hospitals (n=15) |            |
|-------------------------------------|--------------------------------------|------------|
|                                     | Number                               | Percentage |
| DHIS data quality                   | 4                                    | 27         |
| DHIS reporting                      | 4                                    | 27         |
| Timeliness of DHIS reporting        | 3                                    | 20         |
| Quality of services                 | 4                                    | 27         |
| Service utilization                 | 2                                    | 13         |
| Diseases data                       | 2                                    | 13         |
| Employment conditions               | 1                                    | 7          |
| Finance/budget                      | 2                                    | 13         |
| Hospitals having all of the above   | Nil                                  | Nil        |

The DHQ hospitals also had a poor show on account of maintaining a record of management meetings (like minutes of meetings) as only three DHQ Hospitals (20%) were maintaining the record of the meetings. However decision making on issues identified during the meetings and follow up on actions related to the decisions was quite low and reported only at five facilities (33%) as shown (Figure 6).

**Figure 6: Components of Management Meetings at (%) DHQ Hospitals**



### 2.1.2.3 Community Meetings

Community meetings between the facility staff and communities are important for various reasons, whether it is information regarding availability of services, facility timings or perceptions or concerns and feedback about quality of services. Community meetings further provide an opportunity to the service providers and beneficiaries to maintain a dialogue and identify compromising solutions that not only meet community demands but also reflect the capacity of the services.<sup>14</sup>

Only eight DHQ Hospitals had held meetings with their communities and maintenance of record was found at only three DHQ Hospitals (Table 11).

**Table 11: Frequency of meetings of facility staff with community at DHQ Hospitals**

*Number of DHQ Hospitals reporting meetings of facility staff with community along with duration since last meeting and maintenance of record*

| Meetings of Staff with Community                                       | Availability at DHQ Hospitals (n=15) |            |
|--|--------------------------------------|------------|
|  | Number                               | Percentage |
| During last 1 month  | 4                                    | 27         |
| During 2-3 months  | 4                                    | 27         |
| No community meeting   | 7                                    | 44         |
| Maintenance of record (Minutes of Meetings) of staff-community meeting | 3                                    | 20         |

### 2.1.2.4 Client Opinion & Feedback

Client feedback entails the views and experiences of patients and beneficiaries about the care that they have received.<sup>15</sup> This activity results in improved client satisfaction, continued and sustained use of services, and improved health outcomes. Therefore, all facilities must have some mechanisms in place to capture clients' perceptions and concerns about the quality of care.<sup>16</sup>

<sup>14</sup> (Howard, et al., 2002).

<sup>15</sup> (Picker Institute Europe, 2015)

<sup>16</sup> (Creel, Sass, & Yinger, 2002)

The findings about mechanisms of capturing and using clients' opinion and feedback again reflected a dismal situation in the assessed DHQ Hospitals. Evidence from assessment findings showed that only two (13%) DHQ Hospitals had complaint box formally in place while eight (53%) health facilities reported having informal discussions with the patients' as client feedback. However to obtain clients opinions, 10 (67%) facilities used some method. The review of client opinion/feedback to improve quality of healthcare services was claimed to be practiced in only four (27%) DHQ Hospitals (Table 12).

**Table 12: Methods used for obtaining client opinion and feedback at DHQ Hospitals**

*Number of DHQ Hospitals obtaining clients' opinion and feedback by types of methods used*

| Method for Client Opinion/Feedback | Availability at DHQ Hospitals (n=15) |            |
|------------------------------------|--------------------------------------|------------|
|                                    | Number                               | Percentage |
| Complaint box                      | 2                                    | 13         |
| Client survey form                 | Nil                                  | Nil        |
| Client interview form              | Nil                                  | Nil        |
| Official meeting with community    | 1                                    | 7          |
| Informal discussions               | 8                                    | 53         |
| Email                              | Nil                                  | Nil        |
| Letter from clients                | 1                                    | 7          |
| Toll free number                   | 3                                    | 20         |
| Any of the above                   | 10                                   | 67         |
| Review of client opinion/feedback  | 4                                    | 27         |

### 2.1.2.5 Quality Assurance

Quality assurance is an ongoing process comprising of activities and interventions that are conducted to continuously improve healthcare services to meet the changing needs of client care. The DHQ Hospitals were asked about the performance of quality assurance activities like Lot Quality Assurance Sampling Technique, use of checklists, death audits, clinical reviews and adherence to service delivery protocols. 10 DHQ Hospitals (67%) were performing these activities but the record of these activities was maintained at only seven DHQs (47%).

### 2.1.2.6 User Fees

User fees refer to a financing mechanism that requires payment to be made at the point of service use and there is no risk sharing.<sup>17</sup> Majority of facilities reported charging fee for client services however only four DHQ Hospitals had displayed these charges (Table 13).

<sup>17</sup> (Lagarde & Palmer, 2008)

**Table 13: User fees at DHQ Hospitals***Number of DHQ Hospitals charging user fees*

| User Fees                    | Availability at DHQ Hospitals (n=15) |            |
|------------------------------|--------------------------------------|------------|
|                              | Number                               | Percentage |
| User fees charged            | 15                                   | 100        |
| Posting/display of user fees | 4                                    | 27         |

Overall, 12 DHQ Hospitals reported having some mechanism to support clients unable to pay for services. At majority of DHQ Hospitals, clients were given exemption/discount but one facility reported deferring the fee upon service provision (Table 14).

**Table 14: Procedures to support the clients unable to pay the fees at DHQ Hospitals***Number of DHQ Hospitals having procedures for clients unable to pay the user fees*

| Procedure               | Availability at DHQ Hospitals (n=15) |            |
|-------------------------|--------------------------------------|------------|
|                         | Number                               | Percentage |
| Exemption/discount      | 11                                   | 73         |
| Fees expected later     | 1                                    | 7          |
| Revisit when have money | 1                                    | 8          |
| Services not provided   | 2                                    | 13         |

### 2.1.2.7 Information Systems

All DHQ Hospitals had DHIS in place and dedicated focal persons to compile the DHIS reports. However, monthly reports were submitted by 13 of the DHQ Hospitals (Table 15).

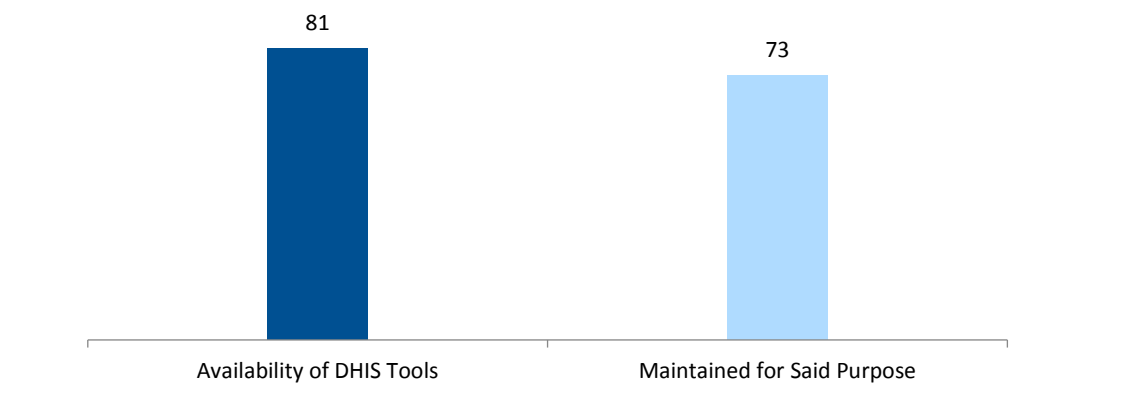
**Table 15: Situation of District Health Information System at DHQ Hospitals***Number of DHQ Hospitals having DHIS in place along with status of DHIS tools*

| DHIS Components             | Availability at DHQ Hospitals (n=15) |            |
|-----------------------------|--------------------------------------|------------|
|                             | Number                               | Percentage |
| DHIS in-place               | 15                                   | 100        |
| Compilation of DHIS reports | 15                                   | 100        |
| Monthly reporting           | 13                                   | 87         |
| Dedicated data manager      | 15                                   | 100        |

The DHIS tools were available at 12 DHQ Hospitals but none had a complete set of DHIS recording and reporting tools. In addition to the availability of the DHIS tools, assessment further reviewed whether the available DHIS tools were being used for recording information and data. On average, 73% of the available tools were being used for the said purpose (Figure 7).



**Figure 7: Status of DHIS Tools (in %) at DHQ Hospitals**



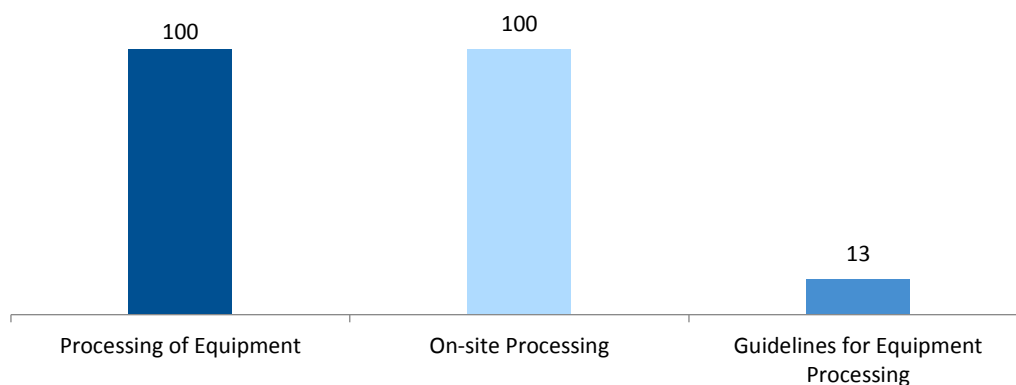
None of the DHQ Hospitals had all the DHIS tools available. Only two DHQ Hospitals (Sanghar and Tando Allah Yar) had 24 out of 25 tools available.

### 2.1.2.8 Infection Control

Infection control comprises of routine practices that are essential for controlling the infection, such as reprocessing of instruments, aseptic techniques, using single use devices and equipment, antibiotic usage, management of blood/body fluid exposure, handling and use of blood and blood related products, and sound management of medical waste.<sup>18</sup>

All DHQ Hospitals reported routine on-site processing of equipment for reuse, through sterilization or use of high-level disinfectant (HLD). However only two DHQ hospitals had guidelines (in the form of either printed manual or posters) for processing of equipment (Figure 8).

**Figure 8: Percentage of DHQ Hospitals processing equipment**



<sup>18</sup> (WHO Regional Office for South east Asia and Western Pacific, 2004)

Electric autoclave and electric boiler/streamer were most commonly employed methods of sterilization (Table 16).

**Table 16: Types of processing for reuse of equipment at DHQ Hospitals**

*Number of DHQ Hospitals having methods for processing of equipment for reuse by type of methods*

| Type of Methods                           | Availability at DHQ Hospitals (n=15) |            |
|---|--------------------------------------|------------|
|   | Number                               | Percentage |
| Electric autoclave                        | 13                                   | 87         |
| Non-electric autoclave                    | 8                                    | 53         |
| Electric dry heat sterilizer              | 5                                    | 33         |
| Electric boiler/streamer                  | 11                                   | 73         |
| Non-electric boiler/Steamer               | 3                                    | 20         |
| Chemical HLD                              | 5                                    | 33         |
| <b>Any sterilization method available</b> | <b>15</b>                            | <b>100</b> |

### 2.1.2.9 Waste Management

Healthcare waste management practices of facilities were assessed in the light of standard waste management guidelines. Safe disposal practices include: incineration i.e. open burning in protected area, dumping without burning in protected area, or removing waste offsite with protected storage. Majority of the DHQ Hospitals (9) were not using appropriate method for disposal of sharps waste.

**Table 17: Waste management of sharps at DHQ Hospitals**

*Number of DHQ Hospitals managing sharps waste by type of methods*

| Waste Management Method                            | Availability at DHQ Hospitals (n=15) |            |
|--|--------------------------------------|------------|
|  | Number                               | Percentage |
| <b>Appropriate Method</b>                          |                                      |            |
| Burning in industrial incinerator                  | Nil                                  | Nil        |
| Burning in non-industrial incinerator              | Nil                                  | Nil        |
| Open burning with protection                       | 06                                   | 40         |
| Protected dumping                                  | Nil                                  | Nil        |
| Protected storage for removal offsite              | Nil                                  | Nil        |
| <b>Any appropriate method used</b>                 | <b>06</b>                            | <b>40</b>  |
| <b>Inappropriate Method</b>                        |                                      |            |
| Open burning without protection                    | 03                                   | 20         |
| Unprotected dumping                                | 04                                   | 27         |
| Unprotected storage for removal offsite            | 02                                   | 13         |
| Do not have sharps waste                           | Nil                                  | Nil        |
| <b>Availability of waste management guidelines</b> | <b>01</b>                            | <b>7</b>   |

Similar to the management of sharps waste, majority of the DHQ Hospitals had no appropriate method in place for management of non-sharps/medical waste. Moreover, guidelines for waste management were reported available at only one DHQ Hospital (Table 18).

**Table 18: Waste management of medical waste at DHQ Hospitals**

*Number of DHQ Hospitals managing medical waste by type of methods*

| Waste Management Method                            | Availability at DHQ Hospitals (n=15) |            |
|--|--------------------------------------|------------|
|  | Number                               | Percentage |
| <b>Appropriate Method</b>                          |                                      |            |
| Burning in industrial incinerator                  | Nil                                  | Nil        |
| Burning in non-industrial incinerator              | Nil                                  | Nil        |
| Open burning with protection                       | 06                                   | 40         |
| Protected dumping                                  | Nil                                  | Nil        |
| Protected storage for removal offsite              | Nil                                  | Nil        |
| Any appropriate method used                        | 06                                   | 40         |
| <b>Inappropriate Method</b>                        |                                      |            |
| Open burning without protection                    | 03                                   | 20         |
| Unprotected dumping                                | 04                                   | 27         |
| Unprotected storage for removal offsite            | 02                                   | 13         |
| Do not have sharps waste                           | Nil                                  | Nil        |
| <b>Availability of waste management guidelines</b> | <b>01</b>                            | <b>7</b>   |

### 2.1.2.10 Summary

Facility management relates to all the actions and activities conducted to economize the resources for not only enhancing the performance of the health facility but also for providing good quality services.

Supervisory visits were conducted at a majority of DHQ Hospitals in the month preceding the assessment but quality of these visits was a major concern. Certain key activities were ignored during these visits, like use of structured checklist and provision of feedback report. Discussions on staff performance and supervisors helping facility staff in decision-making were frequently reported activities. However, details about these discussions were never reported which are the main requirements for continuous support and regular follow are up. Currently supervisory visits seem to follow the inspection and control approach that lacks the staff capacity building element. It relies more on strong external control over staff to ensure correct performance. *The culture of supportive supervision needs to be introduced for replacing the existing one. Moreover capacity building of relevant staff on guidelines and SOPs will help to institutionalize and sustain supportive supervision.*

Management meetings at a health facility are conducted with the objective to develop an overall report of facility which helps in providing basic analysis of important performance indicators to the district managers and facility in-charge personnel. Examining the records of most recent management meetings

of facilities highlighted the lack of discussions on key priority agenda items. It was revealed that less than a quarter of DHQ hospitals discussed DHIS reporting & timeliness, quality of services, service utilization, disease data, employment conditions or financial issues during meetings. DHQ hospitals also had poor show on account of maintaining the record of management meetings, decision making and follow up actions. Only one third of facilities had maintained record, taken decisions and actions as follow up of the meetings. The findings led to the conclusion that this important component is not followed and practiced in its true spirit, which might be one of factors contributing to low quality and underutilization of the services. ***The quality of management meetings should be improved by management trainings, SOPs, guidelines, technical assistance and accountability.***

Facility staff meetings with the communities are important for various reasons whether it is information regarding availability of services, facility timings or perceptions, concerns and feedback about quality of services. Community meetings further provide an opportunity to service providers and beneficiaries to maintain a dialogue and find compromised solutions that not only meet community demands but also reflect the capacity of the services.<sup>19</sup> Yet again the DHQ Hospitals performed poorly in maintaining liaison with their communities in the form of community meetings.

Client feedback consists of the views and opinions of patients and beneficiaries on the care they have experienced.<sup>20</sup> The assessment findings revealed that only two DHQ hospitals had complaint box formally in place, while eight health facilities reported having informal discussions with the patients as client feedback. However to obtain clients opinions, a total of 10 facilities were using some method. Review of client opinion/feedback to improve quality of healthcare services was practiced at only four DHQ hospitals. The findings about mechanisms of capturing and using clients' opinion and feedback again were reflective of a deprived situation in the assessed DHQ Hospitals. Client feedback results in improved client satisfaction, continued and sustained use of services, and improved health outcomes.<sup>21</sup> ***It is recommended that all facilities must have some mechanisms in place to capture clients' perceptions and concerns about the services received and use these to improve quality of care.***

Majority of DHIS tools were available at all the DHQ Hospitals, but none had the complete set of tools. Maintenance of DHIS tools was also relatively better at DHQ Hospitals. Tools non-availability surfaced in periodically used tools like catchment area population chart and secondary health facility report. The accuracy and quality of information recorded in the tools was beyond the scope of this study.

Infection control practices comprise of routine practices essential for controlling infection. These practices include reprocessing of instruments, aseptic techniques, using single use devices and equipment, antibiotics usage, management of blood/body fluid exposure, handling and use of blood and blood products and, sound management of medical waste.<sup>22</sup> Infection control practices were reported to be observed at all the facilities in the form of sterilization. A majority of the facilities used other appropriate methods but modern electric devices like autoclave was still not in use at majority of the

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<sup>19</sup> (Howard, et al., 2002).

<sup>20</sup> (Picker Institute Europe, 2015)

<sup>21</sup> (Creel, Sass, & Yinger, 2002)

<sup>22</sup> (WHO Regional Office for South east Asia and Western Pacific, 2004)

facilities. A major gap noted was lack of infection control guidelines, which were present at only two DHQ Hospitals.

Healthcare waste management practices of facilities were assessed in the light of standard waste management guidelines. Safe disposal practices include: incineration i.e. open burning in protected area, dumping without burning in protected area, or removing waste offsite with protected storage. Majority of the DHQ Hospitals were not using appropriate method of waste disposal; neither for sharps waste nor infectious medical waste. None of the facilities reported using incinerator. ***Infection control guidelines in the form of manuals and poster/displays should be provided at all the facilities. Furthermore, relevant staff should be routinely trained on proper use of these guidelines.***

### 2.1.3 Domain III: Human Resource

Human resource (HR) is a vital constituent of health system. It is the appropriateness and competence of human resource that greatly determines the performance and service delivery of a health system.<sup>23</sup> Human resource domain is divided into two sub-domains: management staff and service provider staff. Management staff sub-domain is further segregated into gazetted, non-gazetted and support staff. Service provider staff includes specialists, non-specialist doctors, nurses and paramedics.

All the components were scored equally and the mean summed up to give the score of sub domain. The sum of sub domains' mean resulted in domain score.

#### 2.1.3.1 Availability of Staff

Management staff in most of the healthcare facilities comprises of medical superintendent and his team. They are legally and morally obliged to ensure a high quality of patient care while mandating policy, systems, procedures and organizational climates.<sup>24</sup> The importance of management staff for smooth working of a health facility therefore cannot be overemphasized. The assessment findings showed that at DHQ Hospitals, amongst the management staff positions, 69% of gazetted and 74% of non-gazetted positions were filled. However, 87% of support staff positions were filled at assessed facilities.

Specialists are involved in the delivery of specialized clinical care while non-specialist doctors provide routine care including primary healthcare.<sup>25</sup> Nursing and paramedics are involved in initial assessment of patients and provide support in carrying out investigation, treatment and nursing care. The availability of service providing staff portrayed a very dismal picture as only 38% of specialist doctors, 47% of non-specialist doctors, 48% of nurses and 86% of paramedics' positions were filled at the DHQ Hospitals (Table 19).

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<sup>23</sup> (Kabene, Orchard, Howard, Soriano, & Leduc, 2006)

<sup>24</sup> (Parand, Dopson, Renz, & Vincent, 2014)

<sup>25</sup> (BMA Central Consultants and Specialists Committee, July 2008)

**Table 19: Human resource at DHQ Hospitals***Availability of staff at DHQ Hospitals by categories*

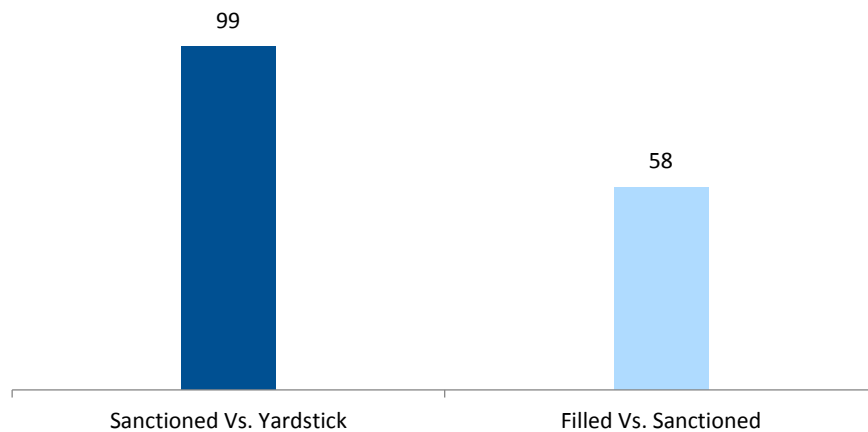
| Categories of Human Resource  | Availability of Staff at DHQ Hospitals |             |            |
|-------------------------------|--|-------------|------------|
|                               | Sanctioned                             | Filled      | Percentage |
| Gazetted management staff     | 52                                     | 36          | 69         |
| Non-gazetted management staff | 101                                    | 75          | 74         |
| Consultant doctors            | 247                                    | 93          | 38         |
| Non-Consultant doctors        | 560                                    | 264         | 47         |
| Nurses                        | 393                                    | 190         | 48         |
| Paramedics                    | 762                                    | 659         | 86         |
| Support staff                 | 1379                                   | 1201        | 87         |
| <b>Total</b>                  | <b>3494</b>                            | <b>2518</b> | <b>72</b>  |

### 2.1.3.2 Staff Coverage

Provision of round the clock staff at health facilities is essential for handling emergencies. The DHQ hospitals were assessed for 24 hours service coverage keeping in view the duty schedule or roster. All of the 15 DHQ Hospitals had 24/7 staff coverage and duty rosters were observed at all the hospitals as well.

### 2.1.3.3 Sanctioned-Filled Variation

At each DHQ Hospital, sanctioned positions of the staff were compared with the standard/yardstick of the DOH. Furthermore, out of sanctioned positions, filled positions were also reported. The findings revealed that overall 40% of sanctioned positions were still vacant at the DHQ Hospitals (Figure 9).

**Figure 9: Availability status (in %) of sanctioned and filled staff positions at DHQ Hospitals**

#### 2.1.3.4 Detailment

Detailment refers to placement of staff against a sanctioned position, in a facility other than the original place of posting. If a staff working in certain facility belongs to other facility (against which salary is drawn), the staff is considered 'detailed in'. On the other hand, a staff working at a place other than the facility where he/she is posted and draws salary is said to be 'detailed out'. *In case of DHQH, number of staff detailed in far outnumbered the staff that was detailed out (162 compared to 65), reflecting the general trend of staff's preference to work and live in larger towns due to better living conditions than to work in rural and remote area.*

#### 2.1.3.5 Staff Provided by Vertical Program and Development Partners

Vertical programs and other development partners had provided both management and service providing staff at various DHQ Hospitals. A total of three management staff positions and 60 service providing staff positions were filled through this support.

#### 2.1.3.6 Staff Training

In-service training presents a prime opportunity to expand the knowledge base of all employees. Training programs address the weaknesses of employees and improve their performance by increasing awareness of safety practices and proper procedures for basic tasks.<sup>26</sup> Staff trainings evaluated mainly focused maternal health, child health and family planning, non-communicable diseases, waste management and infection control, DHIS etc. Overall the percentage of staff who received any type of training was found to be very low.

**Table 20: Staff Training at DHQ Hospitals**

*Availability of trained staff at DHQH*

| Trainings  | Availability of Trained Staff at DHQ Hospitals |            |
|--|--|------------|
|  | Number   | Percentage |
| Integrated Management of Newborn and Childhood Illnesses (IMNCI) | 20   | 4          |
| Emergency Obstetric and Newborn Care (EmONC)                     | 15   | 3          |
| Emergency Newborn Care (ENC) Helping Baby Breathe (HBB)          | 13   | 3          |
| Pregnancy, Childbirth, Postpartum and Newborn Care (PCPNC)       | 10   | 2          |
| Managing Complications in Pregnancy and Childbirth (MCPC)        | 04   | 1          |
| Family Planning (FP) Surgical                                    | 17   | 3          |
| Non-communicable diseases  | 03   | 1          |
| Malaria  | 12   | 2          |
| TB-DOTS  | 17   | 3          |
| Syndromic management of STIs                                     | 07   | 1          |
| Infection control  | 02   | 0          |
| EPI (Pneumococcal)   | 14   | 3          |

<sup>26</sup> (Frost, n.d.)

### 2.1.3.7 Summary

At the heart of every health system is the workforce that is central to supplying quality healthcare services for advancing health. There is ample evidence that worker numbers and quality are positively associated with the health status indicators. Current assessment has portrayed a bleak picture of the availability of all cadres/categories of human resource at DHQ Hospitals despite the latter being secondary healthcare (SHC) facilities that are expected to deliver specialized and quality care.

A review of historical trends of human resource availability in Sindh province shows persistent deficiencies over the years. This was evident from findings of the HR Profiling for Human Resource Strategy of Sindh<sup>27</sup> and current HFA. Compared to the data of Human Resource Strategy which showed 37% overall vacant staff positions, some appreciable improvement has been noted as the proportion has decreased to 25%.

Pakistan has been categorized as one of the 57 countries that are facing a Human Resource For Health (HRH) crisis, below the threshold level defined by WHO, further exacerbated by a misdistribution across provinces and even within the province in urban and rural settings.<sup>28</sup> Sindh, like the other provinces, is afflicted by the shortage (better than Baluchistan only) of health workforce especially nurses and paramedics.<sup>29</sup> A number of factors possibly cause this inadequacy of HR including limited production capacity, non-existence of incentivized career structure and work environment, lack of permanent induction mechanisms, migration of health workers within and across countries, poor mix of skills, and demographic imbalances.<sup>30</sup>

Human resource results have revealed detailment-in of staff of all cadres in assessed DHQ Hospitals. Detailment especially of medics is one of issues that are affecting equity as well quality of healthcare services in Sindh. Potential reasons include lack of policy on compulsory rural service, lack of policy on transfer and posting of employees, political pressures, lack of facilities and poor living conditions in underdeveloped areas and better avenues for clinical practicing in big cities. ***The Government should develop and implement a comprehensive human resource for health strategy addressing forecasting, planning, recruitment, retention promotion and transfer elements.***

### 2.1.4 Domain IV: Diagnostic Services

Diagnostic services are procedures that are used to determine the cause of an illness or disease. Diagnostic services provide healthcare practitioners with information about the presence, severity, and cause of diseases in patients.<sup>31</sup> The domain of diagnostic services covers three sub-domains: Hematology, Clinical Chemistry, Parasitology, Bacteriology including Tuberculosis, imaging services, and standard precautions employed by the facilities for provision of diagnostic services. The findings of each sub-domain are described below.

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<sup>27</sup> (USAID, 2012)

<sup>28</sup> (World Health Organization, 2006)

<sup>29</sup> (PDSSP-TAMA, Government of the Punjab, June 2010)

<sup>30</sup> (Gupta & Dal Poz, 2009)

<sup>31</sup> (The World Bank, 2015)



### 2.1.4.1 Hematology

Hematological services were considered available if the facility possessed essential equipment and supplies in functional condition to perform basic tests such as hemoglobin testing and complete blood count. Over 60% of facilities had the required electro-medical equipment available to provide routine hematological services. However provision of hemoglobin services through either hematology analyzer or hemoglobinometer was found at 14 DHQ Hospitals (Table 21).

**Table 21: Hematology services at DHQ Hospitals**

*Number of DHQ Hospitals performing hematology tests*

| Components                       | Availability at DHQ Hospitals (n=15) |            |
|----------------------------------|--------------------------------------|------------|
|                                  | Number                               | Percentage |
| Hematology analyzer              | 9                                    | 60         |
| Colorimeter or Hemoglobinometer  | 10                                   | 67         |
| Drabkin's solution               | 9                                    | 60         |
| Pipette                          | 13                                   | 87         |
| Litmus paper for hemoglobin test | 2                                    | 13         |

### 2.1.4.2 Clinical Chemistry

Clinical Chemistry service was considered available if necessary equipment such as functional glucometer and chemistry analyzer were found along with dip sticks for urine protein, glucose and pregnancy. Functional equipment for testing blood glucose (glucometer or chemistry analyzer or both) was available at 14 DHQ Hospitals (93.3%) whereas glucometer with strips was available at seven hospitals only. Functional chemistry analyzer was available at 13 DHQ Hospitals (Table 22).

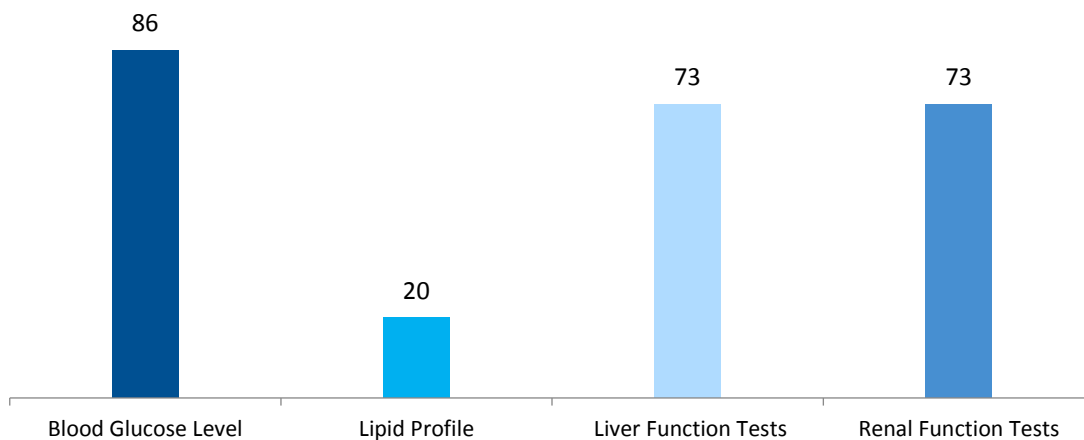
**Table 22: Clinical chemistry services at DHQ Hospitals**

*Number of DHQ Hospitals with adequate equipment for performing clinical chemistry tests*

| Components of Clinical Chemistry                         | Availability at DHQ Hospitals (n=15) |            |
|--|--------------------------------------|------------|
|  | Number                               | Percentage |
| Glucometer and strips                                    | 7                                    | 47         |
| Chemistry analyzer                                       | 13                                   | 87         |
| Dip Sticks for urine protein, glucose and pregnancy test | 12                                   | 80         |

Overall, out of the 15 DHQ Hospitals, 13 (87%) had the capacity to perform blood glucose level while 11 DHQH (73%) performed liver function tests and renal function tests. Blood lipid profile testing capacity was available at only three DHQ Hospitals (Figure 10).

**Figure 10: Mean Availability of Clinical Chemistry Services at (%) DHQ Hospitals**



### 2.1.4.3 Parasitology, Bacteriology & Virology

Testing services of Parasitology, Bacteriology & Virology was assessed on the basis of functional equipment and supplies available for each component as listed below. A total of 13 DHQ Hospitals were adequately equipped for bacteriological and parasitological tests (particularly malaria). However DHQ Hospitals had poor capacity for gram staining and stool microscopy (Table 23).

**Table 23: Parasitology, Bacteriology & Virology services at DHQ Hospitals**

*Number of DHQ Hospitals performing Parasitology, Bacteriology & Virology*

| Bacteriological Testing              | Availability at RHCs (n=121) |            |
|--------------------------------------|------------------------------|------------|
|                                      | Number                       | Percentage |
| Light microscope                     | 13                           | 87         |
| Refrigerator in lab area             | 13                           | 87         |
| Incubator                            | 13                           | 87         |
| Test tubes                           | 13                           | 87         |
| Centrifuge for CSF microscopy        | 13                           | 87         |
| Culture medium                       | 13                           | 87         |
| Glass slides and covers              | 13                           | 87         |
| <b>ELISA Equipment</b>               |                              | 87         |
| ELISA machine                        | 13                           | 87         |
| <b>Malaria Testing</b>               |                              |            |
| Rapid diagnostic test kit            | 2                            | 13         |
| Guidelines for rapid diagnostic test | 1                            | 7          |
| Giemsa stain                         | 11                           | 73         |
| Field stain                          | 5                            | 33         |

| Bacteriological Testing                             | Availability at RHCs (n=121) |            |
|---|------------------------------|------------|
|   | Number                       | Percentage |
| <b>Gram Staining</b>                                |                              |            |
| Crystal violet or gentian violet                    | 3                            | 20         |
| Lugol's iodine/lugol's solution                     | 2                            | 13         |
| Acetone or acetone alcohol                          | 3                            | 20         |
| Neutral red, carbol fuchsin, or other counter stain | 3                            | 20         |
| <b>Stool Microscopy</b>                             |                              |            |
| Formal saline (for concentration method)            | 1                            | 7          |
| Normal saline (for direct microscopy)               | 1                            | 7          |
| Lugol's iodine/lugol's solution                     | 1                            | 7          |

### 2.1.5 Tuberculosis

Routine and rapid quality diagnostic services for tuberculosis were assessed against availability of eight items. Services for sputum analysis were available at nine DHQ Hospitals. Rapid diagnostic test kit was available only at one DHQ Hospitals. The state of quality control for tuberculosis testing was far from satisfactory (Table 24).

**Table 24: Tuberculosis testing services at DHQ Hospitals**

*Number of DHQ Hospitals performing tuberculosis tests*

| Testing requirements                                  | Availability at DHQ Hospitals (n=15) |            |
|---|--------------------------------------|------------|
|   | Number                               | Percentage |
| Ziehl-Neelsen stain for AFB                           | 9                                    | 60         |
| Carbol-Fuchsin  | 11                                   | 73         |
| Sulphuric acid (20-25% concentration) or acid alcohol | 11                                   | 73         |
| Methylene blue  | 11                                   | 73         |
| Microscope  | 11                                   | 73         |
| Sputum container                                      | 14                                   | 94         |
| Rapid diagnostic test kit for tuberculosis            | 1                                    | 7          |
| Quality control for tuberculosis testing              | 4                                    | 27         |

### 2.1.5.1 Diagnostic Imaging

Diagnostic imaging, medical imaging, and radiology services entail capturing and interpretation of images for the purpose of medical diagnosis. Diagnostic imaging procedures include radiography, ultrasound, and computerized tomography (CT).<sup>32</sup>

X-ray services were available at 12 DHQ Hospitals (86.7%) while 14 DHQ Hospitals (93.3%) had functional ultrasound and ECG services. However, CT services were not available at any of the hospitals (Table 25).

**Table 25: Imaging services at DHQ Hospitals**

*Number of DHQ Hospitals providing diagnostic imaging services*

| X-ray                      | Availability at DHQ Hospitals (n=15) |            |
|----------------------------|--------------------------------------|------------|
|                            | Number                               | Percentage |
| X-ray machine              | 12                                   | 80         |
| Unexpired film for X-ray   | 12                                   | 80         |
| <b>Ultrasound</b>          |                                      |            |
| Ultrasound machine         | 14                                   | 93         |
| Gel for ultrasound         | 13                                   | 87         |
| Printer for ultrasound     | 5                                    | 33         |
| <b>ECG</b>                 |                                      |            |
| ECG machine                | 14                                   | 93         |
| Paper roll for ECG         | 14                                   | 93         |
| <b>CT Scan</b>             |                                      |            |
| CT scan machine            | Nil                                  | Nil        |
| Unexpired film For CT scan | Nil                                  | Nil        |

### 2.1.5.2 Blood Transfusion Services

Provision of safe and adequate blood as per WHO's guidelines must form an integral part of a DHQ Hospital. All activities related to blood collection, testing, processing, storage and distribution should be well coordinated.<sup>33</sup> DHQ Hospitals were assessed for blood transfusion services under the components of blood grouping, cross matching, screening, source of blood, and blood storage (Table 26).

<sup>32</sup> (Wesley Medical Imaging, 2016)

<sup>33</sup> (World Health Organization, 2015)

**Table 26: Blood transfusion services at DHQ Hospitals***Number of DHQ Hospitals providing blood transfusion services*

| Blood Grouping & Cross Matching | Availability at DHQ Hospitals (n=15) |            |
|---------------------------------|--------------------------------------|------------|
|                                 | Number                               | Percentage |
| Anti-A reagent                  | 15                                   | 100        |
| Anti-B reagent                  | 15                                   | 100        |
| Anti-D reagent                  | 15                                   | 100        |
| COOMB'S reagent                 | 4                                    | 27         |
| <b>Screening</b>                |                                      |            |
| HIV                             | 14                                   | 93         |
| Hepatitis B                     | 14                                   | 93         |
| Hepatitis C                     | 14                                   | 93         |
| <b>Source of Blood</b>          |                                      |            |
| Govt. blood bank                | 3                                    | 20         |
| Facility's own                  | 2                                    | 13         |
| Relatives donating directly     | 10                                   | 67         |
| <b>Blood Storage</b>            |                                      |            |
| Refrigerator                    | 13                                   | 87         |
| Optimum temperature             | 11                                   | 73         |
| Guidelines                      | 4                                    | 27         |

### 2.1.5.3 Standard Precautions for Diagnostic Services

Standard precautions include infection control practices that help protect the patient as well as the healthcare worker. All blood, body fluids, secretions, excretions except sweat, non-intact skin, and mucous membranes may contain infectious agents that can be passed to others. Healthcare personnel should follow standard precautions particularly in the laboratory areas.<sup>34</sup> The availability of components that ensure standard precautions to prevent infection to patients and care provider was assessed at all the DHQ hospitals. A mixed picture was observed regarding availability of essential items, guidelines, and practices ensuring standard precautions. Goggles for eye protection, mask and gowns were identified as highly deficient areas (Table 27).

<sup>34</sup> (TriStar Summit Medical Center, 2014)

**Table 27: Standard precautions for diagnostic services at DHQ Hospitals***Number of DHQ Hospitals having standard precautions and conditions for diagnostic services*

| Type of Precautions & Conditions   | Availability at DHQ Hospitals (n=15) |            |
|--|--------------------------------------|------------|
|  | Number                               | Percentage |
| Running water (piped, bucket with tap or pour pitcher)                                     | 13                                   | 87         |
| Hand-washing soap (may be liquid soap)   | 12                                   | 80         |
| Alcohol-based hand rub   | 3                                    | 20         |
| Waste receptacle (Pedal bin) with lid and plastic bin liner                                | 9                                    | 60         |
| Other waste receptacle   | 12                                   | 80         |
| Sharps container ("Safety Box")  | 9                                    | 60         |
| Disposable latex gloves  | 8                                    | 53         |
| Disinfectant (e.g. Chlorine, Hibitane, Alcohol)  | 8                                    | 53         |
| Single-use standard disposable syringes with needles or auto-disable syringes with needles | 14                                   | 93         |
| Medical masks  | 6                                    | 40         |
| Gowns  | 6                                    | 40         |
| Eye protection (goggles or face protection)  | Nil                                  | Nil        |
| Guidelines for standard precautions  | 4                                    | 27         |

## 2.1.6 Domain V: Infrastructure

A functioning infrastructure at a health facility is essential for delivery of its level-specific package services. It is an essential requirement for service delivery as well as a WHO's proposed health systems' building block.<sup>35</sup> Within the ambit of the HFA, infrastructure was assessed for availability and functional status of building components of DHQ Hospitals. It was observed as part of assessment of general service readiness.

The domain of infrastructure was sub-divided into nine sub domains:

### Assessment of Infrastructure

**'No repair required'** means that the infrastructure is in good condition and does not require any type of repair to optimally perform its functions.

**'Minor repair'** includes small issues like whitewash, polish or paint work, broken hinges, locks, or handles, leakage of water pipes without gross seepage, mal-functioning electricity wires.

**'Major repair'** comprises of major issues requiring major plastering or concrete work, repair of major seepage like roof treatment, re-fixing of doors/windows panels, drainage treatment for major blockage, replacement required for parts of water and sewage pipes and electricity rewiring.

**'Under-construction'** means new construction for any building component is underway.

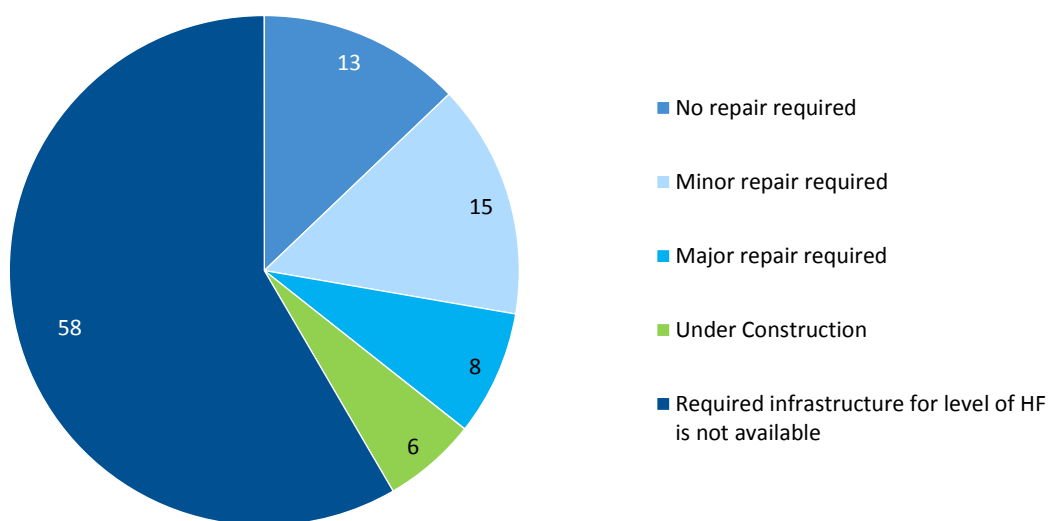
**'Non-availability'** means completely missing infrastructure component that is required as per the level of assessed health facility.

<sup>35</sup> (Savigny & Adam, 2009)

administration, casualty and emergency, out-patient departments, in-patient departments, intensive care units, operation theaters, diagnostic service areas, residences, and miscellaneous areas. Each sub-domain was assessed for availability of optimum components for service delivery. Casualty and emergency, for instance, was assessed for consultation area, ward area, and emergency operation theater.

The overall availability status of infrastructure presented a significant gap of 62% owing mostly to the non-existence of certain departments and components. For instance, neuro-psychiatry in-patient ward and surgical ICU was not reported at any of the 15 DHQs. Psychiatry OPD, burns and dermatology unit and jail wards were only available at one facility. Physiotherapy and admission facility for urology were available only at two facilities. Admission facility for orthopedic and thalassemia patients was found at three health facilities only while separate operation theater for orthopedic and urological surgeries, and medical and cardiac intensive care units were not found at four out of 15 facilities.

**Figure 11: Condition of Infrastructure Components available at DHQ Hospitals**



The availability of specific infrastructure as well as condition of each component was assessed to see if it was in good condition – not requiring any repair, needed minor or major repair work, or if any part of it was undergoing new construction. The availability and functional status of each sub domain are shown as averages in Table 28.

**Table 28: Infrastructure at DHQ Hospitals***Number of DHQ Hospitals having infrastructure components, by type of their condition*

| Infrastructure Components        | Situation at DHQ Hospitals (n=15) |                         |                         |                      |  |
|----------------------------------|-----------------------------------|-------------------------|-------------------------|----------------------|--|
|                                  | No repair required %              | Minor repair required % | Major repair required % | Under construction % | Required infrastructure for level of HF is not available % |
| Administration block             | 20                                | 20                      | 13                      | 2                    | 46   |
| Casualty & emergency             | 18                                | 27                      | 17                      | 5                    | 34   |
| Out-patient departments          | 17                                | 21                      | 8                       | 1                    | 53   |
| In-patient departments           | 9                                 | 11                      | 7                       | 5                    | 67   |
| Intensive Care units             | 8                                 | 6                       | 1                       | 5                    | 81   |
| Operation theaters               | 15                                | 16                      | 5                       | 6                    | 58   |
| Diagnostic service departments   | 26                                | 17                      | 14                      | 1                    | 42   |
| Residences                       | 12                                | 12                      | 22                      | 18                   | 36   |
| Miscellaneous building component | 32                                | 24                      | 16                      | 1                    | 27   |

Similar to the rest of the resources, majority of the infrastructure components were either lacking or had minor and major issues hampering their use in delivery of services. On average, at DHQ Hospitals, less than one third of the infrastructure components were available in good condition. An equal ratio had minor and major issues whereas a small ratio of infrastructure was under construction. Specifically, infrastructure components were extremely deficient at operation theaters (16% availability), indoors (23%), and ICUs (33%) – depicting the incapacitated situation of these key service delivery areas of secondary level hospitals.

### 2.1.7 Domain VI: Equipment

Generally equipment includes capital and durable items that last for several years. WHO defines equipment as any article, instrument, apparatus or machine that is used in the diagnosis, treatment, or for detecting, measuring, restoring correcting or modifying the structure or function of the body for some health purpose.<sup>36</sup> The standards of equipment were obtained from the PC-1s of the DHQ Hospitals that were being upgraded by the provincial government (attached as Annex 3).

The domain of equipment, furniture and fixtures was sub-divided into eight sub domains on the basis of their functions and services, such as administration, casualty & emergency, out-patient services, in-patient services, ICU, operation theaters, diagnostic services, and miscellaneous items. The availability status of functional equipment, furniture and fixtures at respective departments (sub-domains) of 15

<sup>36</sup> (World Health Organization, 2016)



DHQ Hospitals revealed significant gaps. The domain readiness to provide services falling within the mandate of assessed DHQ Hospital was simply undesirable (Table 29).

**Table 29: Functional equipment at DHQ Hospitals**

*Number of DHQ Hospitals having functional equipment items*

| Departments                   | Availability of Functional Equipment at DHQ Hospitals |              |            |
|-------------------------------|---|--------------|------------|
|                               | Standard  | Functional   | Percentage |
| Administration                | 1275  | 885          | 69         |
| Casualty & emergency          | 1890  | 732          | 39         |
| Out-patient services          | 2145  | 812          | 38         |
| In-patient services           | 16530   | 5479         | 33         |
| Intensive care units          | 4080  | 612          | 15         |
| Operation theaters            | 3855  | 1015         | 26         |
| Diagnostic service department | 1320  | 1227         | 93         |
| Miscellaneous                 | 45  | 30           | 67         |
| <b>Total</b>                  | <b>31140</b>  | <b>10792</b> | <b>35</b>  |

Significant gaps were revealed in the availability of equipment as well as that of medical and surgical instruments. Although, on average, only 35% of the equipment items were available, there were certain service delivery areas where these deficiencies were more drastic e.g. in the ICUs where only 15% of the required items were available. Despite very low availability of equipment against the standards, these services were rendered to the patients resulting in poor and sub-optimal quality of care.

Large quantities of non-functional equipment were also identified during the assessment of the health facilities which could not be repaired due to lack of suitable arrangements at district level and budgetary constraints. *The Government of Sindh should procure deficient equipment. Further, given the large quantities of non-functioning but repairable equipment items, divisional level workshops should be established to ensure effective maintenance of equipment.*

## 2.1.8 Domain VII: Medicines & Supplies

Essential medicines and supplies were assessed at DHQ Hospitals. The assessment covered two sub domains i.e. storage and stock monitoring and availability of medicines and consumables.

### 2.1.8.1 Storage & Stock Monitoring

The status of storage and stock monitoring of medical supplies at DHQ hospitals was assessed on the basis of optimum storage conditions and routine procedure followed for maintenance of record. Optimum storage conditions were considered to exist when medicines were stored in well ventilated and clean rooms with no evidence of rodents and pests, medicines were found off the floor and protected from both water and sun, and organized according to date of expiration (First In First Out). Similarly, monitoring mechanism was perceived to be adequate if a record of the stock was maintained and

updated on a daily basis, either through manual entry (in ledger/stock card) or entry in the computer. Majority of DHQ Hospitals were found to comply with aforementioned standards (Table 30).

**Table 30: Storage and stock monitoring status of medical supplies at DHQ Hospitals**

*Number of DHQ Hospitals having appropriate storage conditions and monitoring mechanism*

| Storage & Monitoring Status                     | Status at DHQ Hospitals (n=15) |                |
|---|--------------------------------|----------------|
|   | Number                         | Percentage (%) |
| Optimum storage condition                       | 10                             | 67             |
| Record (computer/manual) updated on daily basis | 10                             | 67             |

### 2.1.8.2 Availability of Medicines & Consumables

The availability status of valid (not expired) medicines and consumables at DHQ hospitals was assessed through inquiry and physical inspection of the lot present on the day of assessment. For medicines and supplies that were not available, a distinction was made between those which were stock-outs and those which were either never entered into the stock register or were struck out of it.

The findings revealed that on average only 39% of the assessed medicines and supplies were available at the DHQ Hospitals. A significant percentage (41%) was never made available, whereas 20% were out of stock at the time of visit (Table 31).

**Table 31: Availability status of medicines & consumables at DHQ Hospitals**

*Percentage availability, expiry and stock-out status of medicines & consumables at DHQ Hospitals*

| Stock Availability | Mean status at DHQ Hospitals (n=15) |
|--------------------|-------------------------------------|
|                    | Percentage                          |
| Available & valid  | 39                                  |
| Expired            | 1                                   |
| Not available      | 20                                  |
| Never available    | 41                                  |

Before the 18<sup>th</sup> Constitutional Amendment, development of Essential Medicines List (EML) was a federal function and after devolution, the Government of Sindh prepared EML through the support of USAID DELIVER and notified it in October 2014.<sup>37</sup> The assessment of medicines and supplies was based on this EML and at DHQ Hospitals, a total of 343 items were assessed for their availability and validity (not expired). Instead of taking tracer items, this complete list was taken so that specific deficiencies can be ascertained in context of stock-outs as well as the items that have become part of the EML but are not being delivered to the facility.

The availability of valid medicines and supplies at all times is mandatory within the context of functioning of health facilities. However, at DHQ Hospitals, most of the medicines (20%) were not available on the

<sup>37</sup> (Department of Health, Government of Sindh, 2014)

day of survey. While inadequate budget allocation is one key reason along with weak supply and reporting mechanisms, cumbersome drug procurement procedures seem to be another major cause. These stock outs had resulted from the issues related to the quantification of requirements and under-supply from the office of the DHO. Additionally, the delay in distribution also resulted in frequent stock-outs of essential drugs, supplies, vaccines and FP commodities.<sup>38</sup> Another facility capacity assessment conducted in collaboration with the WHO has revealed that many of the essential drugs were not available at all times in healthcare facilities even though they were affordable and widely available in the market.<sup>39</sup> Although the observed quantity of expired medicines was less than 1% but even this is not acceptable when health and life are at the risk. Apart from assessing the availability status, the survey also helped ascertain the gaps in the medicines and supplies that were part of the EML but were never delivered to the DHQ Hospitals. The percentage of such items was alarmingly high as 41% of the medicines and supplies included in the EML have never been a part of the facility stock register. This highlights the contradiction in the policies and practices of the public sector and calls for the DOH to follow the EML during preparation of rate-contracts and procurement so that a complete list of medicines is available to meet the end users requirements.

In addition to the availability status, the assessment further looked into the storage conditions for the medicines and supplies. On average, one third of the storage standards were followed while at other places the medicines were exposed to rainwater, sunlight, and lack of ventilation. Such negligence further hampers the quality and efficacy of already scarce medicines resulting in failure to achieve the desired health outcomes.

## 2.2 Service Availability at DHQ Hospitals

This analysis describes the availability of services at the DHQ Hospitals reported by the facility respondents. The analysis further identifies the services that are available round-the-clock. Whenever services' availability is reported, the signal function is validated through the DHIS reports of last three months and presented accordingly.

Based on the stated response of the facility managers, most of the services were available at the DHQ Hospitals. Although, there were certain signal functions that were not performed during the three months duration prior to the survey but majority of the available services were performed. A closer look at the packages reveals specific areas of deficiencies in the availability of services. As seen in maternal health area, most facilities were providing obstetric care services but gynecological services were mostly underprovided. Additionally, there were three DHQ Hospitals where cesarean sections were not performed while more than half did not undertake assisted vaginal deliveries. Given the level of DHQ Hospitals – the largest referral facility in a district – inability to provide these life-saving services pose serious concerns for the DOH. The state of child health services was relatively better as almost all the services were provided by all the DHQ Hospitals. Gaps only existed in the provision of growth monitoring services that used to be an integral part of HMIS but these tools have not been incorporated in the DHIS,

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<sup>38</sup> (National MNCH Program, Government of Pakistan, 2010-2011)

<sup>39</sup> (World Health Organization, 2005)

hampering the delivery of these services. Modern family planning methods were provided at almost all the DHQ Hospitals with minor deficiencies in implants and IUCDs. However, availability of tubal ligation and vasectomy services were quite low. One of the major reasons for non-availability of these services is lack of trained HR to provide these services.

Medical services like cardiology care were reported available and validated through the service delivery record of invariably all the DHQ Hospitals. However, surgical and orthopedic services were a poor show across the board, purportedly due to lack of the expert staff and relevant equipment. Accident and trauma care services were consistently available at all the DHQ Hospitals as these facilities were the only referral points for provision of these services in the entire district. In addition to these services, certain support services like diagnostics were also assessed and majority of the laboratory investigations and imaging services were available with grave deficiencies in the provision of tests regarding bacterial culture and sensitivity and serum electrolytes. Findings regarding non-availability and utilization of services (Table 32) were consistent with the lack of resources in all the assessed domains.

**Table 32: Availability of health services**

*Number of DHQ Hospitals providing health services, by timing and validation status*

| Services                          | Reported Availability | Validation (DHIS Record) |
|-----------------------------------|-----------------------|--------------------------|
| <b>Maternal Health</b>            |                       |                          |
| Antenatal care                    | 15                    | 15                       |
| Postnatal care                    | 15                    | 15                       |
| Tetanus toxoid vaccination        | 15                    | 15                       |
| Normal vaginal delivery           | 15                    | 15                       |
| Vacuum/forceps deliveries         | 10                    | 7                        |
| Cesarean sections                 | 12                    | 12                       |
| Surgery for fibroid uterus        | 8                     | 5                        |
| Pelvis inflammatory disease (PID) | 13                    | 9                        |
| Uterine prolapse                  | 8                     | 4                        |
| Vesico-vaginal fistula            | 8                     | 5                        |
| Ante partum hemorrhage (APH)      | 14                    | 11                       |
| Complications of abortion         | 14                    | 12                       |
| Ectopic pregnancies               | 12                    | 8                        |
| Postpartum hemorrhage (PPH)       | 14                    | 11                       |
| Pre-eclampsia/ eclampsia          | 14                    | 10                       |
| Prolonged/obstructed labor        | 13                    | 11                       |
| Puerperal sepsis                  | 14                    | 11                       |
| Ruptured uterus                   | 11                    | 8                        |

| Services                                     | Reported Availability | Validation (DHIS Record) |
|--|-----------------------|--------------------------|
| <b>Child Health</b>                          |                       |                          |
| Pneumonia < 5 years                          | 15                    | 15                       |
| Diarrhea/dysentery < 5 years                 | 15                    | 15                       |
| Worm infestation                             | 15                    | 15                       |
| Suspected measles                            | 15                    | 10                       |
| Suspected viral hepatitis                    | 15                    | 14                       |
| Suspected neonatal tetanus                   | 14                    | 10                       |
| Child vaccination services                   | 15                    | 13                       |
| Growth monitoring service                    | 10                    | 9                        |
| Birth trauma                                 | 15                    | 8                        |
| Birth asphyxia                               | 15                    | 10                       |
| Bacterial infection (neonate)                | 15                    | 8                        |
| Congenital abnormalities                     | 15                    | 8                        |
| Prematurity                                  | 15                    | 10                       |
| Hypothermia                                  | 15                    | 9                        |
| <b>Family Planning Services</b>              |                       |                          |
| Oral pills (COC/POP Cycles)                  | 15                    | 15                       |
| Condoms                                      | 15                    | 13                       |
| Implants                                     | 12                    | 11                       |
| Injectable (DMPA/Net-En)                     | 15                    | 13                       |
| IUCD   | 14                    | 11                       |
| Tubal ligation                               | 10                    | 8                        |
| Vasectomy                                    | 5                     | 5                        |
| <b>Medical Services</b>                      |                       |                          |
| Diarrhea/dysentery                           | 15                    | 14                       |
| Pneumonia                                    | 15                    | 14                       |
| Malaria                                      | 15                    | 14                       |
| Asthma                                       | 15                    | 14                       |
| Chronic obstructive pulmonary diseases       | 15                    | 13                       |
| Pulmonary Tuberculosis                       | 15                    | 15                       |
| Extra Pulmonary Tuberculosis                 | 14                    | 10                       |
| Enteric/Typhoid fever                        | 15                    | 12                       |
| Diabetes Mellitus                            | 15                    | 13                       |
| Viral Hepatitis (A & E)                      | 13                    | 11                       |
| Viral Hepatitis B                            | 15                    | 14                       |
| Viral Hepatitis C                            | 15                    | 14                       |
| Meningitis                                   | 14                    | 13                       |
| Chronic liver diseases (including cirrhosis) | 15                    | 14                       |

| Services   | Reported Availability | Validation (DHIS Record) |
|--|-----------------------|--------------------------|
| Chronic renal diseases (including Nephritis/<br>Nephrosis)   | 14                    | 10                       |
| Acute (upper) respiratory tract infections in<br>adults      | 15                    | 14                       |
| Worm infestations  | 15                    | 13                       |
| Peptic ulcer disease   | 15                    | 14                       |
| Urinary tract infections                                     | 15                    | 14                       |
| Sexually transmitted infections                              | 14                    | 13                       |
| Fever due to other causes                                    | 15                    | 12                       |
| <b>Cardiology Services</b>                                   |                       |                          |
| Congestive cardiac failure (CCF)                             | 14                    | 12                       |
| Hypertension   | 15                    | 15                       |
| Ischemic heart diseases (Including myocardial<br>infarction) | 14                    | 12                       |
| <b>Surgical Services</b>                                     |                       |                          |
| Acute appendicitis   | 11                    | 10                       |
| Burns  | 12                    | 12                       |
| Cholelithiasis/cholecystectomy                               | 10                    | 8                        |
| Hernias  | 11                    | 10                       |
| Hyperplasia of prostate/BPH                                  | 11                    | 8                        |
| Urolithiasis   | 11                    | 9                        |
| <b>Orthopedic Services</b>                                   |                       |                          |
| Arthropathies  | 8                     | 7                        |
| Fractures  | 8                     | 8                        |
| <b>Eye Services</b>  |                       |                          |
| Cataract   | 12                    | 11                       |
| Corneal opacity  | 11                    | 9                        |
| Glaucoma   | 12                    | 9                        |
| Trachoma   | 11                    | 8                        |
| <b>ENT Services</b>  |                       |                          |
| Chronic Otitis Media   | 12                    | 9                        |
| Deflected Nasal Septum (DNS)                                 | 11                    | 6                        |
| <b>Neuropsychiatric Services</b>                             |                       |                          |
| Cerebrovascular accident (Stroke)                            | 11                    | 8                        |
| Head injury  | 10                    | 6                        |
| Drug dependence  | 11                    | 6                        |
| Epilepsy   | 12                    | 7                        |

| Services   | Reported Availability | Validation (DHIS Record) |
|--|-----------------------|--------------------------|
| <b>Skin Care Services</b>                                    |                       |                          |
| Scabies  | 15                    | 14                       |
| Dermatitis   | 15                    | 14                       |
| Cutaneous Leishmaniosis                                      | 11                    | 6                        |
| <b>Miscellaneous Services</b>                                |                       |                          |
| Dialysis services  | 10                    | 9                        |
| Thalassemia services   | 6                     | 4                        |
| Dental caries  | 14                    | 12                       |
| <b>Accident &amp; Trauma Services</b>                        |                       |                          |
| Road traffic accidents & poisoning                           | 15                    | 14                       |
| Fractures  | 15                    | 14                       |
| Burns  | 15                    | 13                       |
| Dog bite   | 15                    | 13                       |
| Snake bite   | 15                    | 13                       |
| <b>Referral Services</b>                                     |                       |                          |
| Cases referred from community                                | 15                    | 10                       |
| Cases referred to higher level                               | 15                    | 10                       |
| <b>Diagnostic Services</b>                                   |                       |                          |
| Routine microscopy (Bacteriology, Mycology, Parasitological) | 13                    | 9                        |
| Serology   | 11                    | 9                        |
| Bacterial culture  | 1                     | 1                        |
| Blood glucose  | 14                    | 12                       |
| Blood urea   | 13                    | 12                       |
| Serum creatinine   | 14                    | 13                       |
| Liver functions test   | 15                    | 14                       |
| Serum calcium  | 2                     | 2                        |
| Urine complete examination (detailed report)                 | 15                    | 14                       |
| Urine for pregnancy testing                                  | 15                    | 14                       |
| Urine for protein  | 13                    | 11                       |
| Urine for sugar  | 15                    | 14                       |
| Serum electrolytes   | 4                     | 3                        |
| ELISA  | 14                    | 13                       |
| Blood complete picture/profile/report                        | 11                    | 11                       |
| Hemoglobin electrophoresis (test for thalassemia)            | 0                     | 0                        |
| Malarial Parasite (MP)                                       | 15                    | 13                       |
| Clotting Time (CT)   | 14                    | 13                       |

| Services  | Reported Availability | Validation (DHIS Record) |
|---|-----------------------|--------------------------|
| Bleeding Time (BT)  | 13                    | 12                       |
| Prothrombin Time (PT)                                     | 4                     | 4                        |
| Activated Partial Thromboplastin Time (APTT)              | 3                     | 3                        |
| Blood grouping  | 15                    | 12                       |
| Cross-matching/compatibility                              | 15                    | 12                       |
| Blood storage   | 10                    | 10                       |
| Routine X-ray (Head & spine, chest, abdomen, extremities) | 15                    | 13                       |
| Special X-ray (intravenous urogram; barium studies)       | 3                     | 2                        |
| Ultrasound  | 14                    | 13                       |
| ECG   | 14                    | 13                       |

### 2.2.1 MNCH Services Trends

A comparison of Maternal Newborn and Child Health (MNCH) services' availability and utilization has been done based on the findings of current Health Facility Assessment- Sindh and Health Facility Assessment-Pakistan conducted in 2011-2012 under the ambit of MNCH Program funded by Department for International Development (DFID). HFA Pakistan had a narrow scope and mainly focused on MNCH services. However this comparison provided an overview of the trends of the MNCH services. In this regard significant improvement has been observed in utilization of assisted vaginal deliveries, C-section and postnatal care services. In case of family planning services, supply of oral pills, injectable DMPA and POP has improved. Similarly utilization of services like implants and IUCDs, and vasectomy has improved during past years albeit at a very slow pace whereas, utilization of antenatal care, normal vaginal delivery, tetanus toxoid vaccination, pneumonia <5 years and diarrhea/dysentery <5 year services have remained stagnant over the years.

## 2.3 Service Specific Readiness

Based on the focus, priorities, and commitments of the Government of Sindh, donors, and developmental partners, there are certain areas where readiness of individual specialized services (like antenatal care, childhood immunization, Cesarean section) has been ascertained. Service specific readiness for each of the individual services has been assessed by using the same principles used for general facility readiness, by taking into consideration the minimum availability of relevant staff, diagnostics, equipment, medicines and supplies, and service delivery guidelines.



### 2.3.1 Child Health Services

Service specific readiness under child health services was assessed for vaccination services, growth monitoring services and child curative services. On average, readiness index of DHQ Hospitals of Sindh was 86.7% for child vaccination services, 52.5% for growth monitoring services and only 47.9% for child curative services (Table 33).

**Table 33: Service Specific Readiness for child health services**

*Availability of components and items for service-specific readiness at DHQ Hospitals by type of Child Health Services*

| Components & Items  | Availability at DHQ Hospitals (n=15) |            |
|---|--------------------------------------|------------|
|   | Number                               | Percentage |
| <b>Child Vaccination Services</b>   |                                      |            |
| Availability of vaccinator or doctor  | 15                                   | 100        |
| Guidelines for child vaccination services   | 10                                   | 67         |
| Immunization cards  | 15                                   | 100        |
| EPI register  | 15                                   | 100        |
| Immunization tally sheets   | 10                                   | 67         |
| Summary form  | 12                                   | 80         |
| Optimally functioning refrigerator/freezer (with temperature between +2 and +8 degrees) | 13                                   | 87         |
| Cold-chain temperature monitoring chart   | 15                                   | 100        |
| Temperature record checked for past 30 days   | 11                                   | 74         |
| Vaccine carriers (two or more sets)   | 14                                   | 93         |
| Ice packs (two Or more sets)  | 15                                   | 100        |
| Measles vaccine   | 15                                   | 100        |
| DPT-Hib+ Hep B Vaccine  | 12                                   | 80         |
| Injectable polio vaccine  | 7                                    | 47         |
| Oral polio vaccine  | 15                                   | 100        |
| Pneumococcal vaccine  | 15                                   | 100        |
| BCG vaccine   | 15                                   | 100        |
| Readiness Index of Child Vaccination Services   |                                      | 87         |
| <b>Growth Monitoring Services</b>   |                                      |            |
| Availability of child specialist or doctor  | 15                                   | 100        |
| Child growth & monitoring guidelines  | 1                                    | 7          |
| Child weighing scale  | 10                                   | 67         |
| Infant weighing scale   | 13                                   | 87         |
| Height or length board  | 6                                    | 40         |

| Components & Items                                 | Availability at DHQ Hospitals (n=15) |            |
|--|--------------------------------------|------------|
|  | Number                               | Percentage |
| Growth chart                                       | 2                                    | 13         |
| Readiness Index of Growth Monitoring Services      |                                      | 53         |
| <b>Child Curative Services</b>                     |                                      |            |
| Availability of child specialist or doctor         | 15                                   | 100        |
| IMNCI guidelines                                   | 3                                    | 20         |
| Stethoscope  | 15                                   | 100        |
| Time (seconds) measuring device                    | 8                                    | 53         |
| Calibrated ½ or 1 liter measuring jar for ORS      | 3                                    | 20         |
| Cup and spoon                                      | 3                                    | 20         |
| At least 3 buckets                                 | 3                                    | 20         |
| IMNCI chart booklet                                | 3                                    | 20         |
| IMNCI mother's cards                               | 1                                    | 7          |
| Other visual aids for teaching caretakers          | 4                                    | 27         |
| Unused child health/welfare recording card/booklet | 3                                    | 20         |
| ORS packet   | 15                                   | 100        |
| Amoxicillin injection                              | 4                                    | 27         |
| Amoxicillin syrup                                  | 5                                    | 33         |
| Co-Trimoxazole syrup/suspension                    | 14                                   | 93         |
| Paracetamol syrup/suspension                       | 12                                   | 80         |
| Paracetamol injection                              | 5                                    | 33         |
| Zinc Sulphate tablets or syrup                     | 3                                    | 20         |
| Vitamin A capsules                                 | 4                                    | 27         |
| Mebendazole/albendazole cap/tab/syrup              | 8                                    | 53         |
| Readiness Index of Child Curative Services         |                                      | 48         |

## 2.3.2 Maternal & Reproductive Health Services

Under maternal and reproductive health services, readiness index for family planning services was 58.5% and for antenatal services, it was 64.0%. In delivery and newborn care services, readiness index of DHQ Hospitals to conduct normal deliveries and provide newborn care was 65.4% whereas for cesarean section, it was 58.1% (Table 34).

**Table 34: Service specific readiness for maternal & reproductive health services**

*Availability of components and items for service-specific readiness at DHQ Hospitals by type of maternal & reproductive health services*

| Components & Items  | Availability at DHQ Hospitals (n=15) |            |
|---|--------------------------------------|------------|
|   | Number                               | Percentage |
| Family Planning Services                                    |                                      |            |
| Availability of LHV or doctor or FWW                        | 15                                   | 100        |
| FP guidelines   | 5                                    | 33         |
| Unused client record cards                                  | 12                                   | 80         |
| Blood pressure apparatus                                    | 15                                   | 100        |
| Sample of FP methods  | 12                                   | 80         |
| Other FP-specific visual aids (e.g., flip charts, leaflets) | 9                                    | 60         |
| Pelvic model for IUCD                                       | 2                                    | 13         |
| Model for showing condom use                                | 2                                    | 13         |
| Condoms   | 13                                   | 87         |
| Combined oral pills   | 14                                   | 93         |
| Progesterone only pills (Levonorgestrel)                    | 9                                    | 60         |
| IUCD (Copper T/Multiload)                                   | 11                                   | 73         |
| Inj. Medroxyprogesterone Acetate (DMPA)                     | 10                                   | 67         |
| Inj. Norethisterone Enanthate (Net-En)                      | 3                                    | 20         |
| Inj. Estradiol Cypionate + Medroxyprogesterone Acetate      | 1                                    | 7          |
| Levonorgestrel-releasing implant (subdermal)                | 4                                    | 27         |
| Etonogestrel-releasing implant (subdermal)                  | 4                                    | 27         |
| Readiness Index of Family Planning Services                 | 59                                   |            |
| Antenatal Care Services                                     |                                      |            |
| Availability of WMO or LHV                                  | 15                                   | 100        |
| Guidelines for ANC services                                 | 2                                    | 13         |
| Blood pressure apparatus                                    | 15                                   | 100        |
| Stethoscope   | 15                                   | 100        |
| Weighing machine  | 10                                   | 67         |
| Pregnancy test  | 14                                   | 93         |
| Hemoglobin  | 0                                    | 0          |
| Urine for protein   | 11                                   | 73         |
| Tetanus toxoid vaccine                                      | 15                                   | 100        |

| Components & Items   | Availability at DHQ Hospitals (n=15) |            |
|--|--------------------------------------|------------|
|  | Number                               | Percentage |
| Iron tablets   | 6                                    | 40         |
| Iron syrup   | 2                                    | 13         |
| Folic acid tablets   | 10                                   | 67         |
| Readiness Index of Antenatal Services                        | 64                                   |            |
| Delivery & Newborn Care                                      |                                      |            |
| Availability of gynecologist/WMO and child specialist/doctor | 15                                   | 100        |
| IMPAC guidelines   | 1                                    | 7          |
| Emergency transport  | 14                                   | 93         |
| Sterilization equipment                                      | 15                                   | 100        |
| Examination light  | 7                                    | 47         |
| Delivery pack  | 15                                   | 100        |
| Suction apparatus (mucus extractor)                          | 11                                   | 73         |
| Manual vacuum extractor                                      | 8                                    | 53         |
| Vacuum aspirator or D&C kit                                  | 15                                   | 100        |
| Neonatal bag and mask  | 11                                   | 73         |
| Delivery bed   | 15                                   | 100        |
| Gloves   | 8                                    | 53         |
| Incubator  | 5                                    | 33         |
| Antibiotic eye ointment for newborn                          | 1                                    | 7          |
| Injectable uterotonic  | 13                                   | 87         |
| Injectable antibiotic  | 14                                   | 93         |
| Magnesium sulphate (injectable)                              | 10                                   | 67         |
| Skin disinfectant  | 9                                    | 60         |
| Intravenous solution with infusion set                       | 14                                   | 93         |
| Readiness Index of Deliver & Newborn Care Services           | 65                                   |            |
| Cesarean Section   |                                      |            |
| Availability of gynecologist                                 | 8                                    | 53         |
| Incubator  | 3                                    | 20         |
| Medicine trolley   | 11                                   | 73         |
| Syringe cutter   | 4                                    | 27         |
| Suction machine portable                                     | 0                                    | 0          |
| X-ray illuminator  | 1                                    | 7          |
| Portable BP apparatus  | 2                                    | 13         |
| Nebulizer  | 5                                    | 33         |
| Glucometer   | 3                                    | 20         |
| Blood transfusion services                                   | 15                                   | 100        |
| Blood grouping services                                      | 12                                   | 80         |

| Components & Items                           | Availability at DHQ Hospitals (n=15) |            |
|--|--------------------------------------|------------|
|  | Number                               | Percentage |
| Cross matching/compatibility                 | 12                                   | 80         |
| Epinephrine (injectable)                     | 5                                    | 33         |
| Halothane (injectable)                       | 8                                    | 53         |
| Atropine (injectable)                        | 12                                   | 80         |
| Thiopental (injectable)                      | 3                                    | 20         |
| Ketamine (injectable)                        | 8                                    | 53         |
| Readiness Index of Cesarean Section Services |                                      | 58%        |

### 2.3.3 Communicable Diseases

In the DHQ Hospitals, readiness index for communicable disease was 71% for malaria care services and 61% for sexually transmitted infections. However, service specific readiness index for tuberculosis was noted to be 78% (Table 35).

**Table 35: Service specific readiness for communicable diseases**

*Availability of components and items for service-specific readiness at DHQ Hospitals by type of communicable diseases*

| Components & Items                                  | Availability at DHQ Hospitals (n=15) |            |
|---|--------------------------------------|------------|
|   | Number                               | Percentage |
| <b>Malaria</b>                                      |                                      |            |
| Availability of doctor                              | 15                                   | 100        |
| Guidelines for Malaria                              | 4                                    | 27         |
| Malarial parasite testing                           | 13                                   | 87         |
| Tab Chloroquine                                     | 14                                   | 93         |
| Syp. Chloroquine                                    | 7                                    | 47         |
| Tab. Quinine  | 4                                    | 27         |
| Inj. Quinine  | 4                                    | 27         |
| Tab. Primaquine                                     | 11                                   | 73         |
| Tab. Sulfadoxine + Pyrimethamine                    | 2                                    | 13         |
| Tab. Artesunate + Sulfadoxine + Pyrimethamine       | 7                                    | 47         |
| Artemether (Ampule), Tab. Artemether + Lumefantrine | 10                                   | 67         |
| Readiness Index of Malaria services                 |                                      | 71         |
| <b>Sexually Transmitted Infections</b>              |                                      |            |
| Availability of doctor                              | 15                                   | 100        |
| Guidelines for STI                                  | 4                                    | 27         |
| HIV rapid diagnostic test                           | 7                                    | 47         |
| Condoms   | 13                                   | 87         |
| Metronidazole capsule & tablet                      | 14                                   | 93         |

| Components & Items                                      | Availability at DHQ Hospitals (n=15) |            |
|---|--------------------------------------|------------|
|   | Number                               | Percentage |
| Ciprofloxacin capsule & tablet                          | 12                                   | 80         |
| Ceftriaxone injection                                   | 10                                   | 67         |
| HIV rapid diagnostic test (RTD) kit                     | 6                                    | 40         |
| Readiness Index of STIs Services                        |                                      | 61         |
| <b>Tuberculosis</b>                                     |                                      |            |
| Availability of doctor                                  | 15                                   | 100        |
| Guidelines for TB diagnosis & treatment                 | 11                                   | 73         |
| Sputum smears for AFB                                   | 13                                   | 87         |
| X-ray   | 13                                   | 87         |
| Tab. Ethambutol   | 11                                   | 73         |
| Ethambutol (oral liquid)                                | 2                                    | 13         |
| Tab. Isoniazid  | 13                                   | 87         |
| Syp Isoniazid   | 1                                    | 7          |
| Tab. Pyrazinamide                                       | 12                                   | 80         |
| Cap. Rifampicin   | 7                                    | 47         |
| Syp Rifampicin  | 2                                    | 13         |
| Inj. Streptomycin                                       | 14                                   | 93         |
| Tab. Ethambutol + Isoniazid                             | 6                                    | 40         |
| Tab. Isoniazid + Rifampicin                             | 12                                   | 80         |
| Tab. Isoniazid + Pyrazinamide + Rifampicin              | 11                                   | 73         |
| Tab. Rifampicin + Isoniazid + Pyrazinamide + Ethambutol | 15                                   | 100        |
| Tab. Ethambutol + Isoniazid + Rifampicin                | 14                                   | 93         |
| Readiness Index of Tuberculosis services                |                                      | 78         |

### 2.3.4 Non-Communicable Diseases

Non-communicable diseases (like hypertension, diabetes, asthma and ischemic heart diseases) showed the lowest readiness index among all the services at the DHQ Hospitals of Sindh. On average, each DHQ Hospital was 46.0% ready to provide services for such non-communicable diseases (Table 36).

**Table 36: Service specific readiness for maternal & reproductive health services**

*Availability of components and items for service-specific readiness at DHQ Hospitals by type of maternal & reproductive health services*

| Components & Items   | Availability at DHQ Hospitals (n=15) |            |
|--|--------------------------------------|------------|
|  | Number                               | Percentage |
| <b>Non-Communicable Diseases</b>                             |                                      |            |
| Availability of medical specialist                           | 12                                   | 80         |
| Guidelines for diabetes diagnosis & treatment                | 2                                    | 13         |
| Guidelines for cardiovascular diseases diagnosis & treatment | 4                                    | 27         |
| Guidelines for respiratory diseases diagnosis & treatment    | 8                                    | 53         |
| Adult weighing scale   | 13                                   | 87         |
| Child weighing scale   | 10                                   | 67         |
| Infant weighing scale  | 13                                   | 87         |
| Stadiometer (or height rod) for measuring height             | 6                                    | 40         |
| Stethoscope  | 14                                   | 93         |
| Manual BP apparatus  | 14                                   | 93         |
| Light source (flash light)                                   | 6                                    | 40         |
| Micro nebulizer  | 5                                    | 33         |
| Pulse oximeter   | 6                                    | 40         |
| Filled oxygen cylinder                                       | 5                                    | 33         |
| Intravenous infusion kits (adult)                            | 14                                   | 93         |
| Intravenous infusion kits (pediatric)                        | 13                                   | 87         |
| Tab. Glibenclamide   | 9                                    | 60         |
| Tab. Glimepiride   | 9                                    | 60         |
| Tab. Metformin   | 10                                   | 67         |
| Inj. Insulin (regular)                                       | 8                                    | 53         |
| Inj. Insulin (composite)                                     | 7                                    | 47         |
| Tab. Acetylsalicylic Acid                                    | 8                                    | 53         |
| Tab. Bisoprolol  | 3                                    | 20         |
| Tab. Digoxin   | 6                                    | 40         |
| Inj. Digoxin   | 1                                    | 67         |
| Inj. Dopamine  | 4                                    | 27         |
| Inj. Dobutamine  | 4                                    | 27         |
| Tab. Enalapril   | 6                                    | 40         |
| Glyceryl Trinitrate (sublingual)                             | 6                                    | 40         |
| Inj. Hydralazine   | 2                                    | 13         |
| Isosorbide Dinitrate (sublingual)                            | 6                                    | 40         |
| Tab. Methyldopa  | 5                                    | 33         |
| Inj. Methyldopa  | 1                                    | 7          |

| Components & Items   | Availability at DHQ Hospitals (n=15) |            |
|--|--------------------------------------|------------|
|  | Number                               | Percentage |
| Tab. Losartan  | 3                                    | 20         |
| Tab./Cap. Propranolol  | 5                                    | 33         |
| Streptokinase (powder for injection)   | 2                                    | 13         |
| Tab. Simvastatin   | 4                                    | 27         |
| Tab. Verapamil   | 1                                    | 7          |
| Inj. Aminophylline   | 7                                    | 47         |
| Tab. Aminophylline   | 4                                    | 27         |
| Beclomethasone (inhaler)   | 4                                    | 27         |
| Tab. Salbutamol  | 12                                   | 80         |
| Inj. Salbutamol  | 2                                    | 13         |
| Salbutamol (inhaler)   | 4                                    | 27         |
| Salbutamol (solution for nebulizer)  | 9                                    | 60         |
| Ammonium Chloride+ Chloroform + Menthol +<br>Diphenhydramine + Sodium Citrate (Antitussive<br>Expectorant) | 8                                    | 53         |
| Syp. Dextromethorphan + Diphenhydramine  | 2                                    | 13         |
| Readiness Index of Non-communicable Diseases Services  |                                      | 46         |



### 3. Clients' Perspective

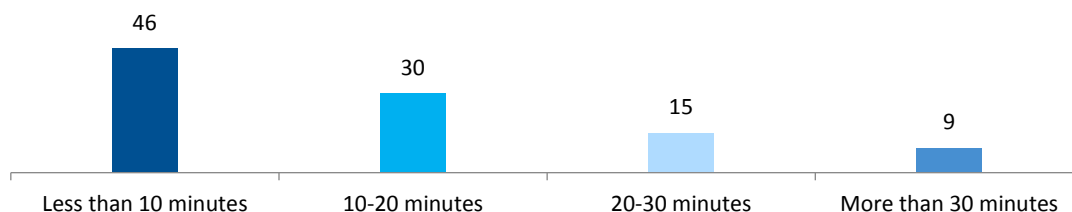
Client exit interviews were conducted within the scope of the health facility assessment survey to assess the clients' perspectives on quality of services provided at DHQ Hospitals. In Sindh a total of 54 clients were interviewed at DHQ Hospitals, majority of who were women with children.

These interviews were analyzed for average time the clients have to wait at a facility, common problems faced by clients at facility and their satisfaction levels.

#### 3.1 Average waiting time

The time for which clients have to wait before provision of services at DHQ hospitals is presented in figure 12. On average 46% of clients had to wait for less than 10 minutes however, 9% of clients have to wait for more than 30 minutes.

**Figure 12: Average waiting time (in %) of Clients at DHQ Hospitals**



#### 3.2 Common Problems Faced by Clients at DHQ Hospitals

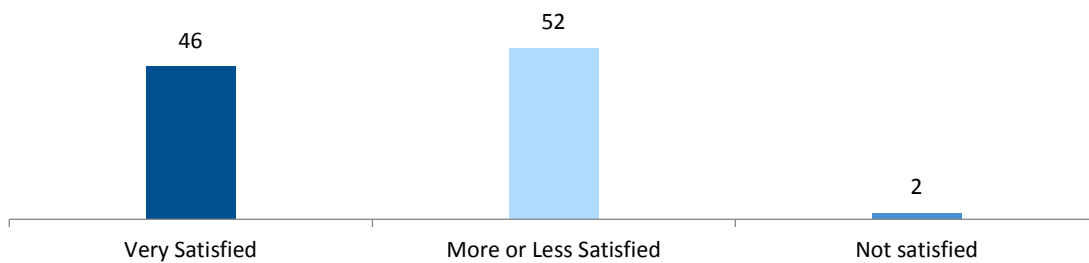
Client satisfaction is considered one of the desired outcomes of healthcare and is directly related to utilization of health services. Long waiting time, lack of privacy and inadequate visiting hours, poor information provision, unavailability of drugs and poor cleanliness are major areas of dissatisfaction amongst the clients. To provide better care to patients, it is crucial to reduce their waiting time at the hospital. The clients reported that waiting time was a minor issue and they were satisfied with the information provided to them at the health facilities. Moreover, they did not experience any major privacy issues while discussing their health related problems and during the course of examination. The availability of drugs at the facility and cleanliness were reported as minor concerns. Moreover, majority had no issues with number of days the services were available (Table 37).

**Table 37: Perception of common problems faced by the clients at DHQ Hospitals**

| Perception   | Minor (%) | Major (%) | No Problem(%) |
|--|-----------|-----------|---------------|
| Time you waited to see a provider                                    | 6         | 44        | 50            |
| Ability to discuss problems or concerns about your health issue      | 6         | 32        | 63            |
| Amount of explanation you received about the problem or treatment    | 9         | 33        | 57            |
| Privacy from having others see the examination                       | 11        | 28        | 61            |
| Privacy from having others hear your consultation discussion         | 13        | 20        | 67            |
| Availability of medicines at the facility                            | 7         | 52        | 41            |
| Hours of service at the this facility, i.e. when they open and close | 2         | 28        | 70            |
| Number of days services are available to you                         | 2         | 20        | 78            |
| Cleanliness of the facility  | 9         | 32        | 59            |

### 3.3 Client Level of Satisfaction

Client satisfaction with services is necessary for the future of health communities. During these interviews, when inquired about the overall satisfaction with the visit, 46% were very satisfied, 52% were more or less satisfied, and 2% was not satisfied with services provided at the DHQ Hospitals.

**Figure 13: Satisfaction of clients (in %) with services provided at District Headquarter Hospital**

## 4. Conclusion & Recommendations

Currently, health facility assessments are being increasingly used to measure the functioning of the health facilities and systems. The assessment aimed at identifying gaps for improving the readiness of health facilities. It focused on assessing the resources available for the delivery of services against the standards of provincial health department, in the form of yardsticks, PC-1s and notified service delivery standards. The assessment tools have captured comprehensive situation of the individual facilities covering all domains and facets in the local context. Overall the findings revealed large deficiencies both in the availability of resources as well as in facility level management actions.

This report has highlighted major gaps in the availability of resources (in terms of human resource, equipment, medicines and supplies, infrastructure, basic amenities, diagnostics, and facility management) for optimal operationalization of DHQ Hospitals of Sindh. Strategies to improve the utilization as well as quality of care cannot achieve their full potential without improving the conditions of the public sector health facilities. The information obtained through this large-scale assessment should be used by policy makers and planners as a tool for informed planning and for channeling the healthcare investments to bring improvements in the overall delivery and quality of healthcare services.

Summarizing the strategies required to improve the utilization and quality of services delivered at the DHQ Hospitals, level-specific recommendations based on gaps identified in individual domains are as follows.

### 4.1 Facility Management

- Strengthen supervision of the health facility through implementation of a supportive supervision approach
  - Development of guidelines, SOPs and tools
  - Capacity building of relevant staff
  - Use of *mHealth* technology for supervision
- Enhance the quality of facility level management meetings by using standardized agenda items
- Establish community liaison by conducting community meetings on regular basis
- Implement community engagement strategies like formation of Community Social Organizations (CSOs) for health
- Institutionalize explicit mechanisms to capture clients' opinion and perception and translate it into actions for improving quality of care
- Ensure provision of all DHIS tools at the health facilities and focus on quality of data
- Improve the infection control and waste management practices by implementing relevant guidelines and provision of necessary resources
- Increase budgetary provisions of POL for monitoring visits, fuel-operated generator, and ambulance services

## 4.2 Human Resource

- Implement HR strategy based on the gaps identified through the HFA
- Fill the vacant positions through:
  - Contractual appoint (short-term)
  - Sindh Public Service Commission (long-term)
- Implement capacity building strategy to conduct job-specific trainings of all the staff for both clinical and managerial functions
  - Institutionalize on-job and refresher trainings
  - Strengthen PHDC and DHDCs network
- Incentivize key staff positions for areas of rural Sindh that are below the provincial average

Given the large magnitude of detailment-in at DHQ Hospitals, in addition to imposing a ban, the following is proposed:

- A clear policy to serve in rural areas essentially envisaging:
  - Compulsory rural service for a minimum of 2 years
  - Crediting rural areas service for post-graduation
  - Posting to DHQ Hospitals and tertiary hospitals subject to rural service
  - Rural service necessary for promotion
- Incentivized pay package
  - Substantial increase may be double of the existing
- Decent living
  - Renovated/furnished accommodation with all basic amenities
  - Safety and security of staff residences in vulnerable locations

## 4.3 Infrastructure

- Prioritize the deficiencies in infrastructure identified through the HFA
- Perform civil works assessment of the priority components for repair, renovation, expansion, or new construction of building components

## 4.4 Equipment, Furniture, & Fixtures

- Fill the gaps in equipment through procurement of missing items
  - Obtaining additional funding from the government and donors
- Build capacity of concerned staff on maintenance of equipment items
- Put in place a mechanism for regular repair and preventive maintenance
  - Enhance budgetary provision
  - Establish regional repair workshops

## 4.5 Drugs & Supplies

- Implement EML 2014 for procurement by the government to ensure availability of all items at the health facilities
- Build capacity of staff at health facilities to perform function of forecasting, quantification, and procurement to avoid stock-outs

## 4.6 Miscellaneous

- Improve alternate supply of electricity by partnering with private sector to install and operate solar energy systems at health facilities
- Rationalize budgetary provisions for POL of ambulances and fuel-operated generators
- Develop and implement SOPs for ensuring high standards of the cleanliness at health facilities
- Establish public sector blood banks at all health facilities
- Strengthen growth monitoring services by augmenting DHIS with required tools

In order to bridge the gaps in the resources required for optimal functioning of DHQ Hospitals, action plans in the form of District Annual Operational Plans, prepared with the support of HSS Component of USAID's MCH Program, should also use the information collected through this HFA, for identification and prioritization of activities. Furthermore, the HFA database should be automated and linked with the dashboard of the provincial M&E Cell. In addition to placing the burden of filling all these deficiencies on the exchequer, innovative modalities may be explored like engagement of private sector in the form of public private partnerships.

Technical assistance should be provided to the government in developing a strategy to fulfill the deficiencies outlined through this assessment by leveraging donor and private sector support. Finally, this strategy should be linked with public sector budget for increasing financial support to the health sector. There is a dire need for concerted advocacy efforts at all levels so that these recommendations can be translated into actions for improving health outcomes of the people of Sindh.



## 5. Annexures

### 5.1 Annex 1: General Facility Readiness Index

General Facility Readiness Index calculation has been based on international norms and analogies. This has followed the WHO's Service Availability and Readiness Assessment methodology and MEASURE-USAID's Service Provision Assessment (SPA), and the WHO's 'Monitoring the Building Blocks of Health Systems: A Handbook Of Indicators And Their Measurement Strategies'.

Each **domain score** represents the average number of items present and functioning at the health facilities, expressed as a percentage of the total number of items in that domain.

All sub-components or items have been given equal weight. Score for a component was derived from mean availability of its sub-components/items. Similarly, mean scores of all components resulted in score for sub-domain and means of sub-domains calculated the domain score.

General Facility Readiness Index has been derived from mean of domains scores in percentage. This overall score is the un-weighted average of domain scores. Scores for the different domains of general service readiness have been calculated and presented separately.

**Facility Readiness Index** is defined as 'cumulative availability of items in all domains required in health facilities to provide general services, expressed as percentage.

#### 5.1.1 Basic Amenities

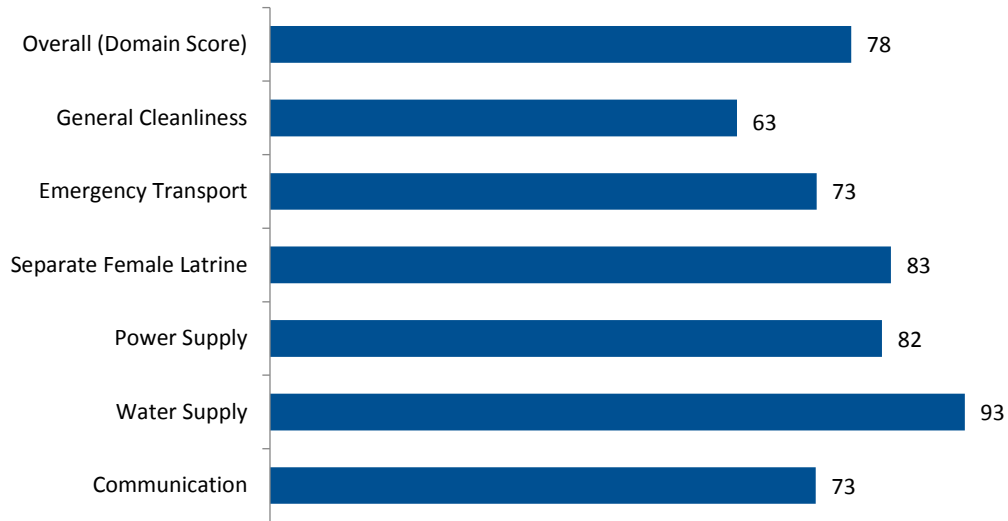
The sub-domain wise status of DHQ Hospitals in the domain of basic amenities showed that the overall mean (domain score) for all the DHQ Hospitals was 78%. The overall situation of basic amenities domain at the DHQ Hospitals revealed an encouraging picture and majority of facilities scored well on account of each sub-domain. However, vast variations occurred in DHQ Hospitals within six sub-domains of basic amenities, scoring as high as 93% in sub-domain of water source (Table 38).

**Table 38: Basic amenities at DHQ Hospitals**

*Mean availability of basic amenities at DHQ Hospitals*

| Sub-Domains of Basic Amenities     | Situation at DHQ Hospitals (n=15) |
|------------------------------------|-----------------------------------|
|                                    | Percentage                        |
| Communication services             | 73                                |
| Water source                       | 93                                |
| Electricity supply                 | 82                                |
| Client latrines                    | 83                                |
| Emergency transport services       | 73                                |
| General cleanliness                | 67                                |
| <b>Overall mean (domain score)</b> | <b>78</b>                         |

**Figure 14: Mean Availability (in %) of all Basic Amenities at DHQ Hospitals**



### 5.1.2 Facility Management

Domain score of facility management (overall mean) was 52% displaying a poor picture as well as vast variations amongst the sub-domains scores. The facilities scored relatively well on account of management of DHIS, conduct of supervisory and monitoring visits and infection control, but major gaps were identified in the conduct of management meeting, community staff meeting, client/opinion feedback, display of service charges and waste management (Table 39).

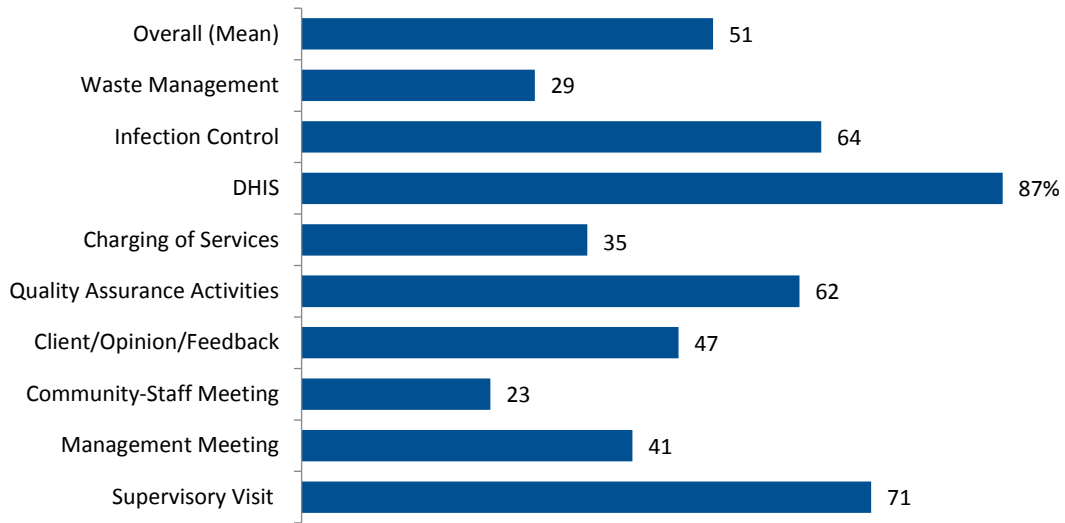
**Table 39: Management functions at DHQ Hospitals**

*Mean of management functions and practices at DHQ Hospitals*

| Sub-Domains of Facility Management | Situation at DHQ Hospitals (n=15) |
|------------------------------------|-----------------------------------|
|                                    | Mean (Percentage)                 |
| Supervisory visit                  | 71                                |
| Management meeting                 | 41                                |
| Community-staff meeting            | 23                                |
| Client opinion/feedback            | 47                                |
| Quality assurance activities       | 62                                |
| Charging of services               | 35                                |
| DHIS                               | 87                                |
| Infection control                  | 64                                |
| Waste management                   | 29                                |
| <b>Overall mean (domain score)</b> | <b>51</b>                         |



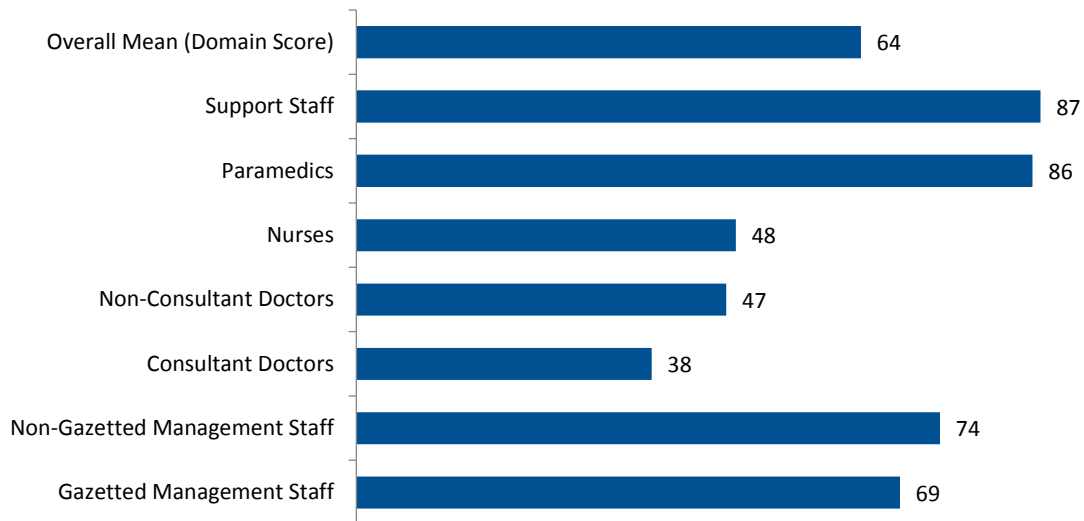
**Figure 15: Overall Mean (in %) of Management Functions at DHQ Hospitals**



### 5.1.3 Human Resource

The domain score of human resource was 64%, with major deficiencies reported in consultant staff and nurses (Figure 16).

**Figure 16: Mean availability of staff (in %) at DHQ Hospitals**



### 5.1.4 Diagnostic Services

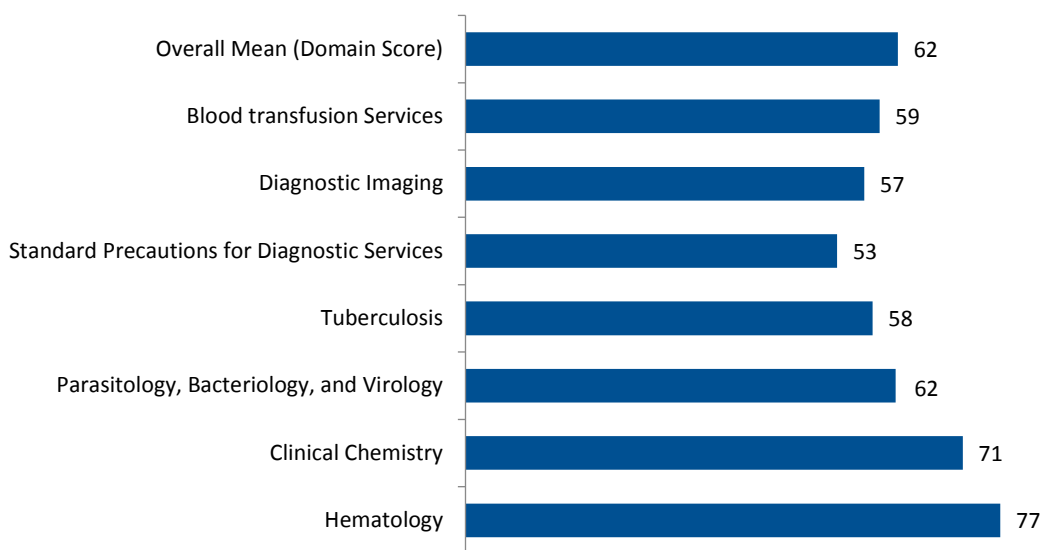
The overall status of health facilities with reference to domain of diagnostic services is summarized in Table 40.

**Table 40: Summary of diagnostic services at DHQ Hospitals**

*Mean of diagnostic services at DHQ Hospitals*

| Sub-Domains of Diagnostic Services           | Situation at DHQ Hospitals (n=15) |
|--|-----------------------------------|
|  | Mean (Percentage)                 |
| Hematology                                   | 77                                |
| Clinical chemistry                           | 71                                |
| Parasitology, bacteriology, and virology     | 62                                |
| Tuberculosis                                 | 58                                |
| Standard precautions for diagnostic services | 53                                |
| Diagnostic imaging                           | 57                                |
| Blood transfusion                            | 59                                |
| Overall mean (domain score)                  | 62                                |

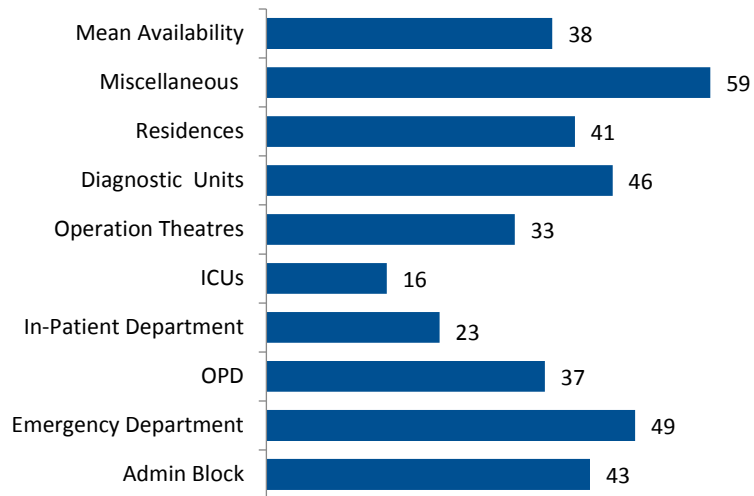
**Figure 17: Overall Mean (in %) of Diagnostic Services at DHQ Hospitals**



### 5.1.5 Infrastructure

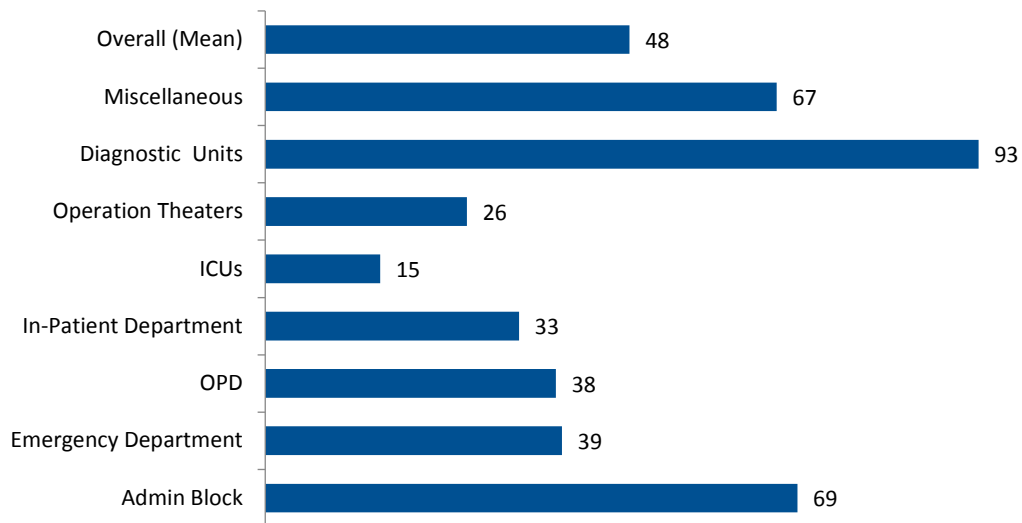
Summing up all the values provided an overall status of each sub-domain. This, when aggregated provided domain score for overall availability and readiness status of infrastructure (Figure 18).

**Figure 18: Mean Availability (in %) of Infrastructure sub-domain at DHQ Hospitals**



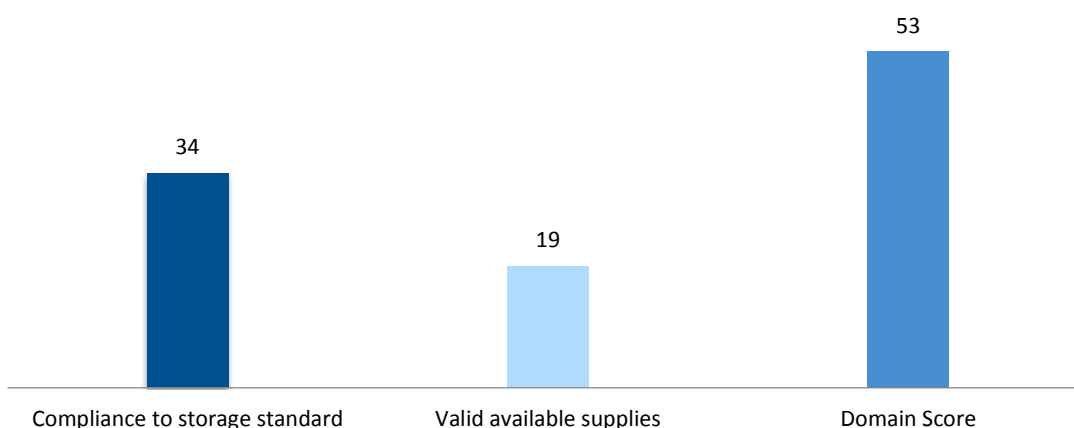
### 5.1.6 Equipment, Furniture & Fixtures

**Figure 19: Mean Availability of Equipment, Furniture & Fixtures (in %) at DHQ Hospitals**



### 5.1.7 Medicines and Supplies

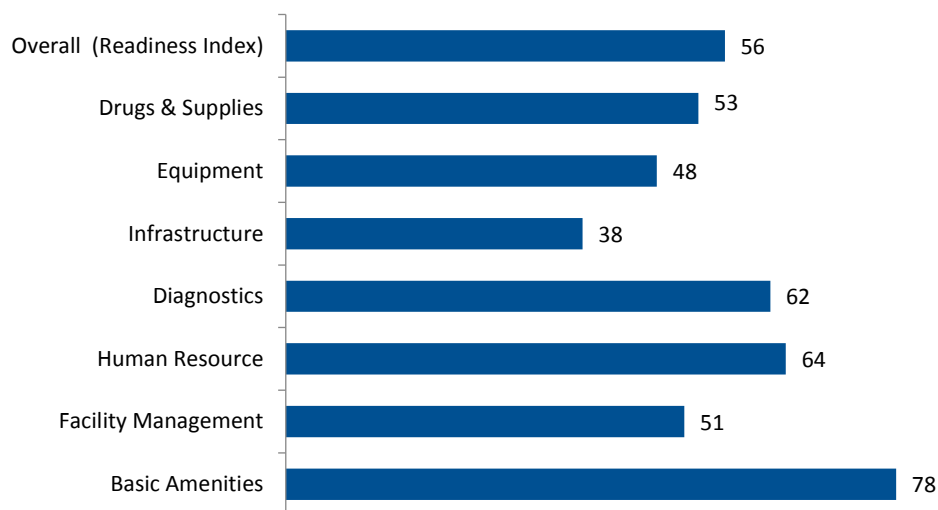
Figure 20: Mean Availability of Drugs and Supplies (in %) at DHQ Hospitals



### 5.1.8 General Facility Readiness Index

Based on the individual domains' scores, readiness index of all 15 DHQ Hospitals of Sindh is calculated, which is 49%. Overall, DHQ Hospitals scored minimum in the domains of equipment (29%), infrastructure (38%), medicine and supplies (39%), and human resource (44%) (Figure 21).

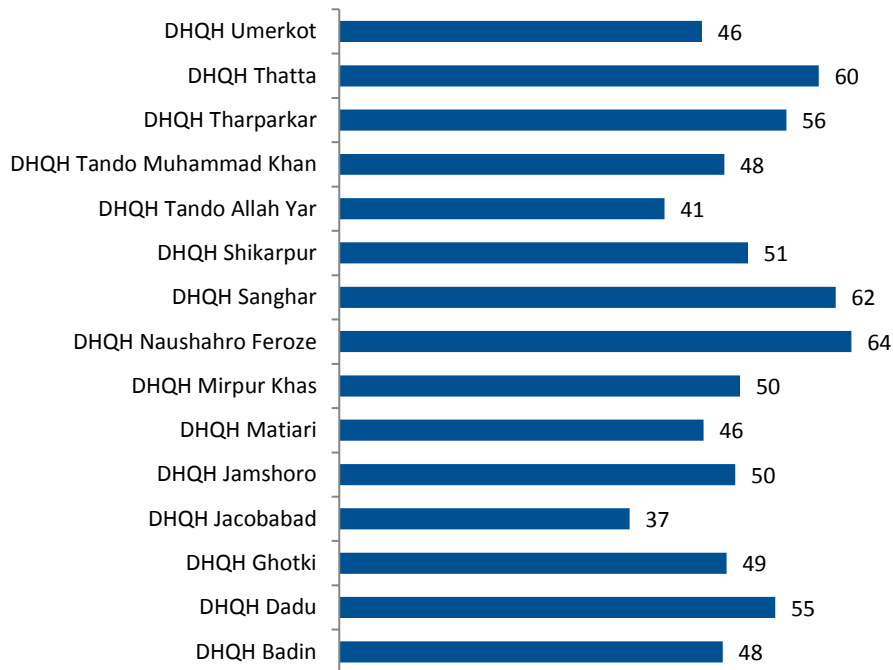
Figure 21: Domain score and overall readiness index (in %) of all DHQ Hospitals



In order to ascertain the situation at individual DHQ Hospitals and their readiness status, domain-wise scores and readiness index is calculated for individual DHQ Hospitals (Table 41; Figure 22). Individual results show that only three DHQ Hospitals (Naushahro Feroze, Sanghar, and Thatta) had readiness index of more than 60%.

**Table 41: General facility readiness of DHQ Hospitals***General facility readiness and domain-based scores by type of DHQ Hospitals*

| Name of DHQ Hospital | Mean Availability (in %) at DHQ Hospitals |                     |                |             |                |           |                  |
|----------------------|---|---------------------|----------------|-------------|----------------|-----------|------------------|
|                      | Basic Amenities                           | Facility Management | Human Resource | Diagnostics | Infrastructure | Equipment | Drugs & Supplies |
| Badin                | 83  | 53                  | 48             | 53          | 37             | 31        | 33               |
| Dadu                 | 78  | 42                  | 45             | 74          | 40             | 34        | 71               |
| Ghotki               | 73  | 31                  | 36             | 55          | 43             | 34        | 70               |
| Jacobabad            | 28  | 26                  | 44             | 60          | 42             | 39        | 16               |
| Jamshoro             | 100                                       | 43                  | 24             | 70          | 33             | 18        | 60               |
| Matiari              | 78  | 46                  | 36             | 54          | 23             | 18        | 65               |
| Mirpur Khas          | 73  | 59                  | 43             | 56          | 50             | 39        | 34               |
| Naushahro Feroze     | 86  | 80                  | 59             | 61          | 64             | 30        | 71               |
| Sanghar              | 95  | 72                  | 55             | 65          | 59             | 33        | 58               |
| Shikarpur            | 75  | 40                  | 46             | 53          | 58             | 34        | 54               |
| Tando Allah Yar      | 68  | 42                  | 38             | 62          | 26             | 23        | 27               |
| Tando Muhammad Khan  | 100                                       | 56                  | 37             | 33          | 25             | 15        | 73               |
| Tharparkar           | 83  | 63                  | 55             | 73          | 31             | 23        | 66               |
| Thatta               | 85  | 59                  | 53             | 77          | 48             | 46        | 55               |
| Umerkot              | 66  | 58                  | 34             | 76          | 25             | 17        | 44               |

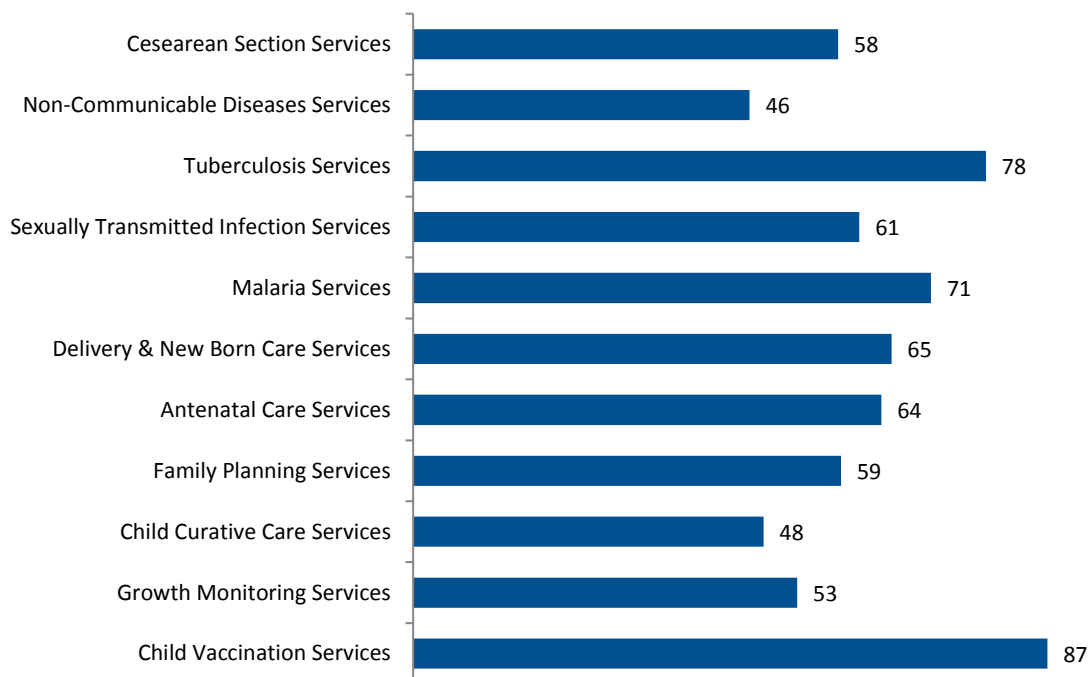
**Figure 22: General Facility Readiness Score (in %) by type of DHQ Hospitals**

## 5.2 Annex 2: Service Specific Readiness Indices

Service specific readiness index for each of the individual service has been calculated by using the same principles used for General Facility Readiness while taking into consideration the minimum availability of relevant staff, diagnostics, equipment, medicines and supplies, and service delivery guidelines.

Summary of the services specific readiness scores for all the specialized services is presented in the following figure.

**Figure 23: Service Specific Readiness Scores of Specialized Services (in %) at DHQ Hospitals**



## 5.3 Annex 3: Yardstick for Equipment

**Table 42: Yardstick for DHQ Hospitals Equipment**

| Items                                 | Standard Quantity | Items                                | Standard Quantity | Items                      | Standard Quantity |
|---------------------------------------|-------------------|--------------------------------------|-------------------|----------------------------|-------------------|
| <b>Management</b>                     |                   | Suction Machine                      | 1                 | Cardiac Monitor            | 8                 |
| <b>Medical Superintendent Room</b>    |                   | <b>Treatment Room</b>                |                   | Medicine Trolley           | 1                 |
| Large Office Table With Cabinet       | 1                 | Two Crank Fowler Bed                 | 1                 | Steel Almirah              | 1                 |
| Revolving Chair                       | 1                 | Bed Side Locker                      | 1                 | Ward Screen                | 1                 |
| Office Chair                          | 4                 | Settee                               | 1                 | Stretcher                  | 1                 |
| Sofa Set                              | 1                 | Suction Machine                      | 1                 | Wheel Chair                | 1                 |
| Computer With LCD Screen Complete Set | 1                 | Oxygen Flow Meter                    | 1                 | Drip Stand                 | 8                 |
| Telephone Set                         | 2                 | Syringe Cutter                       | 1                 | Suction Machine            | 1                 |
| Laser jet Printer                     | 1                 | Drug Racks (Drug Room)               | 1                 | Oxygen With Flow Meter     | 2                 |
| Fax Machine                           | 1                 | <b>Medical Intensive Care Unit</b>   |                   | <b>CCU - Male / Female</b> |                   |
| Split Air Conditioner                 | 1                 | I.C.U Bed                            | 10                | ICU Beds                   | 10                |
| Office Locker                         | 1                 | Bed Side Locker                      | 10                | Mattress With Cover        | 10                |
| Television Set                        | 1                 | Suction Machine                      | 2                 | Bed Side Locker            | 10                |
| <b>Additional MS Room</b>             |                   | Cardiac Monitor                      | 4                 | Over The Bed Table         | 10                |
| Large Office Table With Cabinet       | 1                 | Central Monitoring System 10 Channel | 1                 | Ward Screen                | 2                 |
| Office Chair (Including For Visitors) | 4                 | Crush Trolley                        | 2                 | Medicine Trolley           | 1                 |
| Revolving Chair                       | 1                 | Pulse Oximeter                       | 1                 | Stretcher Trolley          | 1                 |
| Computer With LCD Screen Complete Set | 1                 | Dinamap                              | 4                 | Wheel Chair                | 1                 |
| Telephone Set                         | 1                 | Sphygmomano-meter                    | 2                 | Dirty Linen Trolley        | 1                 |
| Office Locker                         | 1                 | Stethoscope                          | 2                 | Clean Linen Trolley        | 1                 |
| <b>Deputy MS Room</b>                 |                   | E.C.G Machine                        | 2                 | File Cabinet               | 1                 |
| Large Office Table With Cabinet       | 1                 | Ventilator                           | 1                 | Steel Almirah              | 1                 |
| Office Chair                          | 4                 | Infusion Pump                        | 2                 | Revolving Chair            | 1                 |
| Revolving Chair                       | 1                 | Defibrillator                        | 1                 | Office Table               | 1                 |
| Computer With LCD Screen Complete Set | 1                 | Glucometer                           | 2                 | Office Chair               | 2                 |

| Items  | Standard Quantity | Items                                 | Standard Quantity | Items                           | Standard Quantity |
|--|-------------------|---------------------------------------|-------------------|---------------------------------|-------------------|
| Telephone Set                                | 1                 | Nebulizer Machine                     | 1                 | Revolving Stool                 | 1                 |
| Office Locker                                | 1                 | Laryngoscope (Set)                    | 2                 | Cardiac Monitor                 | 10                |
| <b>Admin Room</b>                            |                   | Refrigerator                          | 1                 | Central Patient Monitor         | 1                 |
| Office Table                                 | 2                 | Steamer                               | 1                 | ECG Machine (6 Channel)         | 1                 |
| Office Chair                                 | 4                 | Instrument Trolley                    | 1                 | Central Oxygen System (1 Unit)  | 1                 |
| Revolving Chair                              | 1                 | Cupboard                              | 1                 | Overhead Warmer                 | 1                 |
| Desktop Computer With Monitor (Complete Set) | 1                 | Split Air Conditioner                 | 1                 | Resuscitation Trolley           | 1                 |
| Office Locker                                | 2                 | Oxygen Flow Meter                     | 6                 | Defibrillator With ECG Display  | 1                 |
| <b>Account Room</b>                          |                   | Central Oxygen Line                   | 1                 | Temporary Pace Maker (External) | 1                 |
| Office Table                                 | 2                 | Oxygen Cylinders                      | 6                 | Medical Trolley                 | 1                 |
| Office Chair                                 | 4                 | <b>Duty Doctor Room</b>               |                   | Infusion Pump                   | 4                 |
| Revolving Chair                              | 1                 | Office Table                          | 1                 | Glucometer                      | 2                 |
| Desktop Computer With Monitor Complete Set   | 1                 | Office Chair                          | 2                 | Nebulizer                       | 1                 |
| Office Locker                                | 2                 | Revolving Chair                       | 1                 | Over The Bed Table              | 10                |
| <b>Conference Room</b>                       |                   | Telephone Set                         | 1                 | Nursing Counter                 | 1                 |
| Conference Table                             | 1                 | X-ray Illuminator                     | 1                 | Telephone Set                   | 1                 |
| Chair  | 10                | Examination Couch                     | 1                 | Sphygmomanometer                | 2                 |
| Multimedia                                   | 1                 | Stethoscope                           | 1                 | Stethoscope                     | 2                 |
| Screen                                       | 1                 | Sphygmomano-meter                     | 1                 | Stainless Steel Buckets         | 10                |
| <b>MIS/Computer Room</b>                     |                   | <b>Nursing Station</b>                |                   | Drip Stands                     | 10                |
| Desktop Computer With All Accessories        | 1                 | Revolving Chair                       | 1                 | <b>Treatment Room</b>           |                   |
| Office Table                                 | 1                 | Telephone Set                         | 1                 | Medicine Trolley                | 1                 |
| Office Chair                                 | 2                 | Cupboard                              | 1                 | Two Crank Fowler Bed            | 1                 |
| <b>Library</b>                               |                   | Sphygmomano-meter                     | 1                 | Bed Side Locker                 | 1                 |
| Book Racks                                   | 2                 | Stethoscope                           | 1                 | Syringe Cutter                  | 1                 |
| Chairs                                       | 10                | <b>Locker Rooms Male &amp; Female</b> |                   | Suction Machine Portable        | 1                 |
| Table  | 2                 | Lockers Rack Metal                    | 1                 | X - Ray Illuminator             | 1                 |
| Telephone Set                                | 1                 | <b>Obstetrics &amp; Gynecology</b>    |                   | Portable B.P Apparatus          | 1                 |



| Items                             | Standard Quantity | Items                  | Standard Quantity | Items                          | Standard Quantity |
|-----------------------------------|-------------------|------------------------|-------------------|--------------------------------|-------------------|
| <b>Emergency&amp; Casualty</b>    |                   | <b>Nursing Station</b> |                   | Stretcher Trolley              | 1                 |
| <b>Reception/ Nursing Station</b> |                   | Revolving Chairs       | 1                 | Nebulizer                      | 1                 |
| Revolving Chair                   | 2                 | Counter                | 1                 | Drip Stand                     | 1                 |
| Telephone Set                     | 1                 | Telephone Set          | 1                 | Glucometer                     | 1                 |
| Cupboard                          | 1                 | Sphygmomano-meter      | 1                 | <b>Isolation Room</b>          |                   |
| Sphygmomano-meter                 | 1                 | Stethoscope            | 1                 | Two Crank Fowler Bed           | 1                 |
| Stethoscope                       | 1                 | Steel Almirah          | 1                 | Bed Side Locker                | 1                 |
| <b>RMO Room/s</b>                 |                   | File Cabinet           | 1                 | Mattress With Cover            | 1                 |
| Office Table                      | 1                 | <b>Ward</b>            |                   | Over The Bed Table             | 1                 |
| Office Chair                      | 2                 | Stretcher Trolleys     | 1                 | Bed Side Bench                 | 1                 |
| Revolving Chair                   | 1                 | Wheel Chairs           | 1                 | Medicine Trolley               | 1                 |
| X-ray Illuminator                 | 1                 | Ward Screen            | 1                 | Bed Side Locker                | 1                 |
| Examination Couch                 | 1                 | Dirty Linen Trolley    | 1                 | <b>Waiting Area</b>            |                   |
| Stethoscope                       | 1                 | Two Crank Fowler Bed   | 10                | Chairs                         | 6                 |
| Sphygmomano-meter                 | 1                 | Ordinary Beds          | 10                | <b>Medicine Store</b>          |                   |
| Diagnostic Set                    | 1                 | Mattress With Cover    | 20                | Racks                          | 2                 |
| <b>Medico Legal Officer Room</b>  |                   | Bed Side Locker        | 20                | <b>Pantry/Kitchen</b>          |                   |
| Office Table                      | 1                 | Clean Linen Trolley    | 1                 | Utensils / Equipment           | 4                 |
| Office Chair                      | 2                 | Over The Bed Table     | 20                | Frying Pan                     | 1                 |
| Revolving Chair                   | 1                 | Bed Side Bench         | 20                | Cooking Pan                    | 1                 |
| X-ray Illuminator                 | 1                 | Medicine Trolley       | 1                 | Refrigerator                   | 1                 |
| Examination Couch                 | 1                 | Weighing Scale         | 1                 | Water Cooler                   | 1                 |
| <b>Emergency Ward For Male</b>    |                   | Couch For Mother Feed  | 1                 | <b>Thalassemia Ward (Male)</b> |                   |
| Emergency Resuscitation Trolley   | 1                 | Drip Stand             | 16                | Fowler Bed                     | 1                 |
| Multifunction Monitor             | 1                 | Stainless Steel Bucket | 20                | Ordinary Patient Bed           | 1                 |
| ECG Machine With Trolley          | 1                 | Urinals                | 2                 | Bedside Locker                 | 2                 |
| Two Crank Fowler Bed              | 6                 | Bedpans                | 2                 | Drip Stand                     | 2                 |
| Bed Side Locker                   | 6                 | <b>Isolation Rooms</b> |                   | Mattress With Cover            | 2                 |

| Items                            | Standard Quantity | Items                     | Standard Quantity | Items                              | Standard Quantity |
|----------------------------------|-------------------|---------------------------|-------------------|------------------------------------|-------------------|
| Suction Machine                  | 2                 | Two Crank Fowler Bed      | 1                 | Bedside Bench                      | 2                 |
| Cardiac Monitor                  | 2                 | Mattress With Cover       | 1                 | <b>Thalassemia Ward (Female)</b>   |                   |
| Diagnostic Set                   | 1                 | Bed Side Locker           | 1                 | Fowler Bed                         | 1                 |
| Pulse Oximeter                   | 1                 | Over The Bed Table        | 1                 | Ordinary Patient Bed               | 1                 |
| Dinamap                          | 2                 | Bed Side Bench            | 1                 | Bedside Locker                     | 2                 |
| Sphygmomano-meter                | 2                 | Medicine Trolley          | 1                 | Drip Stand                         | 2                 |
| Stethoscope                      | 1                 | <b>Treatment Room</b>     |                   | Mattress With Cover                | 2                 |
| Defibrillator                    | 1                 | Medicine Trolley          | 1                 | Bedside Bench                      | 2                 |
| Glucometer                       | 1                 | Examination Couches       | 1                 | <b>Orthopedic</b>                  |                   |
| Nebulizer Machine                | 1                 | Revolving Stool           | 1                 | <b>Reception / Nursing Station</b> |                   |
| Steamer                          | 1                 | Foot Stepper              | 1                 | Revolving Chair                    | 1                 |
| Oxygen Flow Meter                | 4                 | Syringe Cutter            | 1                 | Telephone Set                      | 1                 |
| Central Oxygen Line              | 1                 | Suction Machine Portable  | 1                 | Cupboard                           | 1                 |
| Oxygen Cylinder                  | 4                 | X - Ray Illuminator       | 1                 | Crush Trolley                      | 1                 |
| <b>Emergency Ward For Female</b> |                   | Portable B.P Apparatus    | 1                 | Stethoscope                        | 1                 |
| Two Crank Fowler Bed             | 4                 | Stretcher Trolley         | 1                 | Sphygmomanometer                   | 1                 |
| Bed Side Locker                  | 4                 | Nebulizer                 | 1                 | <b>Male Ward</b>                   |                   |
| Suction Machine                  | 2                 | Drip Stand                | 1                 | Two Crank Fowler Bed               | 2                 |
| Cardiac Monitor                  | 2                 | Glucometer                | 1                 | Ordinary Patient Bed               | 4                 |
| Emergency Resuscitation Trolley  | 1                 | <b>Medicine Store</b>     |                   | Bed Side Locker                    | 6                 |
| ECG Machine With Trolley         | 1                 | Racks                     | 2                 | Mattress With Cover                | 6                 |
| Diagnostic Set                   | 1                 | <b>Pantry/Kitchen</b>     |                   | Settee                             | 1                 |
| Pulse Oximeter                   | 2                 | Utensils / Equipment      | 4                 | Suction Machine                    | 1                 |
| Dinamap                          | 2                 | Frying Pan                | 1                 | Oxygen Flow Meter                  | 2                 |
| Sphygmomano-meter                | 2                 | Cooking Pan               | 1                 | Drip Stand                         | 6                 |
| Stethoscope                      | 2                 | Refrigerator              | 1                 | Stainless Steel Bucket             | 6                 |
| Defibrillator                    | 1                 | Water Cooler              | 1                 | Urinals                            | 2                 |
| Glucometer                       | 1                 | Food Distribution Trolley | 1                 | Bedpans                            | 2                 |

| Items                              | Standard Quantity | Items                            | Standard Quantity | Items                          | Standard Quantity |
|------------------------------------|-------------------|----------------------------------|-------------------|--------------------------------|-------------------|
| Nebulizer Machine                  | 1                 | Stove                            |                   | Ward Screen                    | 2                 |
| Steamer                            | 1                 | <b>Labor Room</b>                |                   | <b>Female Ward</b>             |                   |
| Oxygen Flow Meter                  | 4                 | Multipurpose Monitor             | 1                 | Two Crank Fowler Bed           | 2                 |
| Central Oxygen Line                | 1                 | Suction Machine (Heavy Duty)     | 1                 | Ordinary Patient Bed           | 4                 |
| Oxygen Cylinder                    | 4                 | Ambu Bag (Adults)                | 1                 | Bed Side Locker                | 6                 |
| Portable Spot Light                | 1                 | Ambu Bag (Pediatrics)            | 1                 | Mattress With Cover            | 6                 |
| <b>Medicine Store</b>              |                   | Cardiotocograph Machine          | 1                 | Settee                         | 1                 |
| Revolving Chair                    | 1                 | D & C. Set                       | 2                 | Suction Machine                | 1                 |
| Racks For Medicines                | 2                 | D & E. Set                       | 2                 | Oxygen Flow Meter              | 2                 |
| Refrigerator                       | 1                 | Episiotomy Set                   | 2                 | Drip Stand                     | 6                 |
| <b>Portable X-ray</b>              |                   | Delivery Set                     | 2                 | Stainless Steel Bucket         | 6                 |
| Portable X-ray Machine 100 MA      | 1                 | Defibrillator                    | 1                 | Urinals                        | 2                 |
| X-ray Castes                       | 6                 | Oxygen Flow Meter                | 2                 | Bedpans                        | 2                 |
| <b>Emergency Operation Theater</b> |                   | Central Oxygen Line              | 1                 | <b>Duty Doctor Room</b>        |                   |
| O.T Top Light                      | 1                 | Oxygen Cylinders                 | 4                 | Office Table                   | 1                 |
| O.T Table                          | 1                 | Nitrous Oxide Cylinder           | 2                 | Office Chair                   | 1                 |
| Revolving Stool                    | 2                 | Instrument Trolley               | 4                 | Revolving Chair                | 1                 |
| Foot Step                          | 1                 | Medicine Trolley/Tray            | 1                 | X-ray Illuminator              | 1                 |
| Telephone Set                      | 1                 | Surgical Drums                   | 6                 | Stethoscope                    | 1                 |
| Cardiac Monitor Multifunction      | 1                 | Emergency Resuscitation Trolley  | 1                 | Sphygmomanometer               | 1                 |
| Minor Instruments Set              | 2                 | Refrigerator                     | 1                 | Examination Couch              | 1                 |
| Dressing Set                       | 4                 | Portable OT Light                | 1                 | <b>Isolation Room</b>          |                   |
| Circumcision Set                   | 2                 | Delivery Table                   | 2                 | Two Crank Fowler Bed           | 1                 |
| Defibrillator                      | 1                 | Suction Machine                  | 1                 | Bed Side Locker                | 1                 |
| Instrument Trolley                 | 1                 | Baby Running Trolley With Warmer | 1                 | Settee                         | 1                 |
| Crush Trolley                      | 1                 | Normal Delivery Set              | 2                 | Oxygen Flow Meter              | 1                 |
| Suction Machine                    | 1                 | Vacuum Extractor                 | 1                 | Split Air Conditioner          | 1                 |
| X-ray Illuminator                  | 1                 | Pulse Oximeter                   | 1                 | Cardiac Monitor Multi-Function | 1                 |

| Items                                  | Standard Quantity | Items                              | Standard Quantity | Items                           | Standard Quantity |
|--|-------------------|------------------------------------|-------------------|---------------------------------|-------------------|
| Stethoscope                            | 1                 | Drip Stand                         | 2                 | Suction Machine                 | 1                 |
| Sphygmomano-meter                      | 1                 | Foot Stand                         | 1                 | <b>Treatment Room</b>           |                   |
| Surgical Drums                         | 4                 | Stainless Steel Bucket             | 1                 | Two Crank Fowler Bed            | 1                 |
| Oxygen Flow Meter                      | 1                 | Split A/C (1 Ton)                  | 1                 | Bed Side Locker                 | 1                 |
| Central Oxygen Line                    | 1                 | <b>Pediatrics</b>                  |                   | Settee                          | 1                 |
| Central Oxygen Cylinder                | 2                 | <b>Reception / Nursing Station</b> |                   | Suction Machine                 | 1                 |
| <b>Dressing &amp; POP Room</b>         |                   | Revolving Chair                    | 1                 | Oxygen Flow Meter               | 1                 |
| Dressing Trolley                       | 1                 | Telephone Set                      | 1                 | Syringe Cutter                  | 1                 |
| Minor Instrument Set                   | 1                 | Cupboard                           | 1                 | Drug Racks (Drug Room)          | 1                 |
| Instrument Tray/Trolley                | 1                 | Crush Trolley                      | 1                 | <b>Psychiatry Ward (Male)</b>   |                   |
| Portable Spot Light                    | 1                 | Stethoscope                        | 1                 | Two Crank Fowler Bed            | 2                 |
| Examination Couch                      | 1                 | Sphygmomano-meter                  | 1                 | Bed Side Locker                 | 2                 |
| P.O.P Cutter                           | 1                 | <b>Ward Doctor Room</b>            |                   | Settee                          | 1                 |
| <b>Scrub Room</b>                      |                   | Office Table                       | 1                 | Suction Machine                 | 1                 |
| Dispenser For Scrub Solution           | 1                 | Office Chair                       | 1                 | Oxygen Flow Meter               | 1                 |
| <b>Outpatient Services</b>             |                   | Visitor Chair                      | 1                 | <b>Psychiatry Ward (Female)</b> |                   |
| <b>Medical And Chest OPD</b>           |                   | <b>Ward</b>                        |                   | Two Crank Fowler Bed            | 2                 |
| Office Table                           | 1                 | Two Crank Fowler Bed               | 4                 | Bed Side Locker                 | 2                 |
| Office Chair                           | 2                 | Ordinary Beds                      | 10                | Settee                          | 1                 |
| Revolving Chair                        | 1                 | Mattress With Cover                | 14                | Suction Machine                 | 1                 |
| Telephone Set                          | 1                 | Bedside Lockers                    | 14                | Oxygen Flow Meter               | 1                 |
| X-ray Illuminator                      | 1                 | Over The Bed Table                 | 14                | <b>Prisoners Ward</b>           |                   |
| Examination Couch                      | 1                 | Bed Side Bench                     | 14                | Two Crank Fowler Bed            | 2                 |
| Stethoscope                            | 1                 | Glucometer                         | 2                 | Ordinary Patient Bed            | 2                 |
| Sphygmomano-meter                      | 1                 | Weighing Machine                   | 1                 | Bed Side Locker                 | 4                 |
| Diagnostic Set                         | 1                 | Portable B.P Apparatus             | 2                 | Settee                          | 1                 |
| Weighing Scale                         | 1                 | Drip Stand                         | 10                | Suction Machine                 | 1                 |
| Height Scale                           | 1                 | X- Ray Illuminator                 | 1                 | Oxygen Flow Meter               | 1                 |
| <b>Obstetrics &amp; Gynecology OPD</b> |                   | Medicine Trolley                   | 1                 | <b>Duty Doctor Room</b>         |                   |

| Items                       | Standard Quantity | Items                    | Standard Quantity | Items  | Standard Quantity |
|-----------------------------|-------------------|--------------------------|-------------------|--|-------------------|
| Office Table                | 1                 | Stainless Steel Bucket   | 10                | Office Table   | 1                 |
| Office Chair                | 2                 | Ward Screen              | 2                 | Office Chair   | 1                 |
| Revolving Chair             | 1                 | <b>Isolation Room</b>    |                   | Revolving Chair  | 1                 |
| Telephone Set               | 1                 | Two Crank Fowler Bed     | 1                 | Telephone Set  | 1                 |
| X-ray Illuminator           | 1                 | Bed Side Locker          | 1                 | X-ray Illuminator  | 1                 |
| Examination Couch           | 1                 | Mattress With Cover      | 1                 | Examination Couch  | 1                 |
| Stethoscope,                | 1                 | Over The Bed Table       | 1                 | Stethoscope,   | 1                 |
| Sphygmomano-meter           | 1                 | Bed Side Bench           | 1                 | Sphygmomanometer   | 1                 |
| Diagnostic Set              | 1                 | Medicine Trolley         | 1                 | <b>Isolation Room</b>  |                   |
| Vaginal Speculum            | 1                 | <b>Treatment Room</b>    |                   | Two Crank Fowler Bed   | 1                 |
| Portable Spot Light         | 1                 | Medicine Trolley         | 1                 | Bed Side Locker  | 1                 |
| Dressing Set                | 2                 | Two Crank Fowler Bed     | 1                 | Settee   | 1                 |
| <b>Pediatrics OPD</b>       |                   | Examination Table        | 1                 | Oxygen Flow Meter  | 1                 |
| Office Table                | 1                 | Foot Stepper             | 1                 | Split Air Conditioner  | 1                 |
| Office Chair                | 2                 | Bed Side Locker          | 1                 | Cardiac Monitor Multi-Function   | 1                 |
| Revolving Chair             | 1                 | Syringe Cutter           | 1                 | Suction Machine  | 1                 |
| Telephone Set               | 1                 | Suction Machine Portable | 1                 | <b>Treatment Room</b>  |                   |
| X-ray Illuminator           | 1                 | X - Ray Illuminator      | 1                 | Two Crank Fowler Bed   | 1                 |
| Examination Couch           | 1                 | Portable B.P Apparatus   | 1                 | Bed Side Locker  | 1                 |
| Stethoscope,                | 1                 | Stretcher Trolley        | 1                 | Settee   | 1                 |
| Sphygmomano-meter           | 1                 | Nebulizer                | 1                 | Suction Machine  | 1                 |
| Diagnostic Set              | 1                 | Drip Stand               | 1                 | Oxygen Flow Meter  | 2                 |
| Baby Weighing Scale         | 1                 | Glucometer               | 1                 | Syringe Cutter   | 1                 |
| <b>Neuro-psychiatry OPD</b> |                   | Racks (Medicine Store)   | 1                 | Drug Racks (Drug Room)   | 1                 |
| Office Table                | 1                 | <b>Pantry/ Kitchen</b>   |                   | <b>Physiotherapy Department</b>  |                   |
| Office Chair                | 2                 | Utensils / Equipment     | 1                 | Short Wave Therapy Unit (Pulse & Continuous Wave With Different Accessories) | 1                 |
| Revolving Chair             | 1                 | Frying Pan               | 1                 | Neuromuscular Stimulator Complete  | 1                 |

| Items                  | Standard Quantity | Items                          | Standard Quantity | Items  | Standard Quantity |
|------------------------|-------------------|--------------------------------|-------------------|--|-------------------|
|                        |                   |                                |                   | (Microprocessor Controlled Dual Channel)                                 |                   |
| Telephone Set          | 1                 | Cooking Pan                    | 1                 | Ultrasound Therapy Unit (Complete With Standard Accessories)             | 1                 |
| X-ray Illuminator      | 1                 | Refrigerator                   | 1                 | Infrared Lamp  | 1                 |
| Examination Couch      | 1                 | Water Cooler                   | 1                 | Traction System Unit (Complete With Traction Table With Accessories)     | 1                 |
| Stethoscope            | 1                 | Food Distribution Trolley      | 1                 | Wax Bath   | 1                 |
| Sphygmomano-meter      | 1                 | Stove                          | 1                 | Unit For EMG Feedback And Electro Therapy                                | 1                 |
| Diagnostic Set         | 1                 | <b>Waiting Area</b>            |                   | Two Channel Vacuum Unit  | 1                 |
| Weighing Scale         | 1                 | Chairs                         | 4                 | Hot And Cold Pack  | 1                 |
| Height Scale           | 1                 | <b>Newborn &amp; NICU</b>      |                   | Massager Thrives – 707   | 1                 |
| <b>Dermatology OPD</b> |                   | Baby Incubator                 | 4                 | Massager Thrive – 717  | 1                 |
| Office Table           | 1                 | Multipurpose Monitors          | 4                 | Cervical Traction With Weight.   | 1                 |
| Office Chair           | 2                 | Pulse Oximeter                 | 2                 | Shoulder Pulley Simple.  | 1                 |
| Revolving Chair        | 1                 | Infusion Pumps                 | 2                 | Shoulder Wheel.  | 1                 |
| Telephone Set          | 1                 | Suction Machine (Heavy Duty)   | 2                 | Parallel Bar Adjustable.   | 1                 |
| X-ray Illuminator      | 1                 | Phototherapy Unit              | 2                 | Quadriceps Drill Table.  | 1                 |
| Examination Couch      | 1                 | Ventilator                     | 2                 | Tunnel Bath Large 12 – Bulb  | 1                 |
| Stethoscope            | 1                 | Baby Weighing Scale            | 2                 | Treatment Couches.   | 2                 |
| Sphygmomano-meter      | 1                 | Radiant Warmer                 | 2                 | Trolley With Drawer For (S.W/U.S)  | 1                 |
| Diagnostic Set         | 1                 | Overhead Warmer                | 2                 | Walker Folding Height Adjustable.  | 1                 |
| Weighing Scale         | 1                 | Resuscitation Trolley          | 1                 | Tilt Table Adjustable.   | 1                 |
| Height Scale           | 1                 | ECG Machine                    | 1                 | Vacuum Steam Vaporizer   | 1                 |
| Dressing Trolley       | 1                 | Defibrillator With ECG Display | 1                 | Inferential Machine  | 1                 |
| Portable Light         | 1                 | Medical Trolley                | 1                 | Deep Freezer (In Medicine Warehouse For 2 Degree To 8 Degree Centigrade) | 1                 |

| Items                       | Standard Quantity | Items                                | Standard Quantity | Items                                | Standard Quantity |
|-----------------------------|-------------------|--------------------------------------|-------------------|--------------------------------------|-------------------|
| Examination Lens            | 1                 | Lactometer                           | 1                 | Normal Deep Freezer                  | 1                 |
| <b>Surgical OPD</b>         |                   | Nebulizer                            | 1                 | <b>Dentistry Ward</b>                |                   |
| Office Table                | 1                 | Baby Cot                             | 6                 | Two Crank Fowler Bed                 | 2                 |
| Office Chair                | 2                 | Ward Screen                          | 1                 | Bed Side Locker                      | 2                 |
| Revolving Chair             | 1                 | Drip Stand                           | 6                 | Settee                               | 1                 |
| Telephone Set               | 1                 | <b>Pediatric Nursery</b>             |                   | Suction Machine                      | 1                 |
| X-ray Illuminator           | 1                 | Baby Cot                             | 4                 | Oxygen Flow Meter                    | 1                 |
| Examination Couch & Privacy | 1                 | Two Crank Fowler Bed                 | 6                 | Oxygen Cylinder                      | 2                 |
| Stethoscope                 | 1                 | Mattress With Cover                  | 6                 | <b>Operation Theater Suite</b>       |                   |
| Sphygmomano-meter           | 1                 | Bedside Locker                       | 6                 | <b>Main Operation Theater</b>        |                   |
| Diagnostic Set              | 1                 | Drip Stand                           | 6                 | <b>Surgeon Room</b>                  |                   |
| Proctoscopes (Set)          | 1                 | Multipurpose Monitors                | 2                 | Table                                | 1                 |
| Portable Spot Light         | 1                 | Infusion Pumps                       | 2                 | Settee                               | 1                 |
| Dressing Trolley/Tray       | 1                 | Suction Machine                      | 2                 | Telephone Set                        | 1                 |
| <b>Orthopedic OPD</b>       |                   | <b>Surgical</b>                      |                   | X-ray Illuminator                    | 1                 |
| Office Table                | 1                 | <b>Reception / Nursing Station</b>   |                   | Hooks In Changing Room               | 6                 |
| Office Chair                | 2                 | Revolving Chair                      | 1                 | <b>Anesthetist Room</b>              |                   |
| Revolving Chair             | 1                 | Telephone Set                        | 1                 | Office Table                         | 1                 |
| Telephone Set               | 1                 | Cupboard                             | 1                 | Office Chair                         | 1                 |
| X-ray Illuminator           | 1                 | Crush Trolley                        | 1                 | X-ray Illuminator                    | 1                 |
| Examination Couch & Privacy | 1                 | Stethoscope                          | 2                 | <b>Preparation Room</b>              |                   |
| Stethoscope                 | 1                 | Sphygmomano-meter                    | 2                 | Two Crank Fowler Bed With Drip Stand | 2                 |
| Sphygmomano-meter           | 1                 | Emergency Resuscitation Trolley/Tray | 1                 | Cardiac Monitor Multifunction        | 1                 |
| Diagnostic Set              | 1                 | Glucometer                           | 1                 | Dinamap Monitor                      | 1                 |
| POP Cutter                  | 1                 | Weighing Machine                     | 1                 | Oxygen Flow Meter                    | 1                 |
| Portable Spot Light         | 1                 | <b>Surgical Ward Male</b>            |                   | <b>Patient Hold Room</b>             |                   |
| Dressing Set                | 2                 | Drip Stand                           | 10                | Two Crank Fowler Bed                 | 2                 |
| <b>Dental OPD</b>           |                   | Stainless Steel Bucket               | 10                | Cardiac Monitor Multifunction        | 1                 |
| Dental Chair                | 2                 | Urinals                              | 2                 | Dinamap                              | 1                 |

| Items                          | Standard Quantity | Items                         | Standard Quantity | Items                              | Standard Quantity |
|--------------------------------|-------------------|-------------------------------|-------------------|------------------------------------|-------------------|
| Light                          | 1                 | Bedpans                       | 2                 | Oxygen Flow Meter                  | 1                 |
| Hand Piece Unit                | 1                 | Two Crank Fowler Bed          | 3                 | <b>Scrub Room</b>                  |                   |
| Suction Machine                | 1                 | Ordinary Patient Bed          | 6                 | Dispenser For Scrub Solution       | 1                 |
| Compressor                     | 1                 | Bed Side Locker               | 9                 | <b>Utility Store</b>               |                   |
| Dental Hand Instruments (Set)  | 10                | Mattress With Cover           | 9                 | Racks                              | 1                 |
| Aseptic Trolley                | 1                 | Settee                        | 1                 | <b>Obstetrics &amp; Gynecology</b> |                   |
| Dental Autoclave               | 1                 | Suction Machine               | 1                 | Anesthesia Machine With Ventilator | 1                 |
| Amalgamator                    | 2                 | Oxygen Flow Meter             | 2                 | Hydraulic O.T Table                | 1                 |
| Dental X-ray Unit              | 1                 | Oxygen Central Supply Line    | 1                 | Diathermy Machine                  | 1                 |
| Intraoral X-ray Film Processor | 1                 | Oxygen Cylinder               | 4                 | Multipart Monitor                  | 1                 |
| X-ray View Box                 | 2                 | Ward Screen                   | 2                 | Suction Machine (Heavy Duty)       | 2                 |
| Lead Apron                     | 1                 | <b>Surgical Ward Female</b>   |                   | Over Head Operating Light          | 1                 |
| Ultrasonic Scalar              | 2                 | Two Crank Fowler Bed          | 3                 | Ambu Bag (Adults)                  | 2                 |
| Dental Operating Stool         | 2                 | Ordinary Patient Bed          | 6                 | Ambu Bag (Pediatrics)              | 2                 |
| Ultraviolet Sterilizer         | 1                 | Mattress With Cover           | 9                 | Digital Video Colposcope           | 1                 |
| <b>Urology</b>                 |                   | Bed Side Locker               | 9                 | C.T.G Machine                      | 1                 |
| Office Table                   | 1                 | Settee                        | 1                 | Hysterectomy Set                   | 2                 |
| Office Chair                   | 2                 | Suction Machine               | 1                 | L.S. Cesarean Section Set          | 4                 |
| Revolving Chair                | 1                 | Glucometer                    | 1                 | D & C. Set                         | 4                 |
| Telephone Set                  | 1                 | Oxygen With Flow Meter        | 2                 | D & E Set                          | 4                 |
| X-ray Illuminator              | 1                 | Drip Stand                    | 9                 | Episiotomy Set                     | 4                 |
| Examination Couch & Privacy    | 1                 | Stainless Steel Bucket        | 9                 | General Surgery Set                | 2                 |
| Stethoscope                    | 1                 | Urinals                       | 2                 | Defibrillator                      | 1                 |
| Sphygmomanometer               | 1                 | Bedpans                       | 2                 | Oxygen Flow Meter                  | 4                 |
| Diagnostic Set                 | 1                 | Ward Screen                   | 2                 | Oxygen Central Line                | 1                 |
| Portable Spot Light            | 1                 | <b>Dermatology</b>            |                   | Oxygen Cylinder                    | 4                 |
| Dressing Set                   | 1                 | <b>Derma/Burn Ward (Male)</b> |                   | Nitrous Oxide Central Line         | 1                 |



| Items                 | Standard Quantity | Items                           | Standard Quantity | Items                                | Standard Quantity |
|-----------------------|-------------------|---------------------------------|-------------------|--------------------------------------|-------------------|
| <b>Cardiology OPD</b> |                   | Glucometer                      | 1                 | Nitrous Oxide Cylinder               | 2                 |
| Office Table          | 1                 | Weighing Machine                | 1                 | Instrument Trolley (Fixed)           | 4                 |
| Office Chair          | 2                 | Portable B.P Apparatus          | 1                 | Instrument Trolley (Adjustable)      | 2                 |
| Revolving Chair       | 1                 | Emergency Resuscitation Trolley | 1                 | Surgical Drums                       | 6                 |
| Telephone Set         | 1                 | Drip Stand                      | 4                 | Instrument Tray                      | 4                 |
| X-ray Illuminator     | 1                 | X - Ray Illuminator             | 1                 | Emergency Resuscitation Trolley      | 1                 |
| Examination Couch     | 1                 | Suction Machine                 | 1                 | Split A/C (1 Ton)                    | 1                 |
| Stethoscope           | 1                 | Laryngoscopes (Set)             | 2                 | Portable Spot Light                  | 1                 |
| Sphygmomano-meter     | 1                 | Infusion Pump                   | 1                 | Normal Delivery Set                  | 4                 |
| Diagnostic Set        | 1                 | Defibrillator                   | 1                 | Vacuum Extractor                     | 1                 |
| ECG Machine           | 1                 | Ventilator                      | 1                 | Pulse Oximeter                       | 1                 |
| <b>Eye OPD</b>        |                   | Dressing Set                    | 2                 | Drip Stand                           | 4                 |
| Office Table          | 1                 | Refrigerator                    | 1                 | <b>General Surgery &amp; Urology</b> |                   |
| Office Chair          | 2                 | Two Crank Fowler Bed            | 4                 | Oxygen Flow Meter                    | 3                 |
| Revolving Chair       | 1                 | Mattress With Cover             | 4                 | Oxygen Central Line                  | 1                 |
| Telephone Set         | 1                 | Bed Side Locker                 | 4                 | Oxygen Cylinder                      | 4                 |
| X-ray Illuminator     | 1                 | Bed Side Bench                  | 4                 | Nitrous Oxide Central Line           | 2                 |
| Examination Couch     | 1                 | Split A/C (1 Ton)               | 1                 | Laryngoscopes                        | 2                 |
| Stethoscope           | 1                 | Ward Screen                     | 2                 | Pneumatic Tourniquet                 | 1                 |
| Sphygmomano-meter     | 1                 | Urinal                          | 2                 | Diathermy Machine                    | 2                 |
| Diagnostic Set        | 1                 | Bedpan                          | 2                 | Hydraulic Operating Table            | 2                 |
| Refraction Set        | 1                 | <b>Derma/Burn Ward (Female)</b> |                   | O T Halogen Top Light                | 2                 |
| Slit Lamp             | 1                 | Glucometer                      | 1                 | Revolving Stool                      | 2                 |
| Snellen Chart         | 1                 | Weighing Machine                | 1                 | Cardiac Monitor Multifunction        | 2                 |
| Field Analyzer        | 1                 | Portable BP Apparatus           | 1                 | Minor Set                            | 2                 |
| Ophthalmoscope        | 1                 | Emergency Resuscitation Trolley | 1                 | Major General Surgery Set            | 2                 |
| Retinoscope           | 1                 | Drip Stand                      | 4                 | Appendectomy Set                     | 2                 |

| Items                      | Standard Quantity | Items                              | Standard Quantity | Items                                       | Standard Quantity |
|----------------------------|-------------------|------------------------------------|-------------------|---|-------------------|
| A Scan                     | 1                 | X - Ray Illuminator                | 1                 | Fine Set For Plastic & Vascular             | 1                 |
| Weighing Scale             | 1                 | Suction Machine                    | 1                 | Urethral Dilators (Set)                     | 1                 |
| <b>ENT OPD</b>             |                   | Laryngoscopes (Set)                | 1                 | Instrument Trolley                          | 6                 |
| Office Table               | 1                 | Infusion Pump                      | 2                 | Crush Trolley                               | 1                 |
| Office Chair               | 2                 | Defibrillator                      | 1                 | Suction Machine                             | 2                 |
| Revolving Chair            | 1                 | Ventilator                         | 1                 | Defibrillator                               | 1                 |
| Telephone Set              | 1                 | Dressing Set                       | 2                 | X-ray Illuminator                           | 1                 |
| X-ray Illuminator          | 1                 | Refrigerator                       | 1                 | Stethoscope                                 | 1                 |
| Examination Couch          | 1                 | Two Crank Fowler Bed               | 4                 | Sphygmomanometer                            | 1                 |
| Stethoscope                | 1                 | Mattress With Cover                | 4                 | <b>Orthopedic Surgery</b>                   |                   |
| Sphygmomano-meter          | 1                 | Bed Side Locker                    | 4                 | Oxygen Flow Meter                           | 2                 |
| Diagnostic ENT Set         | 1                 | Bed Side Bench                     | 4                 | Oxygen Central Line                         | 1                 |
| <b>In-Patient Services</b> |                   | Split A/C (1 Ton)                  | 1                 | Oxygen Cylinder                             | 4                 |
| <b>Medical Ward (Male)</b> |                   | Ward Screen                        | 2                 | Nitrous Oxide Central Line                  | 1                 |
| <b>Nursing Station</b>     |                   | <b>Eye &amp; ENT</b>               |                   | Fracture Distracter                         | 1                 |
| Revolving Chair            | 1                 | <b>ENT &amp; Eye Ward Male</b>     |                   | Plaster Cutter                              | 1                 |
| Telephone Set              | 1                 | <b>Reception / Nursing Station</b> |                   | Pneumatic Tourniquet                        | 1                 |
| Cupboard                   | 1                 | Revolving Chair                    | 1                 | Diathermy Machine                           | 1                 |
| Sphygmomano-meter          | 1                 | Telephone Set                      | 1                 | Operating Table                             | 1                 |
| Stethoscope                | 1                 | Cupboard                           | 1                 | OT Top Light                                | 1                 |
| <b>Ward</b>                |                   | Crush Trolley                      | 1                 | Revolving Stool                             | 1                 |
| Two Crank Fowler Bed       | 4                 | Stethoscope                        | 1                 | Telephone Set                               | 1                 |
| Ordinary Patient Bed       | 6                 | Sphygmomano-meter                  | 1                 | Cardiac Monitor Multifunction               | 1                 |
| Bed Side Locker            | 10                | <b>Ward</b>                        |                   | Instrument Trolley                          | 4                 |
| Mattress With Cover        | 10                | Two Crank Fowler Bed               | 4                 | Crush Trolley                               | 1                 |
| Over The Bed Table         | 10                | Ordinary Patient Bed               | 4                 | Suction Machine                             | 2                 |
| Bed Side Bench             | 10                | Mattress With Cover                | 8                 | X-ray Illuminator                           | 1                 |
| Medicine Trolley           | 1                 | Bed Side Locker                    | 8                 | Stethoscope, Sphygmomanometer, Laryngoscope | 1                 |

| Items                      | Standard Quantity | Items                              | Standard Quantity | Items                                   | Standard Quantity |
|----------------------------|-------------------|------------------------------------|-------------------|---|-------------------|
| Steel Almirah              | 1                 | Settee                             | 1                 | Defibrillator                           | 1                 |
| Ward Screen                | 1                 | Suction Machine                    | 1                 | Orthopedic Instrument Set               | 2                 |
| Stretcher                  | 1                 | Oxygen Flow Meter                  | 1                 | <b>E.N.T Surgery</b>                    |                   |
| Wheel Chair                | 1                 | Oxygen Central Supply Line         | 1                 | Oxygen Flow Meter                       | 2                 |
| Drip Stand                 | 10                | Oxygen Cylinder                    | 1                 | Oxygen Central Line                     | 1                 |
| Stainless Steel Bucket     | 10                | Drip Stand                         | 8                 | Oxygen Cylinder                         | 4                 |
| Urinal                     | 2                 | Ward Screen                        | 2                 | Nitrous Oxide Central Line              | 2                 |
| Bedpan                     | 2                 | <b>ENT &amp; Eye Ward (Female)</b> |                   | Desk Top Microscope                     | 1                 |
| <b>Medical Ward Female</b> |                   | <b>Reception / Nursing Station</b> |                   | Projector Multimedia                    | 1                 |
| <b>Duty Doctor Room</b>    |                   | Revolving Chair                    | 1                 | Laser Diode Microscope Complete Set     | 1                 |
| Office Table               | 1                 | Telephone Set                      | 1                 | Plethysmography Complete Set            | 1                 |
| Office Chair               | 2                 | Cupboard                           | 1                 | Tympanometer                            | 1                 |
| Revolving Chair            | 1                 | Crush Trolley                      | 1                 | Auditory Brain Stem Response Test Meter | 1                 |
| X-ray Illuminator          | 1                 | Stethoscope                        | 1                 | Rigid Esophagoscope                     | 1                 |
| Stethoscope                | 1                 | Sphygmomano-meter                  | 1                 | Rigid Bronchoscope                      | 1                 |
| Sphygmomano-meter          | 1                 | <b>Ward</b>                        |                   | Fiber optic Dilators (Gum Elastic B)    | 1                 |
| Examination Couch          | 1                 | Two Crank Fowler Bed               | 4                 | Stroboscope With Monitor                | 1                 |
| Office Table               | 1                 | Ordinary Patient Bed               | 4                 | Diathermy Machine                       | 1                 |
| <b>Nursing Station</b>     |                   | Mattress With Cover                | 8                 | OT Top Light                            | 1                 |
| Revolving Chair            | 1                 | Bed Side Locker                    | 8                 | Revolving Stool                         | 2                 |
| Telephone Set              | 1                 | Settee                             | 1                 | Cardiac Monitor Multifunction           | 1                 |
| Cupboard                   | 1                 | Suction Machine                    | 1                 | Instrument Trolley                      | 4                 |
| Sphygmomano-meter          | 1                 | Oxygen Flow Meter                  | 2                 | Crush Trolley                           | 1                 |
| Stethoscope                | 1                 | Oxygen Central Supply Line         | 1                 | Suction Machine                         | 1                 |
| <b>Ward</b>                |                   | Oxygen Cylinder                    | 2                 | Defibrillator                           | 1                 |
| Two Crank Fowler Bed       | 4                 | Drip Stand                         | 8                 | Operating Table                         | 1                 |
| Ordinary Bed               | 6                 | Ward Screen                        | 1                 | Stethoscope                             | 1                 |

| Items                           | Standard Quantity | Items                                | Standard Quantity | Items                      | Standard Quantity |
|---------------------------------|-------------------|--------------------------------------|-------------------|----------------------------|-------------------|
| Bed Side Locker                 | 10                | <b>Cardiology</b>                    |                   | Sphygmomanometer           | 1                 |
| Mattress With Cover             | 10                | <b>Nursing Station</b>               |                   | Laryngoscopes (Set)        | 2                 |
| Over The Bed Table              | 10                | Revolving Chair                      | 1                 | ENT Instrument Set         | 2                 |
| Bed Side Bench                  | 10                | Telephone Set                        | 1                 | Telephone Set              | 1                 |
| Medicine Trolley                | 1                 | Cupboard                             | 1                 | Split Unit 1.5 Ton         | 1                 |
| Steel Almirah                   | 1                 | Crush Trolley                        | 1                 | <b>Eye Surgery</b>         |                   |
| Ward Screen                     | 1                 | Stethoscope                          | 1                 | Oxygen Flow Meter          | 2                 |
| Stretcher                       | 1                 | Sphygmomano-meter                    | 1                 | Oxygen Central Line        | 1                 |
| Wheel Chair                     | 1                 | Emergency Resuscitation Trolley/Tray | 1                 | Oxygen Cylinder            | 4                 |
| Drip Stand                      | 10                | <b>Ward Doctor Room</b>              |                   | Nitrous Oxide Central Line | 2                 |
| Urinal                          | 2                 | Office Table                         | 1                 | Slit Lamp                  | 1                 |
| Bedpan                          | 2                 | Office Chair                         | 1                 | Direct Ophthalmoscope      | 1                 |
| Stainless Steel Bucket          | 10                | File Cabinet                         | 1                 | Indirect Ophthalmoscope    | 1                 |
| Ward Screen                     | 1                 | Stethoscope                          | 1                 | Phoropter                  | 1                 |
| <b>Isolation Room</b>           |                   | Sphygmomano-meter                    | 1                 | Retinoscope                | 1                 |
| Two Crank Fowler Bed            | 1                 | Visitor Chair                        | 2                 | Autorefractors             | 1                 |
| Bed Side Locker                 | 1                 | <b>Wards - Male / Female</b>         |                   | A/B Scan                   | 1                 |
| Settee                          | 1                 | Two Crank Fowler Bed                 | 8                 | Autoclave                  | 1                 |
| Oxygen Cylinder With Flow Meter | 1                 | Bed Side Locker                      | 8                 | Surgical Instruments Set   | 2                 |
| Split Air Conditioner           | 1                 | Over The Bed Table                   | 8                 | Lensometer/ Lensmeter      | 1                 |
| Cardiac Monitor Multi-Function  | 1                 | Bed Side Bench                       | 8                 | Air Puff (Non-Touch)       | 1                 |

## 5.4 Annex 4: List of Respondents

**Table 43: List of respondents for DHQ Hospitals**

| District            | Name of Respondent        | Designation              | Dates of Assessment    |
|---------------------|---------------------------|--------------------------|------------------------|
| Thatta              | Dr Abbas Goping           | Civil Surgeon            | 19,21,22-09-2015       |
| Umerkot             | Dr Moaiz Ali Shah         | Civil Surgeon            | 21,22,23-09-2015       |
| Jacobabad           | Dr Altaf Ahmed            | Civil Surgeon            | 16,17,18-09-2015       |
| Shikarpur           | Dr Meer Muhammad Bhayo    | Medical Superintendent   | 17,18,19-9-2015        |
| Tharparkar          | Dr Iqbal Ahmed Bhurgri    | Civil Surgeon            | 09,10,11-09-2015       |
| Dadu                | Dr Insaf Ahmed Magsi      | Civil Surgeon            | 08,09,10-09-2015       |
| Matari              | Dr Abdul Razaque Memon    | Civil Surgeon            | 21,22,23-09-2015       |
| Ghotki              | Dr Abdul Latif Buriro     | Civil Surgeon            | 16,17-09-2015          |
| Sanghar             | Dr Tahir Iqbal            | Civil Surgeon            | 17,18,19-09-2015       |
| Badin               | Dr Kouser Ali Mandhro     | Civil Surgeon            | 07,08,09-09-2015       |
| Mirpur Khas         | Dr Shafqat Hussain Daheri | Civil Surgeon            | 21,22,23-09-2015       |
| Jamshoro            | Dr Kosar Soomro           | Additional Civil Surgeon | 08,09,10-09-2015       |
| Naushahro Feroze    | Dr Din Muhammad           | Civil Surgeon            | 14,15,16-09-2015       |
| Tando Allah Yar     | Dr Mir Ali                | Civil Surgeon            | 20,21,22-09-2015       |
| Tando Muhammad Khan | Dr Nizam Uddin            | Chief R M O              | 31-09-2015, 01-10-2015 |

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