USAID
FROM THE AMERICAN PEOPLE

JSI Research & Training Institute, Inc.

Health Facility Assessment Sindh

Taluka Headquarter Hospitals Report

2015-16

Published in December 2016

Disclaimer

This document has been made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of JSI Research & Training Institute, Inc. and do not necessarily reflect the views of USAID or the United States Government.

Contents

List of Tables

List of Figures

Acknowledgement

The Department of Health (DOH), Sindh was cognizant of the fact that there is very little information available for planning and implementation in the post devolution scenario. Health Systems Strengthening (HSS) Component was, therefore, requested to provide technical and financial support to conduct the Health Facility Assessment (HFA) in order to support the planning and monitoring activities. HSS Component, hence, conducted the census of HFA of all public sector health facilities in 23 districts of Sindh to provide an overview of functioning of healthcare delivery system to generate district and facility based information for DOH. The HFA is conducted in a total of 15 DHQ hospitals, 58 THQ hospitals, 121 RHCs, and 734 BHUs in all the districts of Sindh except Karachi. This assessment, thus, would form the basis for informed planning, ensuring better management and efficient use of resources.

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.

The DOH, Sindh acknowledges and appreciates the contribution made by JSI Research and Training Inc., for conducting this health facility assessment in collaboration with their consortium partner Contech International for designing and implementation of the data collection, analysis and report writing.

The DOH Sindh would like to particularly acknowledge the hard work of Dr. Shehzad Awan, Dr. Ashraf Chaudhary and Dr. Adeel Alvi for not only working diligently but supervising the field work as well. The contribution of JSI team for managing the data entry and tabulation for data analysis is also acknowledged. It would not have been possible to complete this gigantic task without their technical assistance and USAID's financial support.

Special thanks to Dr. Nabeela Ali, Chief of Party of the HSS Component for providing invaluable input that proved instrumental in the quality of the report produced. Gratitude is also expressed to Dr. Yousaf Hayat, Dr. Dileep Kumar and Ms. Jamila Soomro for monitoring and the coordination with DOH and field teams.

The unequivocal support of Dr. Riaz Memon CEO, PPHI, all DHOs and the staff of district health facilities is also appreciated in cooperating with the assessment teams, sharing the valuable information and providing assistance to complete the field wok.

Last but not least, the technical support of Secretary Health, Program Directors of vertical Programs and the team of Directorate General of Health Services is also acknowledged for their oversight in making this happen.

Dr. Syed Hassan Murad Shah

Director General Health Services

Acronyms & Abbreviations

AFB	Acid Fast Bacilli
AMS	Assistant Medical Superintendent
ANC	Antenatal Care
APTT	Activated Partial Thromboplastin Time
BHUs	Basic Health Units
BT	Bleeding Time
CCF	Congestive Cardiac Failure
CCU	Cardiac Care Unit
CSO	Community Social Organization
CT	Clotting Time
CT	Computerized Tomography
DFID	Department For International Development
DGHS	Directorate General of Health Services
DHDC	District Health Development Center
DHIS	District Health Information System
DHO	District Health Officer
DHQ	District Headquarter
DHQHs	District Headquarter Hospitals
DM	District Manager
DMS	Deputy Medical Superintendent
DNS	Deflected Nasal Septum
DOH	Department of Health
ECG	Electrocardiogram
EML	Essential Medicines List
FP	Family Planning
HFA	Health Facility Assessment
HLD	High-Level Disinfectant
HMIS	Health Management Information System
HR	Human Resources
HRH	Human Resource For Health
HSS	Health Systems Strengthening
IAT	Inventory Assessment Tool
ICU	Intensive Care Unit

IMNCI	Integrated Management of Neonatal and Childhood Illness
IUCD	Intra-Uterine Contraceptive Device
LHV	Lady Health Visitor
MCH	Maternal Child Health
MDGs	Millennium Development Goals
MNCH	Maternal Newborn and Child Health
MP	Malarial Parasite
MS	Medical Superintendent
NA	Not Applicable
NGO	Non-Governmental Organization
NICU	Newborn Intensive Care Unit
OPD	Out-Patient Department
PHDC	Provincial Health Development Center
POL	Petroleum, Oils and Lubricants
POP	Progesterone Only Pill
PPHI	Peoples Primary Healthcare Initiative
PT	Prothrombin Time
RDT	Rapid Diagnostic Test
RMO	Resident Medical Officer
RHCs	Rural Health Centers
SARA	Service Availability and Readiness Assessment
SARAT	Service Availability and Readiness Assessment Tool
SHC	Secondary Health Care
SOP	Standard Operating Procedure
SPA	Service Provision Assessment
STI	Sexually Transmitted Infection
THQ	Taluka Headquarter
THQHs	Taluka Headquarter Hospitals
UC	Under Construction
UNICEF	United Nations International Children's Emergency Fund
USAID	United States Agency for International Development
WAPDA	Water and Power Development Authority
WHO	World Health Organization
WMO	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 related to aging healthcare infrastructure, deficient human resource, and 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 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. In this 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 functioning of systems and structures in 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 performed during the data collection exercise.

Overall the situation of general facility readiness of Taluka Headquarter (THQ) Hospitals was far below satisfactory. There were huge gaps in all the domains assessed, specifically related to the shortage of equipment and medicines, deficient infrastructure and non-availability of consultants as well as items for diagnostic services. The state of facility management practices depicted that the supervisory visits, though routinely undertaken at the THQ 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 THQ Hospitals also failed to maintain an effective liasion 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 in all the THQ 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 THQ Hospitals. Infection control and waste management practices were far below the acceptable standards and guidelines for these practices were reported from only six THQ Hospitals.

The assessment of human resource (HR) presented a dismal picture on the availability of staff at the THQ Hospitals especially in the service providing cadres and various other categories. Although the gap between standard and sanctioned posts was minimal, the proportion of vacant positions against the

sanctioned ones was 25%. Specifically, 62% of gazetted staff positions, 68% non-consultants and only 21% of specialist doctors' positions were filled at the THQ 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 THQ 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 (3% availability), indoors (13%), and operation theaters (19%) – depicted the dismal state of these key service delivery areas at the secondary level hospitals. On the equipment front, on average, less than one third of the essential items were available. There were certain service delivery areas where these deficiencies were even more severe e.g. in the ICUs, only 11% 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 the 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 312 items assessed for their availability and validity. Some medicines (15%) were not available on the day of survey. While inadequate budget allocation was a key reason along with weak supply and reporting mechanisms, cumbersome drug procurement procedures seemed to be another contributing factor to the non-availability of medicines.

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 43 THQ Hospitals where Cesarean sections were not performed while more than half did not undertake assisted vaginal deliveries. Given the level of THQ Hospitals – a referral facility– inability to provide these life-saving services pose serious concerns to the Department of Health (DOH). Child health services were better in some areas but gaps existed in the provision of growth monitoring services and suspected measles and neonatal services that were an integral part of Health Management Information System (HMIS) but were not included in the DHIS, hampering the delivery of these services. Modern family planning methods were provided at almost all the THQ Hospitals with minor supply deficiencies in implants and IUCDs. However, the 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 THQ Hospitals of Sindh. In order to bridge the gaps and improve the service delivery at the THQ 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 18th constitutional amendment has led to a multifold increase in the administrative and fiscal space of province with a subsequent increase in responsibilities that has 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 health care 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.

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 the systems and structures in public sector to generate evidence for informed planning. Specific objectives include:

1. To assess availability of healthcare services
2. To assess facility readiness in the 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 the District Headquarter Hospitals (DHQHs), Taluka Headquarter Hospitals (THQHs), Rural Health Centers (RHCs) and Basic Health Units (BHUs). This report presents HFA results of 58 THQ Hospitals.

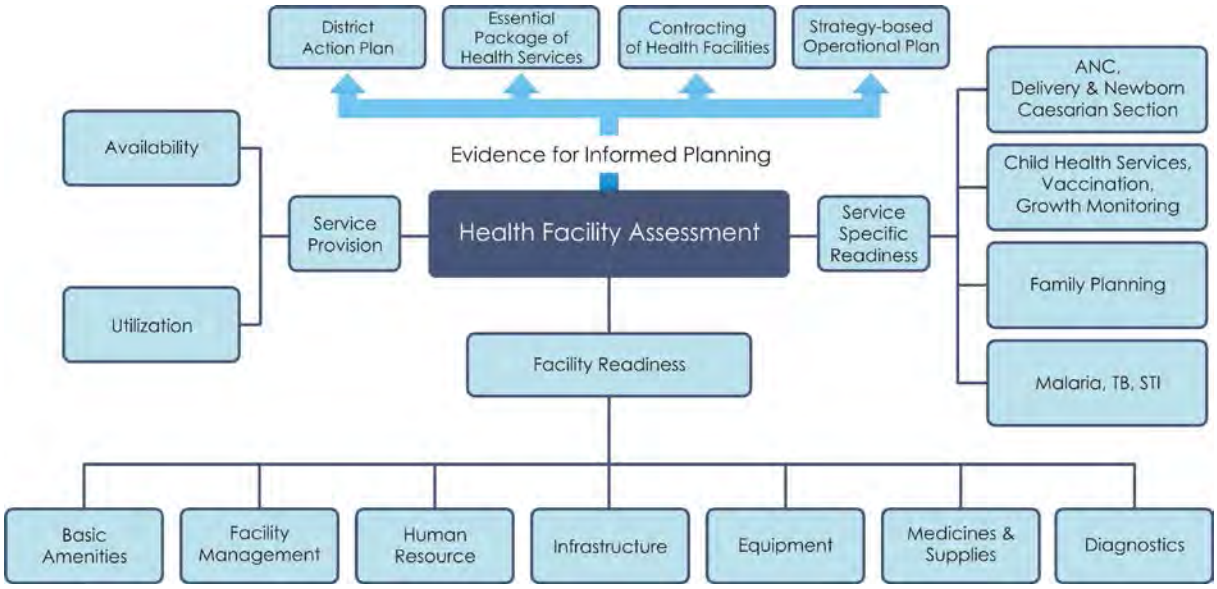
1.3 Survey Duration

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's) 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.

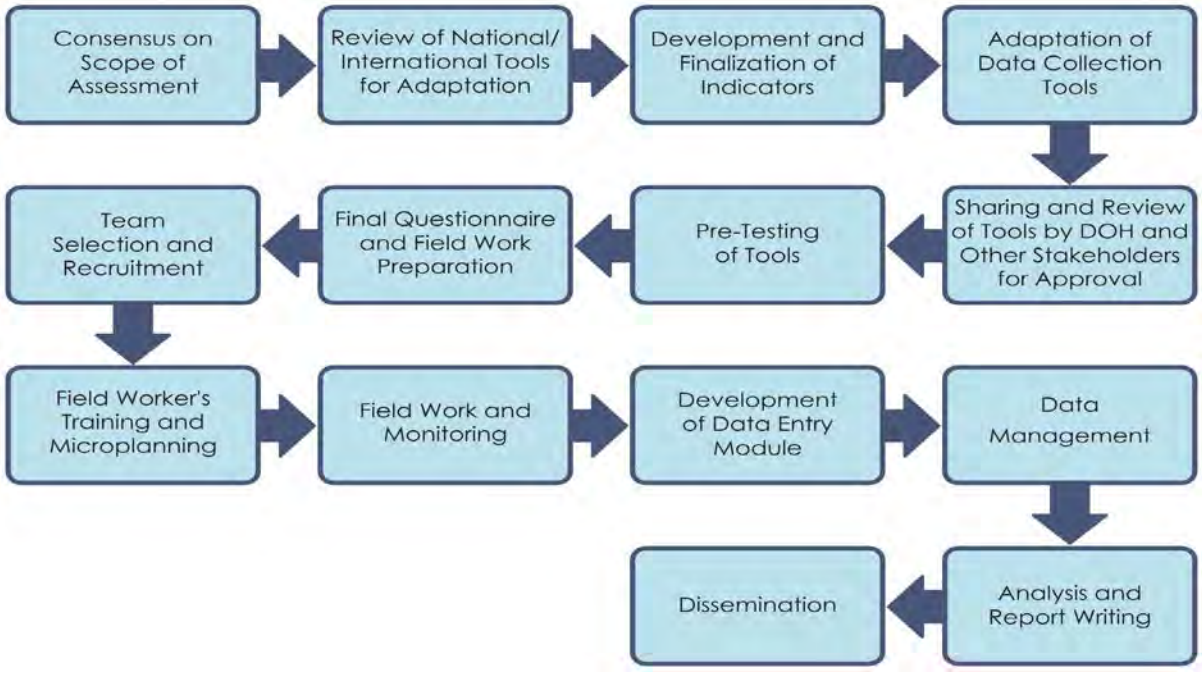
Figure 1: Conceptual Framework of Health Facility Assessment Sindh



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 facility and other staff members, along with physical validation and observation of facility records. Starting from the first step of conceptualization and building consensus among 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 based on their feedback.

1.5.2 Literature Review of HFA Questionnaires

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

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

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

[2] Health Facility Assessment Pakistan, (SD&MB, Equipment, Infrastructure Tools) 2011-12, TRF (DFID)

[3] PCs-1 Tando Muhammad Khan, Kamber, Badin and Shikarpur

[4] (Department of Health-Government of Sindh, 2010)

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 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 of Service Availability and Readiness Assessment Tool (SARAT) and Inventory Assessment Tool (IAT).

SARAT contained the following modules and sections:

- Facility information and data collection information
- 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 facility in-charge persons at all levels through consultative meetings. Based on the feedback, HFA tools were updated and finalized by incorporating inputs received from 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 out 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 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 the review of CVs and shortlisting candidates for the interviews. The HFA technical team conducted the interviews of shortlisted candidates for their selection. After the interviews, finalized candidates were recruited for data collection.

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 log 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. Onsite 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.

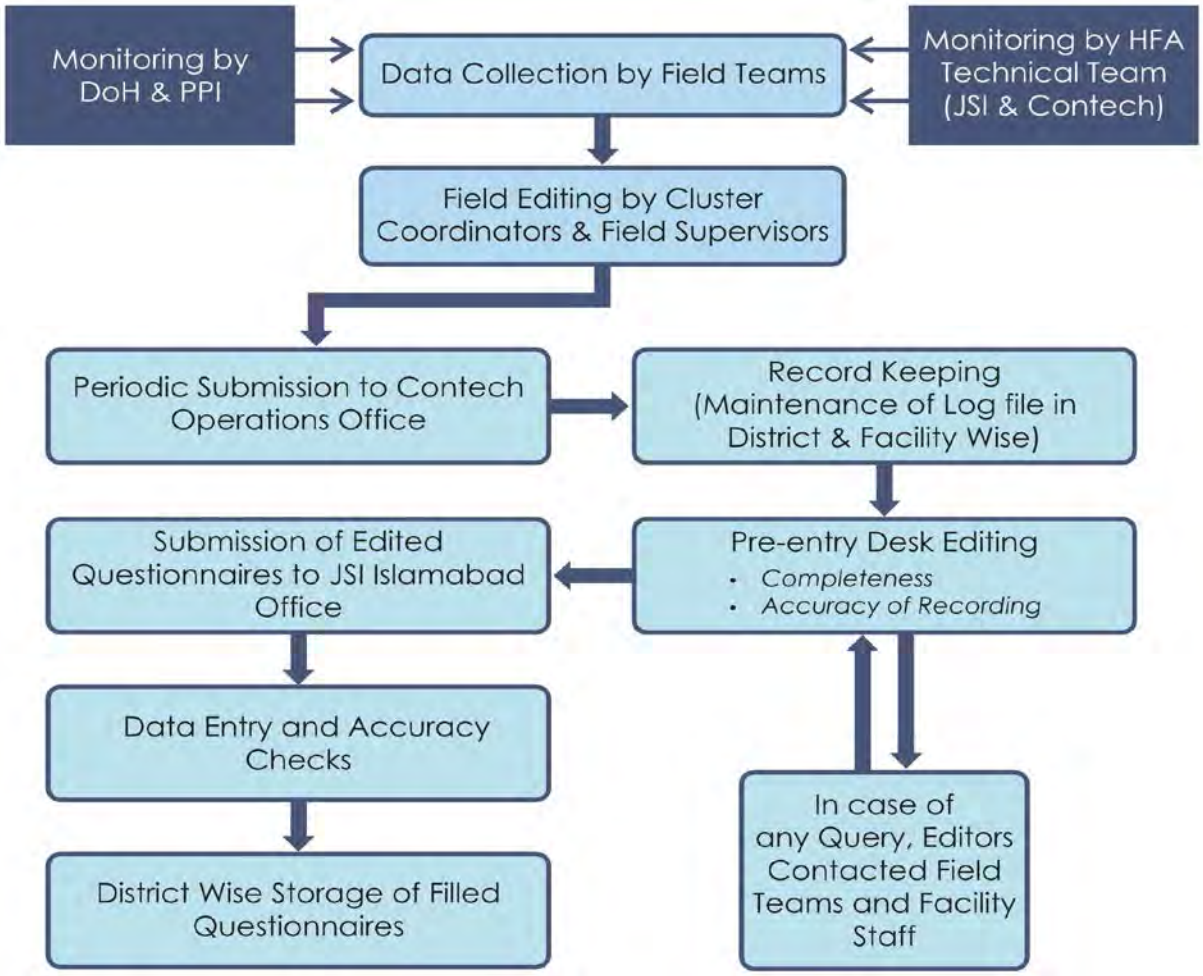
1.5.11 Development of Data Entry Module

A data entry module was prepared in CS-Pro, separately for SARAT and IAT. Prior to its use, it was tested and 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 the 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. PowerPoint 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 on district level at Tando Allah Yar
- Customized trainings and refreshers
- Technical support and on-site data editing by cluster coordinators especially in initial days
- Monitoring and frequent interaction by HFA technical team to provide on-site hands-on support and continuous guidance
- Use of structured checklists by all monitors to ensure uniformity in monitoring as well as providing feedback to teams on the 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: 1) General Facility Readiness, 2) Service Availability, 3) Service Specific Readiness, and 4) Facility Database. The approach undertaken for results compilation and presentation is briefed at the start of each area followed by the findings.

2.1 General Facility Readiness

General facility readiness focused on seven domains to assess general facility readiness for 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. At the end of each domain a summary is given that entails the domain's salient findings and discussion thereof.

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 health care services. It includes communication services, water supply, power supply, transport for emergency services, client latrines, and general cleanliness. [5] The status of basic amenities assessed in 58 THQ 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. Assessment showed that majority of THQ Hospitals had landline telephones (Table 1).

[5] (Murray & Evans, 2003)

Table 1: Communication services at THQ Hospitals

Number of THQ Hospitals having functional communication services

Type of Communication	Availability at THQ Hospitals (n=58)	
	Number	Percentage
Functional landline telephone	40	69
Functional facility-owned/supported cellular phone	Nil	Nil
Total (any functional)	**40**	**69**

2.1.1.2 Water Supply

As defined by the WHO/UNICEF Joint Monitoring Programme[6], 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 all (58) THQ Hospitals, improved water sources were found either in the form of 'piped into facility or onto facility ground', or through 'tubewell or borehole' (Table 2). Only two THQ Hospitals have water source present beyond 500 meters of the facility.

Table 2: Water supply at THQ Hospitals

Number of THQ Hospitals having improved water supply

Source of Water	Availability at THQ Hospitals (n=58)	
	Number	Percentage
Piped into facility or onto facility ground	33	57
Public tap/Stand pipe	01	2
Tube well or Borehole	23	40
Protected dug well	01	2

2.1.1.3 Power Supply

The power supply from WAPDA electricity grid was reported by all the THQ Hospitals. However, interruption in the supply (break in power supply) was reported by all the facilities, which was covered by fuel-operated generator in 48 facilities while solar system was used by none of the facility (Table 3).

[6] (WHO,UNICEF, n.d.)

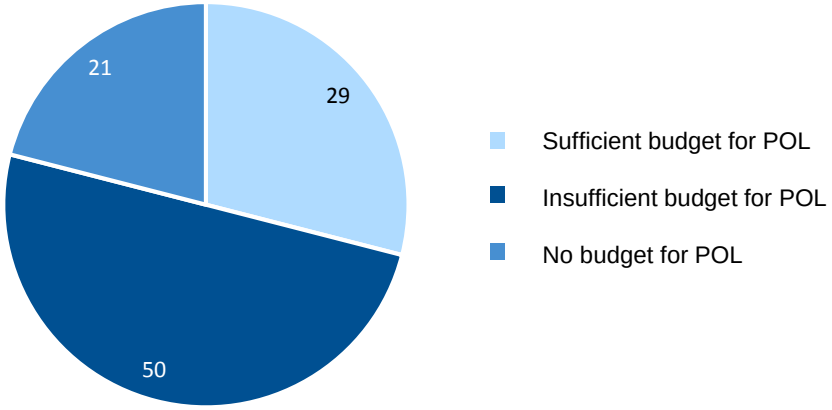
Table 3: Power supply at THQ Hospitals

Number of THQ Hospitals having electricity supply and availability of alternative sources

Type of Power Supply	Availability at THQ Hospitals (n=58)	
	Number	Percentage
Supply from electricity grid (WAPDA)	58	100
Major Alternative Source		
Functional fuel-operated generator	48	83

Of the 48 THQ Hospitals having functional generator, sufficient availability of petroleum, oil & lubricant (POL) was reported at only 14 THQ Hospitals (29%), 24 THQ Hospitals (50%) reported insufficient budget while 10 THQ Hospitals (21%) reported non-availability of budget for POL (Figure 4).

Figure 4: Percentage of THQ 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[7] (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 49 assessed facilities whereas a separate latrine for females was lacking at one third of the facilities (Table 4).

Table 4: Client latrines at THQ Hospitals

Number of THQ Hospitals having functional client latrine

Client Latrine	Availability at THQ Hospitals (n=58)	
	Number	Percentage
Functional client latrine in out-patient services area	49	85
Separate latrine for female clients	43	74

[7] (WHO,UNICEF, n.d.)

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 lacked at only one THQ Hospital. On the other hand, only 28 facilities were linked with functional ambulances stationed at other facilities or community (Table 5).

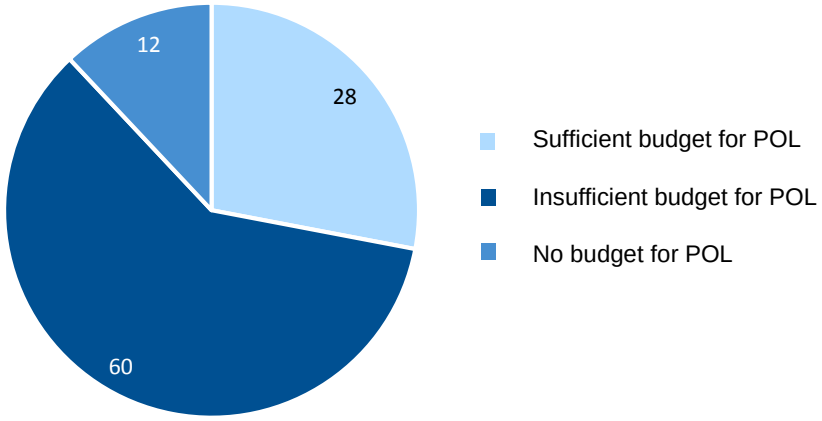
Table 5: Emergency transport services at THQ Hospitals

Number of THQ Hospitals having emergency transport services

Ambulance Services	Availability at THQ Hospitals (n=58)	
	Number	Percentage
Functional ambulance at the facility	57	98
Linkage with functional ambulance at other facility or with community	28	48

Out of 57 THQ Hospitals having functional ambulance at the facility, 16 THQ Hospitals (28%) reported availability of sufficient POL, 34 Hospitals (60%) had insufficient budget whereas seven THQ Hospitals (12%) had no budget for POL as shown in the Figure 5.

Figure 5: THQ Hospitals having budget for POL for Ambulance Services



2.1.1.6 General Facility Cleanliness

High standards of cleanliness in health care facilities are conducive to ensuing 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 health care 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.[8]

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 only half of the THQ Hospitals fulfilled all the general cleanliness requirements. Among the components of facility cleanliness, one of the major issues was related to proper cleanliness of floors (Table 6).

Table 6: General cleanliness of THQ Hospitals

Number of THQ Hospitals meeting general cleanliness requirements

Components of Facility Cleanliness	Availability at THQ Hospitals (n=58)	
	Number	Percentage
Cleanliness of floors	39	67
Cleanliness of counters, tables and chairs	49	85
Proper storage of sharp waste	44	76
Maintained sharp storage boxes	43	74
Proper storage of medical waste (non-sharps)	42	72
Hospitals having all of the above	**29**	**50**

2.1.1.7 Summary

Basic amenities included in the assessment were minimum facilities essential for provision of healthcare services. The status of majority of basic amenities assessed at THQ Hospitals was satisfactory. General cleanliness lacked mainly in the area of floor cleanliness. Only two THQ Hospitals (THQH Miro Khan of District Qambar Shahdadkot and THQH Khipro of District Sanghar) lacked internal water source (water being supplied by tube well/ bore hole available beyond 500 meters of facility). A total of 18 THQ Hospitals lacked communication services as no landline telephone was available at the hospital round the clock. Issue of budget deficiency for POL of generator and ambulance was commonly reported.

It was noted that there had been very little improvement in the availability of basic amenities over the last five years.[9] Basic amenties 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.[10] 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.[11]

8 (Adams, Bartram, & Chartier, 2008)

[9] (Technical Resource Facility, 2011-2012)

[10] (Goldman, Vaiana, & Romley, 2010)

[11] (Sodani, Kumar, & Sharma, 2010)

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.

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 health care services. It includes monitoring the work of clinical and non-clinical staff as well as quality of services provided.[12]

Majority of THQ hospitals reported having an external supervisory visit from the district, regional or provincial office during last one month, which was well within the stated norm (Table 7).

Table 7: Situation of external supervision at THQ Hospitals

Number and percentage of THQ Hospitals reporting supervisory visits along with duration since last supervisory visit

	Availability at THQ Hospitals (n=58)	
External Supervision	Number	Percentage
During last 1 month	48	89
During 2-3 months	08	14
No supervisory visit	02	4

During a supervisory visit, the activities most commonly undertaken by external supervisors were 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 areas of poor performance (Table 8).

Table 8: Activities performed during supervisory visits of THQ Hospitals

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

	Availability at THQ Hospitals (n=58)	
External Supervisory Activities	Number	Percentage
Use of checklist for data quality	37	64
Signatures on registers	51	88
Report/ Feedback	44	76
Discussion on staff performance	49	85
Supporting staff in decision-making based on data	44	76

[12] (Garrison, Caiola, Sullivan, & Lyman, 2004)

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.[13] All facilities had conducted management meetings of staff within the last three months except one facility where last meeting was conducted during last six months (Table 9).

Table 9: Frequency of management meetings at THQ Hospitals

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

	Availability at THQ Hospitals (n=58)	
Management meetings of staff	Number	Percentage
During last 1 month	51	88
During 2-3 months	06	10
During 6 months	01	2

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

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

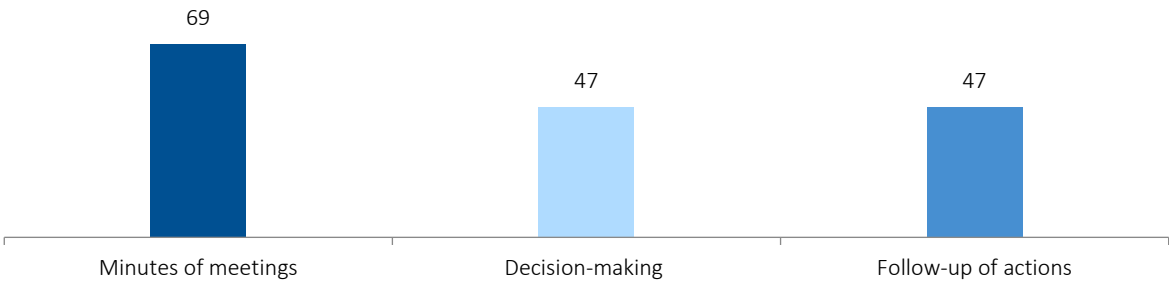
Number of THQ Hospitals conducting management meetings of staff and activities performed during last management meeting

	Availability at THQ Hospitals (n=58)	
Agenda items of management meetings	Number	Percentage
DHIS data quality	12	44
DHIS reporting	13	48
Timeliness of DHIS reporting	11	41
Quality of services	17	63
Service utilization	17	63
Diseases data	13	48
Employment conditions	12	44
Finance/budget	02	7
Hospitals having all of the above	**01**	**2**

[13] (Shaw, 2003)

The THQ hospitals were slightly above average on account of management meetings, with minutes of meetings recorded at 40 THQ Hospitals (69%). However, decision making on issues identified during the meetings and follow up on actions related to the decisions was reported at only 27 THQ Hospitals (47%) as shown (Figure 6).

Figure 6: Percentage of THQ Hospitals conducting Management Meetings



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, 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.[14]

A total of 41 THQ Hospitals (71%) had held meetings with their communities whereas record was maintained at only 19 THQ Hospitals (33%) (Table 11).

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

Number of THQ 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 THQ Hospitals (n=58)	
	Number	Percentage
During last 1 month	28	48
During 2-3 months	07	12
During 4-6 months	3	5
More than 6 months	3	5
No community meeting	17	29
Maintenance of record (Minutes of Meeting) of staff-community meeting	19	33

[14] (Howard, et al., 2002).

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.[15] 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.[16]

The findings on mechanisms of capturing and using clients feedback yet again reflected a poor situation in the assessed THQ Hospitals. Evidence from assessment findings showed that only six (10%) THQ hospitals had complaint box formally in place while only one (2%) of the facilities used either email, letter from clients or toll free number to obtain client feedback. Additionally, only 13 (22%) health facilities held official meetings with the patients while 38 (66%) facilities used informal discussions as client feedback. Review of client opinion/feedback to improve quality of health care services was claimed to be practiced in only 25 (43%) THQ Hospitals (Table 12).

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

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

	Availability at THQ Hospitals (n=58)	
Method for Client Opinion/Feedback	Number	Percentage
Complaint box	06	10
Client survey form	Nil	Nil
Client interview form	Nil	Nil
Official meeting with community	13	22
Informal discussions	38	66
Email	01	2
Letter from clients	01	2
Toll free number	01	2
Any of the above	44	76
Review of client opinion/feedback	25	43

2.1.2.5 Quality Assurance

Quality assurance is a process of ongoing activities and interventions that are conducted to continuously improve healthcare services to meet the changing needs of client care. The THQ Hospitals were asked about quality assurance activities like Lot Quality Assurance Sampling Technique, use of checklists, death audits, clinical reviews, and adherence to service delivery protocols. A total of 48 THQ Hospitals (83%) were performing these activities but only 39 THQ Hospitals (67%) were maintaining their record.

[15] (Picker Institute Europe, 2015)

[16] (Creel, Sass, & Yinger, 2002)

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.[17] Majority of facilities reported charging fee for client services however only 18 THQ Hospitals had displayed these charges in the form of a rate list (Table 13).

Table 13: User fees at THQ Hospitals

Number of THQ Hospitals charging user fees

	Availability at THQ Hospitals (n=58)	
User Fees	Number	Percentage
User fees charged	58	100
Posting/Display of rate lists	18	31

Overall, 44 THQ Hospitals reported having some mechanism to support clients who are unable to pay for services. Out of these 44 THQ Hospitals, 42 reported providing fee exemption or discount to patients who could not afford to pay while two THQ Hospitals reported deferring of the fee (Table 14). However, four THQ Hospitals reported that they provide the consultation service but fee for diagnostics would not be exempted or discounted.

Table 14: Procedures to support the clients unable to pay the fees at THQ Hospitals

Number of THQ Hospitals having procedures for clients unable to pay the user fees

	Availability at THQ Hospitals (n=58)	
Procedure	Number	Percentage
Exemption/discount for indigent patients	42	72
Fees expected later from indigent patients	02	3
Revisit when have money	Nil	Nil
Services not provided (except consultation)	04	7

2.1.2.7 Information Systems

All THQ Hospitals had DHIS in place but only 16 had a dedicated data manager to compile the DHIS reports. However, monthly reporting was ensured by all facilities (Table 15).

Table 15: Situation of District Health Information System at THQ Hospitals

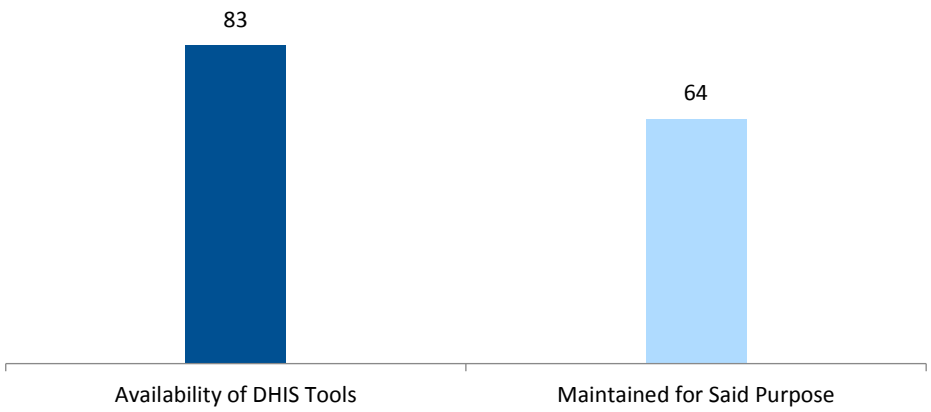
Number of THQ Hospitals having DHIS in place along with status of DHIS tools

	Availability at THQ Hospitals (n=58)	
DHIS Components	Number	Percentage
DHIS in place	58	100
Compilation of DHIS reports	58	100
Monthly reporting	58	100
Dedicated data manager	16	28

[17] (Lagarde & Palmer, 2008)

At THQ Hospitals, DHIS recording and reporting tools comprised of 25 registers, charts, proformas or reporting sheets. The complete set of DHIS tools was available at only six (10%) THQ Hospitals including: 1) Mirpur Sakro of district Thatta, 2) Nagarparkar of district Tharparkar, 3) Diplo of district Tharparkar, 4) Rohri of District Sukkur, 5) Sakrand of ditrict Shaheed Benazirabad and, 6) Dogri of district Larkana. At THQ Hospitals, all the 25 DHIS tools were assessed whose mean availability was found to be 83%. In addition to the availability of the DHIS tools, the assessment further reviewed whether the available DHIS tools were being used for recording information and data. On average, 64% of the available tools were being used for the said purpose.

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



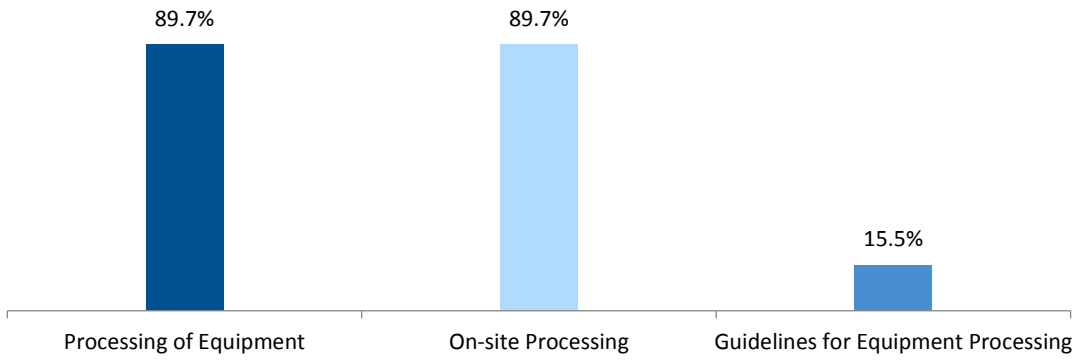
2.1.2.8 Infection Control

Infection control comprises of routine practices that are essential for the control of infection. These practices include 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.[18]

A total of 52 THQ Hospitals reported routine on-site processing of equipment for reuse, through sterilization or use of high-level disinfectant (HLD). However only nine THQ Hospitals (16%) had guidelines (either in the form of printed manuals or posters) for processing of equipment (Figure 8).

[18] (WHO Regional Office for South east Asia and Western Pacific, 2004)

Figure 8: Percentage of THQ Hospitals performing sterilization of Equipment



Electric autoclave was the most commonly used method of sterilization reported by 43 THQ Hospitals, followed by electric boiler/steamer (Nine THQ Hospitals). Chemical high level disinfectant (HLD) was reported by nine THQ Hospitals (16%) whereas a small fraction of THQ Hospitals (16%) reported use of non-electric boiler/steamer for sterilization (Table 16). Out of 58 THQ Hospitals, 45 were using multiple methods for sterlization, seven THQ Hopsitals were using only one method of sterlization and six facilities had no methods whatsoever.

Table 16: Methods used for sterilization of equipment at THQ Hospitals

Number of THQ Hospitals performing sterilization of equipment for reuse by type of methods

	Availability at THQ Hospitals (n=58)	
Type of Methods	Number	Percentage
Electric autoclave	43	74
Non-electric autoclave	19	33
Electric dry heat sterilizer	15	26
Electric boiler/steamer	36	62
Non-electric boiler/steamer	09	16
Chemical HLD	29	50
Any sterilization method available	**52**	**90**

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. A total of 39 THQ Hospitals (67%) were using appropriate methods of waste disposal either for sharp waste or infectious medical waste.

Table 17: Waste management of sharps at THQ Hospitals

Number of THQ Hospitals managing sharps waste by type of methods

Waste Management Method	Availability at THQ Hospitals (n=58)	
	Number	Percentage
Appropriate method		
Burning in industrial incinerator	Nil	Nil
Burning in non-industrial incinerator	08	14
Open burning with protection	27	47
Protected dumping	Nil	Nil
Protected storage for removal offsite	04	7
Any appropriate method used	39	67
Inappropriate method		
Open burning without protection	09	16
Unprotected dumping	06	10
Unprotected storage for removal offsite	04	7
Do not have sharps waste	Nil	Nil
Availability of waste management guidelines	**06**	**10**

Similar to the management of sharps waste, majority of the THQ Hospitals had appropriate method in place for management of non-sharps/medical waste. However, guidelines for waste management were reported available at only six THQ Hospitals (Table 18).

Table 18: Waste management of medical waste at THQ Hospitals

Number of THQ Hospitals performing waste management of medical waste by type of methods used

Waste Management Method	Availability at THQ Hospitals (n=58)	
	Number	Percentage
Appropriate method		
Burning in industrial incinerator	Nil	Nil
Burning in non-industrial incinerator	05	9
Open burning with protection	24	41
Protected dumping	02	3
Protected storage for removal offsite	08	14
Any appropriate method used	39	67
Inappropriate method		
Open burning without protection	07	12
Unprotected dumping	06	10
Unprotected storage for removal offsite	05	9
Availability of waste management guidelines	**06**	**10**

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 health facility but also for providing good quality services.

Supervisory visits were conducted at majority of THQ Hospitals within one month preceding the assessment but quality of these visits is a major concern. Certain key activities were ignored during these visits including use of structured checklist for assessment, signatures of supervisors on the registers, discussions on facility performance, helping staff in decision making, and providing feedback report. Moreover, details about discussions were never reported. This creates missing links in the chain that are necessary for continous support and regular follow 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 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 persons in-charge. Examining the records of most recent management meetings of facilities highlighted the lack of discussion of key priority agenda items. It was revealed that less than half of THQ Hospitals discussed DHIS reporting & timeliness, quality of services, service utilization, diseases data, employment conditions or financial issues during meetings. THQ Hospitals also had a poor show on account of decision making and follow up actions. Two thirds of the facilities maintained record and only one third had taken decisions and actions as follow up of 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.[19] Here again THQ Hospitals performed poorly in maintaining liasion with their communities through community meetings.

Client feedback consists of the views and opinions of patients and beneficiaries on the care that they have experienced.[20] The assessment findings revealed that only six THQ Hospitals had a complaint box formally in place while 38 health facilities reported having informal discussions with the patients as client feedback. Review of client opinion/feedback to improve quality of healthcare services was

[19] (Howard, et al., 2002).

[20] (Picker Institute Europe, 2015)

practiced at 25 THQ Hospitals. The findings about mechanisms of capturing and using clients' opinion and feedback again were reflective of deprived situation in the assessed THQ Hospitals. Client feedback results in improved client satisfaction, continued and sustained use of services, and improved health outcomes.[21] *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 THQ Hospitals, while only six of the THQ Hospitals had a complete set of all tools available. Maintenance of DHIS tools was also relatively better at THQ 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 tools was beyond the scope of this study.

Infection control practices comprise of routine practices essential for controlling 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 products and, sound management of medical waste.[22] Infection control practices were reported to be observed at all the facilities in the form of sterilization. Most of the facilities used other appropriate sterilization methods also but modern electric devices like autoclave was still not in use in one-third of the facilities. A major gap noted was the lack of infection control guidelines, which were present at only six THQ 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. Most of the THQ Hospitals were using appropriate methods of waste disposal either for sharp waste or infectious medical waste. Moreover, non-industrial incinerator was in use at eight of the facilities. *Infection control guidelines in the form of manuals and poster/displays should be provided at all 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.[23] 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.

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

[21] (Creel, Sass, & Yinger, 2002)

[22] (WHO Regional Office for South east Asia and Western Pacific, 2004)

[23] (Kabene, Orchard, Howard, Soriano, & Leduc, 2006)

2.1.3.1 Availability of Staff

The management staff at 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.[24] The importance of management staff for the smooth working of a health facility therefore cannot be overemphasized. Assessment findings showed that at THQ Hospitals, 62% of gazetted management staff (like MS, AMS, DMS, RMO) and 89% of the non-gazetted (like computer operator, clerk) positions were filled.

Specialists are involved in the delivery of specialized clinical care while non-specialist doctors provide routine care including primary healthcare.[25] 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 in THQ Hospitals portrayed a very dismal picture as only 21% of specialist doctors, 68% of non-specialist doctors, 75% of nurses and 83% of paramedics' sanctioned positions were filled at the THQ Hospitals. However, 85% of support staff positions (like ward servants, aya, plumber) were filled at the assessed facilities (Table 19).

Table 19: Human resource at THQ Hospitals

Availability of staff at THQ Hospitals by categories

	Availability of Staff at THQ Hospitals		
Categories of Human Resource	Sanctioned	Filled	Percentage
Gazetted management staff	172	106	62
Non-gazetted management staff	152	135	89
Consultant doctors	509	108	21
Non-consultant doctors	1290	876	68
Nurses	536	401	75
Paramedics	**1757**	**1465**	**83**
Support staff	2805	2382	85
Total	7221	5473	76

2.1.3.2 Staff Coverage

Provision of round the clock staff at health facilities is essential for handling emergencies. The THQ hospitals were assessed for 24 hours service coverage keeping in view the duty schedule or roster. A total of 52 THQ Hospitals had 24/7 staff coverage whereas duty rosters were observed at 40 hospitals. The six THQ Hospitals where 24/7 staff coverage was not reported included: THQH Tando Bago of district Badin, THQHs Daharki and Sheikh Hamdan of district Ghotki, THQ Hazrat Khadija of district Hyderabad, THQH Arija of district Larkana and THQH Madeji of district Shikarpur.

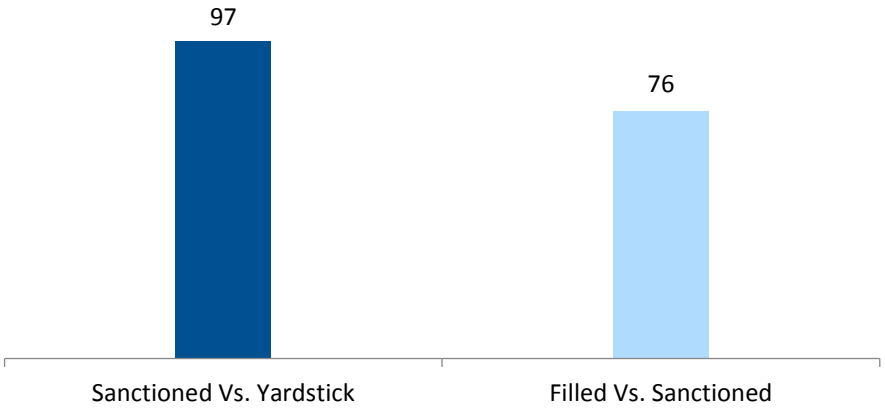
[24] (Parand, Dopson, Renz, & Vincent, 2014)

[25] (BMA Central Consultants and Specialists Committee, July 2008)

2.1.3.3 Sanctioned-Filled Variation

At each THQ Hospital, sanctioned positions of the staff were compared with the standard/yardstick of the DOH. Furthermore, out of the sanctioned positions, filled positions were also reported. The findings revealed that overall 24% of sanctioned positions were still vacant in the THQ Hospitals (Figure 9).

Figure 9: Availability status of sanctioned and filled staff positions (in %) at THQ 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 another 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 THQ Hospitals, the number of detailed out staff (640 staff) far outnumbers the staff that was detailed in (434 staff).*

2.1.3.5 Staff Provided by Vertical Programs and Development Partners

Vertical programs and other development partners had provided both management and service providing staff at various THQ Hospitals. Overall 90 staff positions were provided by vertical programs, donors, development partners and/or some NGOs. These included 55 paramedics, 30 non-consultants doctors, three support staff positions, one management position, and one specialist.

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.[26] Staff trainings evaluated mainly focused on 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 very low.

[26] (Frost, n.d.)

Table 20: Staff training at THQ Hospitals

Availability of trained staff at THQ Hospitals

Trainings	Availability of Trained Staff at THQ Hospitals	
	Number	Percentage
Integrated Management of Newborn and Childhood Illnesses (IMNCI)	49	4
Emergency Obstetric and Newborn Care (EmONC)	34	3
Emergency Newborn Care (ENC) Helping Baby Breathe (HBB)	35	3
Pregnancy, Childbirth, Postpartum and Newborn Care (PCPNC)	46	3
Managing Complications in Pregnancy and Childbirth (MCPC)	21	2
Family Planning (FP) Surgical	63	5
Non-communicable diseases	11	1
Malaria	19	1
TB-DOTS	48	4
Syndromic Management of Sexually Transmitted Infections	05	0
Infection Control	18	1
EPI (Pneumococcal)	23	2

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 workers' numbers and quality are positively associated with health status indicators. The current assessment has portrayed a bleak picture of the availability of all cadres/categories of human resource at THQ 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 [27] 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.[28] Sindh, like the other provinces, is afflicted by the shortage (better than Balochistan only) of health workforce especially nurses and paramedics.[29] A number of factors possibly cause this inadequacy of HR including limited production

[27] (USAID, 2012)

[28] (World Health Organization, 2006)

[29] (PDSSP-TAMA, Government of the Punjab, June 2010)

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.[30]

The human resource results have revealed detailment of staff of all cadres at the assessed THQ Hospitals. Detailment especially of medics is one of the issues 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 base for health strategy that addresses 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.[31] 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.

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. Half of the facilities had the required electro-medical equipment available to perform routine hematological services (Table 21).

Table 21: Hematology services at THQ Hospitals

Number of THQ Hospitals performing Hematology Tests

Components	Availability at THQ Hospitals (n=58)	
	Number	Percentage
Hematology analyzer	28	48
Colorimeter or Hemoglobinometer	39	67
Drabkin's Solution	19	33
Pipette	45	78
Litmus paper for Hemoglobin Test	07	12

[30] (Gupta & Dal Poz, 2009)

[31] (The World Bank, 2015)

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 all the THQ Hospitals whereas glucometer with strips was available at 37 hospitals only. Functional chemistry analyzer was available at 36 THQ Hospitals (Table 22).

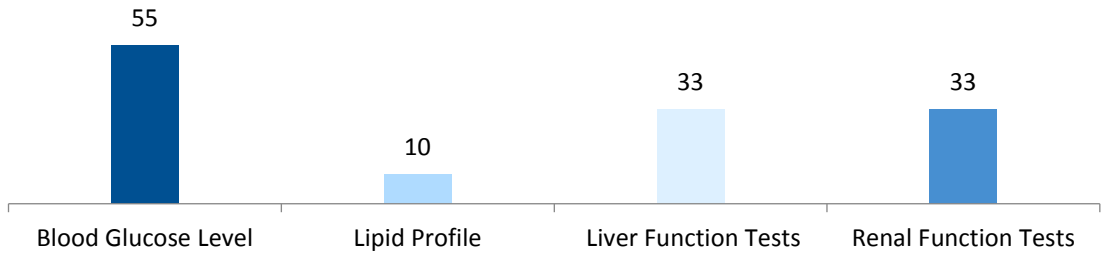
Table 22: Clinical chemistry services at THQ Hospitals

Number of THQ Hospitals with adequate equipment for performing Clinical Chemistry Tests

Components of Clinical Chemistry	Availability at THQ Hospitals (n=58)	
	Number	Percentage
Glucometer and strips	37	64
Chemistry analyzer	36	62
Dip sticks for urine protein, glucose and pregnancy test	48	83

Overall, out of 58 THQ Hospitals, 32 THQ Hospitals reported testing for blood glucose level (55%), however only 19 THQ Hospitals (33%) were performing liver function tests and renal function tests (33%), whereas blood lipid profile testing capacity was available at only six THQ Hospitals (Figure 10).

Figure 10: Mean Availability of Clinical Chemistry Services at THQ Hospitals



2.1.4.3 Parasitology, Bacteriology & Virology

Testing services of Parasitology, Bacteriology & Virology were assessed on the basis of functional equipment and supplies available for each component as listed below. A total of 54 THQ Hospitals were adequately equipped for bacterialological and parasitological tests (particularly malaria). However THQ Hospitals had poor capacity for gram staining and stool microscopy (Table 23).

Table 23: Parasitology, Bacteriology & Virology services at THQ Hospitals

Number of THQs performing Parasitology, Bacteriology & Virology

	Availability at RHCs (n=121)	
Bacteriological Testing	Number	Percentage
Light microscope	54	93
Refrigerator in lab area	43	74
Incubator	18	31
Test tubes	48	83
Centrifuge for CSF microscopy	38	66
Culture medium	01	2
Glass slides and covers	53	91
ELISA Equipment		
ELISA machine	15	26
Malaria Testing		
Rapid diagnostic test kit	09	16
Guidelines for rapid diagnostic test	04	7
Giemsa stain	48	83
Field stain	17	29
Gram Staining		
Crystal violet or Gentian violet	02	3
Lugol's iodine/Lugol's solution	Nil	Nil
Acetone or acetone alcohol	02	3
Neutral red, Carbol Fuchsin, or other counter stain	04	7
Equipment and supplies for Stool Microscopy		
Formal saline (for concentration method)	02	3
Normal saline (for direct microscopy)	04	7
Lugol's iodine/Lugol's solution	03	5

2.1.5 Tuberculosis

Routine and rapid quality diagnostic services for tuberculosis were assessed against the availability of eight items. Service for sputum analysis was available at 44 THQ Hospitals. Rapid diagnostic test kit was not available at any THQ Hospital. The state of quality control for tuberculosis testing was satisfactory (Table 24).

Table 24: Tuberculosis testing services at THQ Hospitals

Number of THQ Hospitals performing tuberculosis tests

Testing requirements	Availability at THQ Hospitals (n=58)	
	Number	Percentage
Ziehl-Neelsen stain for AFB	44	76
Carbol-Fuchsin	48	83
Sulphuric acid (20-25% concentration) or acid alcohol	49	84
Methylene blue	49	85
Microscope	53	91
Sputum container	45	78
Rapid diagnostic test kit for Tuberculosis	Nil	Nil
Quality control for Tuberculosis testing	40	69

2.1.5.1 Diagnostic Imaging

Diagnostic imaging, medical imaging, and radiology services cover the capturing and interpretation of images for the purpose of medical diagnosis. Diagnostic imaging procedures include radiography, ultrasound, and computerized tomography (CT).[32]

X-ray machines were available at 50 THQ Hospitals (85%) but x-ray films were available at only 35 THQ Hospitals (60%). At 46 THQ Hospitals (79%), functional ultrasound was available. ECG machines were reported by 38 THQ Hospitals (66%) but paper roll for ECG was available at 34 (59%) hospitals. However, CT services were not available at any of the THQ Hospitals (Table 25).

Table 25: Imaging services at THQ Hospitals

Number of THQ Hospitals providing diagnostic imaging services

X-Ray	Availability at THQ Hospitals (n=58)	
	Number	Percentage
X-ray machine	50	86
Unexpired film for X-ray	35	60
Ultrasound		
Ultrasound machine	46	79
Gel for ultrasound	43	74
Printer for ultrasound	14	24
ECG		
ECG machine	38	66
Paper roll for ECG	34	59
C.T. Scan		
C.T. Scan machine	Nil	Nil
Unexpired film for CT Scan	Nil	Nil

[32] (Wesley Medical Imaging, 2016)

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 THQ Hospital. All activities related to blood collection, testing, processing, storage and distribution should be well coordinated.[33] THQ Hospitals were assessed for blood transfusion services under the components of blood grouping, cross matching, screening, source of blood, and blood storage (Table 26).

Table 26: Blood transfusion services at THQ Hospitals

Number of THQ Hospitals providing blood transfusion services

	Availability at THQ Hospitals (n=58)	
Blood Grouping & Cross Matching	Number	Percentage
Anti-A reagent	47	81
Anti-B reagent	48	83
Anti-D reagent	49	85
COOMB'S reagent	07	12
Screening		
HIV	16	28
Hepatitis B	33	57
Hepatitis C	33	567
Source of Blood		
Gov. blood bank	02	3
Facility's own	01	2
Relatives donating directly	34	59
Blood Storage		
Refrigerator	24	41
Optimum temperature	11	19
Guidelines	05	9

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.[34] Availability of components to ensure standard precautions for preventing infection to patients and care provider was assessed in all THQ hospitals. A mixed picture was observed regarding availability of essential items, guidelines, and practices ensuring standard precautions. Guidelines for standard precautions, goggles for eye protection, alcohol-based hand rub and gowns were identified as highly deficient areas (Table 27).

[33] (World Health Organization, 2015)

[34] (TriStar Summit Medical Center, 2014)

Table 27: Standard precautions for diagnostic services at THQ Hospitals

Number of THQ Hospitals having standard precautions and conditions for diagnostic services

Type of Precautions & Conditions	Availability at THQ Hospitals (n=58)	
	Number	Percentage
Running water (piped, bucket with tap or pour pitcher)	48	83
Hand-washing soap (may be liquid soap)	48	83
Alcohol-based hand rub	08	14
Waste receptacle (pedal bin) with lid and plastic bin liner	26	45
Other waste receptacle	47	81
Sharps container ("Safety Box")	40	69
Disposable latex gloves	44	76
Disinfectant (e.g. Chlorine, Hibitane, Alcohol)	29	50
Single-use standard disposable syringes with needles or auto-disable syringes with needles	53	91
Medical masks	36	62
Gowns	22	38
Eye protection (goggles or face protection)	03	5
Guidelines for standard precautions	07	12

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 building block in WHO's proposed Health Systems.[35] Within the ambit of the HFA, infrastructure was assessed for availability and functional status of building components of THQ Hospitals, as part of assessment of general service readiness.

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

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.

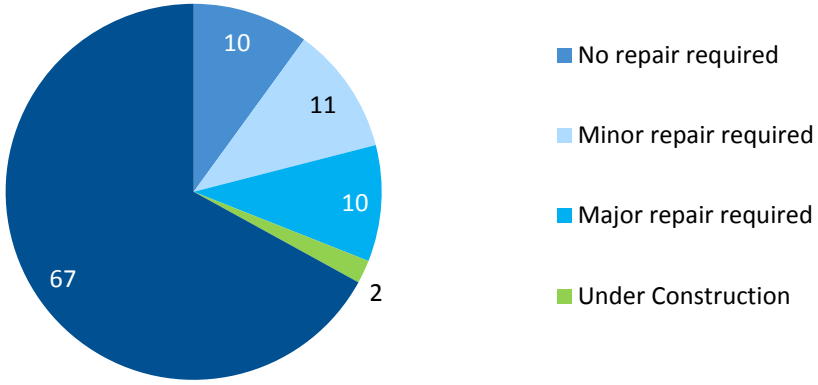
'Under-construction' means new construction for any building component is underway.

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

[35] (Savigny & Adam, 2009)

availability of optimum components for service delivery. The casualty and emergency, for instance, was assessed for consultation area, ward area, and emergency operation theater. Majority of the infrastructure components (building structures) were either missing or had minor or major issues hampering their use for delivery of services. On average, only one tenth of the building structures components were available in good condition at the THQ Hospitals. However, a vast number of building structures (67%) were not available while a small proportion of building structures was under construction (2%).

Figure 11: Condition of Infrastructure Components (in %) available at THQ Hospitals



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, minor or major repair work, or if any part of it was undergoing construction. The availability and functional status of each sub domain are shown as averages in Table 28.

Table 28: Infrastructure at THQ Hospitals

Number of THQ Hospitals having infrastructure components, by type of their condition

Infrastructure Components	Situation at THQ Hospitals (n=58)				
	No repair required %	Minor repair required %	Major repair required %	Under construction %	Required infrastructure for level of HF is not available %
Administration block	13	17	6	2	63
Casualty & Emergency	12	16	11	8	54
Out-patient department	13	13	8	1	65
In-patient department	5	4	3	1	87
Intensive Care Units	2	1	1	0	97
Operation theaters	7	6	4	1	81
Diagnostic service departments	12	17	10	0	62
Residences	5	3	24	2	65
Miscellaneous building component	22	29	18	1	30

Building structures were extremely deficient at ICUs (3%), operation theaters (19%), and in-patient department (13%) – depicting the incapacitated situation of these key service delivery areas of secondary level hospitals. For instance, psychiatric in-patient ward, thalessemia and jail wards were not reported at any of the 58 THQHs. Psychiatry OPD and neuro psychiatry OPD were available at only one THQH whereas urology OPD was reported at four THQ Hospitals. Newborn ICU (NICU) was available at three out of 58 THQ Hospitals. Similarly Cardiac Care Unit (CCU) was reported at only two THQHs.

2.1.7 Domain VI: Equipment

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.[36] The standards of equipment were obtained from the PC-1s of the THQ 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 58 THQ Hospitals revealed significant gaps. Domain readiness to provide services falling within the mandate of assessed THQ Hospital was simply undesirable (Table 29).

Table 29: Functional equipment, furniture & fixtures at THQ Hospitals

Number of THQ Hospitals having functional equipment items

	Availability of Functional Equipment at THQ Hospitals		
Departments	Standard	Available	Percentage
Administration	6264	2013	32
Casualty & Emergency	7656	2097	27
Outpatient services	6380	2725	43
In-patient services	53244	7603	14
Intensive Care Units	9106	183	2
Operation Theaters	13920	2207	16
Diagnostic Service Department	35438	7415	21
Miscellaneous	1450	919	63
Total	**133458**	**25162**	**19**

Significant gaps were revealed in the availability of equipment as well as that of medical and surgical instruments. Although, on average, less than one third 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 2% 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.

[36] (World Health Organization, 2016)

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 the district level along with budgetary constraints. *The Government of Sindh should conduct procurement of deficient equipment. Furthermore, given the large quanitities 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 the THQ 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 THQ 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. A total of 31 THQ Hospitals were complying with optimal storage conditions and 47 had records updated for medicines and consumables (Table 30).

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

Number of THQ Hospitals having appropriate storage conditions and monitoring mechanism

	Status at THQ Hospitals (n=58)	
Storage & Monitoring Status	Number	Percentage
Optimum storage condition	31	53
Record (computer/manual) updated on daily basis	47	81

2.1.8.2 Availability of Medicines & Consumables

The availability status of valid (not expired) medicines and consumables at THQ 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 from it.

Findings revealed that on average, only 32% of the assessed medicines and supplies were available at the health facilities. Half of the medicines and supplies (50%) were never made available, whereas 15% of medicines were out of stock at the time of visit (Table 31).

Table 31: Availability status of medicines & consumables at THQ Hospitals

Availability of medicines & consumables

	Mean status of Drugs and Supplies at THQ Hospitals
Stock Availability	Percentage
Available & valid	32
Expired	3
Not available	15
Never available	50

Before the 18th Constitutional Amendment, development of Essential Medicines List (EML) was a federal function and after devolution, the Government of Sindh prepared EML with the support of USAID DELIVER and notified it in October 2014.[37] Assessment of medicines and supplies was based on this EML and in THQ Hospitals, a total of 312 items were assessed for their availability and validity. Instead of taking tracer items, this complete list was taken so that specific deficiencies can be ascertained in the 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 THQ Hospitals, 15% of medicines were not available on the 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 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.[38] 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.[39] Although the observed quantity of expired medicines was 3% but even this is unacceptable when it comes to matters of health and human life. 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 THQ Hospitals. The percentage of such items was alarmingly high, as 50% of the medicines and supplies included in the EML have never been a part of the facility stock register. This highlights the contrast 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 stock 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, half of the storage standards were followed while at some 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.

[37] (Department of Health, Government of Sindh, 2014)

[38] (National MNCH Program, Government of Pakistan, 2010-2011)

[39] (World Health Organization, 2005)

2.2 Service Availability at THQ Hospitals

This analysis describes the availability of services at the THQ 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 THQ Hospitals. Although, there were certain signal functions that were not performed during the three months prior to the survey but majority of the available services were perfomed. A closer look at the packages reveals specific areas that were deficient in the availability of services. As seen in maternal health area, most facilities were providing obstetric care services but were under providing gynecological services. Additionally, there were 43 THQ Hospitals where ceserean sections were not performed while more than half did not undertake assisted vaginal deliveries. Child health services were better in some areas but gaps existed in the provision of growth monitoring services, suspected measles and neonatal services that were an integral part of Health Management Information System (HMIS) but were not included in the DHIS, hampering the delivery of these services. Modern family planning methods were provided at most of THQ Hospitals. However, availability of implants, tubal ligation and vasectomy services were quite low. One of the major reasons for non-availability of these services was lack of trained HR to provide these services.

Medical services for dieseases like meningitis, extra pulmonary tuberculosis, viral hepatitis (A & E) and chronic liver and renal diseases were available in less than one- third of the THQ Hospitals. Surgical services were poor across the board, purportedly due to lack of expert staff and relevant equipment. Similarly neurospsychiatric and skin diseases services were far below satisfactory levels. Accident and trauma care services were consistently available at more than half of the THQ Hospitals. 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 THQ Hospitals providing health services, by timing and validation status

Services	Number of THQ Hospitals (n=58)	
	Reported Availability	Validation (DHIS Record)
Maternal Health		
Antenatal care	58	57
Postnatal care	57	56
Tetanus Toxoid vaccination	58	55
Normal vaginal delivery	56	55
Vacuum/Forceps deliveries	23	14
Cesarean sections	15	15
Fibroid uterus	22	10
Pelvis Inflammatory Disease (PID)	52	39
Uterine Prolapse	22	10
Vesico-vaginal fistula	19	03
Ante partum hemorrhage (APH)	45	33
Complications of abortion	50	32
Ectopic pregnancies	23	06
Postpartum Hemorrhage (PPH)	47	34
Pre-Eclampsia/ Eclampsia	39	24
Prolonged/Obstructed labor	37	23
Puerperal sepsis	43	19
Ruptured uterus	17	04
Child Health		
Pneumonia < 5 years	57	56
Diarrhea/Dysentery < 5 years	58	56
Worm infestation	57	55
Suspected measles	51	25
Suspected viral hepatitis	51	43
Suspected Neonatal Tetanus	44	20
Child vaccination services	58	57
Growth monitoring service	36	27
Birth trauma	36	11
Birth asphyxia	45	26
Bacterial infection (Neonate)	47	23
Congenital abnormalities	32	13
Prematurity	35	17
Hypothermia	36	14

Services	Number of THQ Hospitals (n=58)	
	Reported Availability	Validation (DHIS Record)
Family Planning Services		
Oral Pills (COC/POP Cycles)	58	56
Condoms	57	55
Implants	18	11
Injectable (DMPA/Net-En)	57	54
IUCD	51	43
Tubal Ligation	16	14
Vasectomy	05	02
Medical Services		
Diarrhea/Dysentery	58	56
Pneumonia	58	51
Malaria	58	55
Asthma	58	56
Chronic obstructive pulmonary diseases	56	47
Pulmonary Tuberculosis	55	49
Extra Pulmonary Tuberculosis	51	34
Enteric/Typhoid fever	58	50
Diabetes Mellitus	57	53
Viral Hepatitis (A & E)	53	34
Viral Hepatitis B	53	45
Viral Hepatitis C	53	45
Meningitis	43	22
Chronic liver diseases (including Cirrhosis)	45	25
Chronic renal diseases (including Nephritis/ Nephrosis)	45	32
Acute (upper) respiratory tract infections in adults 5 years	58	58
Worm infestations	57	53
Peptic ulcer disease	58	56
Urinary tract infections	58	57
Sexually transmitted infections	49	34
Fever due to other causes	57	53
Surgical Services		
Acute Appendicitis	30	19
Burns	41	33
Cholelithiasis / Cholecystitis	27	15
Hernias	29	19
Hyperplasia of Prostate/BPH	27	16

Services	Number of THQ Hospitals (n=58)	
	Reported Availability	Validation (DHIS Record)
Urolithiasis	29	18
Eye Services		
Cataract	29	20
Corneal opacity	37	20
Glaucoma	37	25
Trachoma	34	16
ENT Services		
Chronic Otitis Media	49	42
Deflected Nasal Septum (DNS)	27	12
Neuropsychiatric Services		
Cerebrovascular accident (Stroke)	36	21
Head injury	43	28
Drug dependence	33	16
Epilepsy	41	25
Skin Care Services		
Scabies	57	52
Dermatitis	57	47
Cutaneous Leishmaniosis	25	11
Miscellaneous Services		
Dental caries	55	50
Accident & Trauma Services		
Road traffic accidents & poisoning	53	51
Fractures	50	44
Burns	52	47
Dog bite	52	47
Snake bite	52	47
Referral Services		
Cases referred from community	46	34
Cases referred to higher level	58	47
Diagnostic Services		
Routine microscopy (Bacteriology, Mycology, Parasitological)	32	29
Serology	24	22
Bacterial culture	01	01
Blood glucose	51	49
Blood urea	25	24
Serum Creatinine	58	58

Services	Number of THQ Hospitals (n=58)	
	Reported Availability	Validation (DHIS Record)
Liver functions test	22	21
Serum Calcium	08	06
Urine complete examination (detailed report)	42	40
Urine for pregnancy testing	52	47
Urine for protein	42	38
Urine for sugar	47	43
Serum electrolytes	06	05
ELISA	08	08
Blood complete picture/profile/report	27	27
Hemoglobin Electrophoresis (Test for Thalassemia)	03	03
Malarial Parasite (MP)	54	50
Clotting Time (CT)	50	44
Bleeding Time (BT)	49	42
Prothrombin Time (PT)	04	03
Activated Partial Thromboplastin Time (APTT)	02	02
Blood grouping	49	44
Cross-matching/Compatibility	38	32
Blood storage	17	13
Routine X-Rays (head & spine, chest, abdomen, extremities)	50	41
Special X-Ray (intravenous urogram; barium studies)	01	00
Ultrasound	44	37
ECG	28	20

2.2.1 MNCH Services Trend

A comparison of Maternal and Newborn 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 focused mainly on the 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, the readiness index of THQ Hospitals of Sindh was 87% for child vaccination services, whereas for growth monitoring services it was 45% and only 40% 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 THQ Hospitals by type of child health services

Components & Items	Availability at THQ Hospitals (n=58)	
	Number	Percentage
Child Vaccination Services		
Availability of vaccinator or doctor	58	100
Guidelines for child vaccination services	41	71
Immunization cards	57	98
EPI register	57	98
Immunization tally sheets	35	60
Summary form	35	60
Optimally functioning refrigerator/freezer (With Temperature Between +2 and +8 Degrees)	54	93
Cold-chain temperature monitoring chart	58	100
Temperature record checked for the past 30 days	37	64
Vaccine carriers (Two or More Sets)	55	95
Ice packs (Two Or More Sets)	55	95
Measles vaccine	57	98
DPT-Hib+ Hep B vaccine	35	60
Oral polio vaccine	57	98
Pneumococcal vaccine	57	98
BCG vaccine	56	96
Readiness Index of Child Vaccination Services	87%	

Components & Items	Availability at THQ Hospitals (n=58)	
	Number	Percentage
Growth Monitoring Services		
Availability of child specialist or doctor	58	100
Child growth & monitoring guidelines	13	22
Child weighing scale	33	57
Infant weighing scale	35	60
Height or length board	13	22
Growth chart	16	28
Readiness Index of Growth Monitoring Services	45%	
Child Curative Services		
Availability of child specialist or doctor	58	100
IMNCI Guidelines	13	22
Stethoscope	39	67
Time (Seconds) measuring device	36	62
Calibrated ½ or 1 liter measuring jar for ORS	17	29
Cup and spoon	19	33
At least 3 buckets	5	9
IMNCI chart booklet	14	24
IMNCI mother's cards	08	14
Other visual aids for teaching care takers	10	17
Unused child health/welfare recording card/booklet	05	9
Oral Rehydration Solution packet	55	95
Amoxicillin injection	17	29
Amoxicillin syrup	39	67
Co-Trimoxazole syrup/suspension	41	71
Paracetamol syrup/suspension	49	85
Paracetamol injection	12	21
Zinc Sulphate tablets or syrup	18	31
Vitamin A capsules	12	21
Mebendazole/Albendazole cap/tab/syrup	45	78
Readiness Index of Child Curative Services	40%	

2.3.2 Maternal & Reproductive Health Services

Under maternal and reproductive health services, readiness index for family planning services was 44% while for antenatal services, it was 51%. In delivery and newborn care services, readiness index of THQ Hospitals to conduct normal deliveries and provide newborn care was 48% whereas for cesarean section, it was 50% (Table 34).

Table 34: Service specific readiness for maternal and reproductive health services

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

Components & Items	Availability at THQ Hospitals (n=58)	
	Number	Percentage
Family Planning Services		
Availability of LHV or doctor or FWW	58	100
FP guidelines	15	26
Unused client record cards	48	83
Blood pressure apparatus	08	14
Sample of FP methods	42	72
Other FP-specific visual aids (e.g. flip charts, leaflets)	18	31
Pelvic model for IUCD	03	5
Model for showing condom use	02	3
Condoms	52	90
Combined oral pills	53	91
Progesterone only pills (Levonorgestrel)	19	33
IUCS (Copper T/Multiload)	50	86
Inj. Medroxyprogesterone Acetate (DMPA)	05	9
Inj. Norethisterone Enanthate (Net-En)	05	9
Inj. Estradiol Cypionate + Medroxyprogesterone Acetate	03	5
Levonorgestrel-releasing implant (Subdermal)	05	9
Etonogestrel-releasing implant (Subdermal)	04	7
Readiness Index of Family Planning Services	44%	
Antenatal Care Services		
Availability of WMO or LHV	54	93
Guidelines for ANC services	13	22
Blood pressure apparatus	08	14
Stethoscope	39	67
Weighing machine	32	55
Pregnancy test	47	81
Hemoglobin	03	5
Urine for protein	38	66
Tetanus toxoid vaccine	57	98
Iron tablets	18	31

Components & Items	Availability at THQ Hospitals (n=58)	
	Number	Percentage
Iron syrup	16	28
Folic Acid tablets	29	50
Readiness Index of Antenatal Care Services	51%	
Delivery & Newborn Care		
Availability of gynecologist/WMO and child specialist/doctor	58	100
IMPAC guidelines	09	16
Emergency transport	55	95
Sterilization equipment	52	90
Examination light	14	24
Delivery pack	19	33
Suction apparatus (Mucus Extractor)	19	33
Manual Vacuum Extractor	11	19
Vacuum Aspirator or D&C Kit	29	50
Neonatal bag and mask	22	38
Delivery bed	48	83
Gloves	38	66
Incubator	10	17
Antibiotic eye ointment for newborn	08	14
Injectable uterotonic	44	76
Injectable antibiotic	14	24
Skin disinfectant	24	41
Intravenous solution with infusion set	57	98
Readiness Index of Delivery & Newborn Care	48%	
Cesarean Section		
Availability of gynecologist	11	19
Incubator	10	17
Medicine trolley	20	35
Syringe cutter	02	3
Suction machine portable	01	2
X-ray illuminator	03	5
BP apparatus	08	14
Nebulizer	02	3
Glucometer	12	21
Blood transfusion services	33	57
Blood grouping services	44	76
Cross matching/Compatibility	32	55
Epinephrine (injectable)	03	5

Components & Items	Availability at THQ Hospitals (n=58)	
	Number	Percentage
Halothane (injectable)	09	16
Atropine (injectable)	25	43
Thiopental (injectable)	04	7
Ketamine (injectable)	08	14
Readiness Index of Cesarean Section Services	53%	

2.3.3 Communicable Diseases

In THQ Hospitals, readiness index for communicable disease was 49% for malaria care services and 52% 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 THQ Hospitals by type of communicable diseases

Components & Items	Availability at THQ Hospitals (n=58)	
	Number	Percentage
Malaria		
Availability of doctor	58	100
Guidelines for Malaria	09	16
Malarial parasite testing	50	86
Tab Chloroquine	49	85
Tab. Primaquine	32	55
Tab. Sulfadoxine + pyrimethamine	04	7
Tab. Artesunate + Sulfadoxine + Pyrimethamine	14	24
Artemether (Ampule), Tab. Artemether + Lumefantrine	13	22
Readiness Index of Malaria Services	49%	
Sexually Transmitted Infections		
Availability of doctor	58	100
Guidelines for STI	05	9
HIV rapid diagnostic test	08	14
Condoms	52	90
Metronidazole capsule & tablet	43	74
Ciprofloxacin capsule & tablet	37	64
Ceftriaxone injection	31	53
HIV rapid diagnostic test (RTD) kit	06	10
Readiness Index of Sexually Transmitted Infections Services	52%	
Tuberculosis		
Availability of doctor	58	100
Guidelines for TB diagnosis & treatment	33	57

Components & Items	Availability at THQ Hospitals (n=58)	
	Number	Percentage
Sputum smears for AFB	44	76
X-Ray	53	91
Tab. Ethambutol	16	28
Ethambutol (oral liquid)	01	2
Tab. Isoniazid	17	29
Syp Isoniazid	0	Nil
Tab. Pyrazinamide	16	28
Cap. Rifampicin	11	19
Syp Rifampicin	03	5
Inj. Streptomycin	42	72
Tab. Ethambutol + Isoniazid	19	33
Tab. Isoniazid + Rifampicin	47	81
Tab. Isoniazid + Pyrazinamide + Rifampicin	30	52
Tab. Rifampicin + Isoniazid + Pyrazinamide + Ethambutol	51	88
Tab. Ethambutol + Isoniazid + Rifampicin	46	79
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 in THQ Hospitals of Sindh. On average, each THQ Hospital was 23% equipped to provide services for such non-communicable diseases (Table 36).

Table 36: Service specific readiness for non-communicable diseases

Availability of components and items for service-specific readiness at THQ Hospitals by type of specialized services

Components & Items	Availability at THQ Hospitals (n=58)	
	Number	Percentage
Non-Communicable Diseases		
Availability of medical specialist	08	14
Guidelines for diabetes diagnosis & treatment	02	3
Guidelines for cardiovascular diseases diagnosis & treatment	03	5
Guidelines for respiratory diseases diagnosis & treatment	04	7
Weighing scale	33	57
Height scale	13	22
Baby weighing scale	35	60
Pulse Oximeter	01	2
Oxygen cylinder	01	2
Nebulizer	02	3
Stethoscope	39	67

Components & Items	Availability at THQ Hospitals (n=58)	
	Number	Percentage
Normal saline infusion	57	98
Tab. Glibenclamide	17	29
Tab.Glimepiride	29	50
Tab.Metformin	21	36
Inj. Insulin (regular)	20	35
Inj. Insulin (composite)	23	40
Tab. Acetylsalicylic Acid	16	28
Tab. Bisoprolol	10	17
Tab. Digoxin	01	2
Inj. Digoxin	0	Nil
Inj. Dopamine	0	Nil
Inj. Dobutamine	0	Nil
Tab. Enalapril	06	10
Glyceryl Trinitrate (sublingual)	12	21
Inj. Hydralazine	01	2
Isosorbide Dinitrate (sublingual)	04	7
Tab. Methyldopa	04	7
Inj. Methyldopa	02	3
Tab/Cap. Propranolol	15	26
Tab. Simvastatin	04	7
Tab. Verapamil	02	3
Inj. Aminophylline	14	24
Tab. Aminophylline	06	10
Beclomethasone (inhaler)	05	9
Tab. Salbutamol	35	60
Inj. Salbutamol	06	10
Salbutamol (inhaler)	13	22
Salbutamol (solution for nebulizer)	32	55
Ammonium Chloride+ Chloroform + Menthol + Diphenhydramine + Sodium Citrate (Antitussive Expectorant)	34	59
Syp. Dextromethorphan + Diphenhydramine	07	12
Readiness Index of Non-communicable Diseases Services	23%	

3. Clients' Perspective

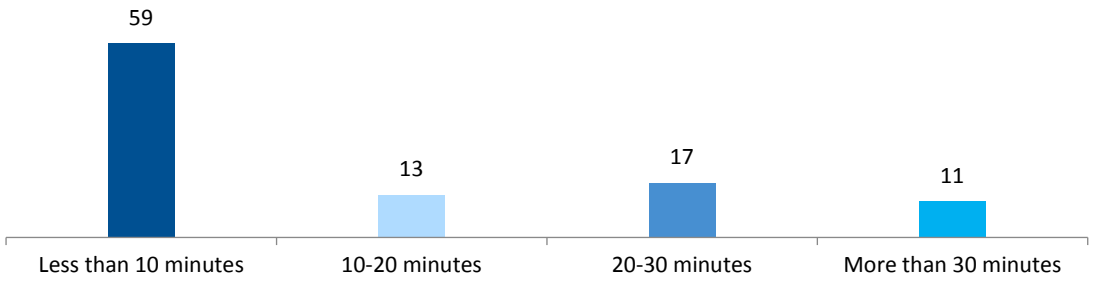
Client exit interviews were conducted within the scope of the health facility assessment survey to assess the clients' perspectives on quality of services provided at Taluka Head Quarter Hospitals. A total of 54 client exit interviews were conducted at THQ Hospitals with majority of interviewees being women and 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 THQ Hospitals is presented in figure 12. On average, 59% of clients had to wait for less than ten minutes, 13% for 10-20 minutes, 17% for 20-30 minutes and 11% for more than 30 minutes. This reflects that clients do have to wait for long hours before the provision of service at THQ Hospitals.

Figure 12: Average client waiting time (in %) at THQ Hospitals



3.2 Common Problems Faced by Clients at THQ Hospitals

Client satisfaction is considered one of the desired outcomes of healthcare and is directly related to the 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 among clients. To provide better care to patients, it is crucial to reduce their wait times at the hospital. The clients reported that waiting time was a not issue and they were satsified with the information provided to them at the health facilites. At the same time, they did not experience major privacy issues while discussing their pregnancy 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 the number of days the services were available (Table 37).

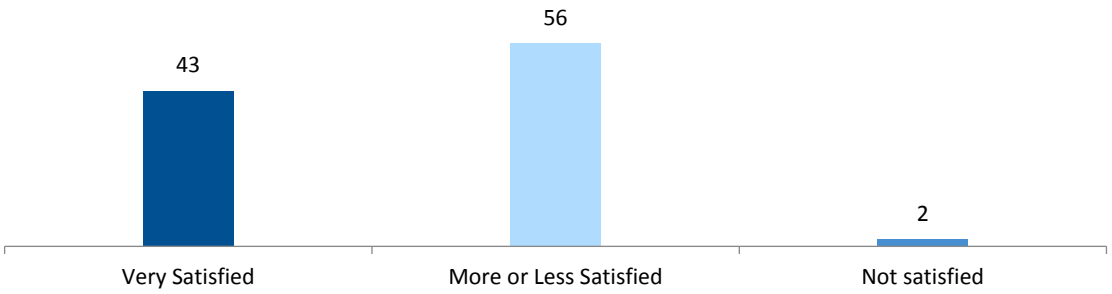
Table 37: Common problems faced by the clients at THQ Hospitals

Issues	Minor (%)	Major (%)	No (%)
Time you waited to see a provider	9	28	63
Ability to discuss problems or concerns about your health issue	19	11	70
Amount of explanation you received about the problem or treatment	19	9	72
Privacy from having others see the examination	11	15	74
Privacy from having others hear your consultation discussion	4	20	70
Availability of medicines at the facility	7	37	56
Hours of service at this facility, i.e. when they open and close	0	7	93
Number of days services are available	0	7	93
Cleanliness of the facility	15	15	70

3.3 Client Level of Satisfaction

Client satisfaction with services is necessary for utilization and outcomes of the services. During these interviews, when inquired about the overall satisfaction with the visit, 43% were very satisfied, 56% were satisfied and 2% was not satisfied with services provided at the THQ Hospitals.

Figure 13: Satisfaction of clients (in %) with services provided at THQ Hospitals



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 THQ 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 THQ 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 supportive supervision
  - 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 including 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 perceptions and translate them into actions for improving quality of care
- Ensure provision of all DHIS tools at the health facilities and focus on quality of recorded information
- Improve the infection control and waste management practices by implementing relevant guidelines and provision of necessary resources
- Increase budgetary provisions for 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 appointment (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 the areas of rural Sindh that are below the provincial average

Given the large magnitude of detailment from THQ Hospitals, in addition to imposing ban, following is proposed:

- A clear policy to serve in rural areas essentially envisaging:
  - Compulsory rural service for a minimum of two 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 Essential Medicines List 2014 for procurement by the government to ensure availability of all items at the health facilities
- Build capacities of staff at health facilities to perform functions 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 THQ 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 in 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. The 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.

The 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. The 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 THQ Hospitals in the domain of basic amenities showed that overall mean (domain score) for all the THQ Hospitals was 71% (Table 38).

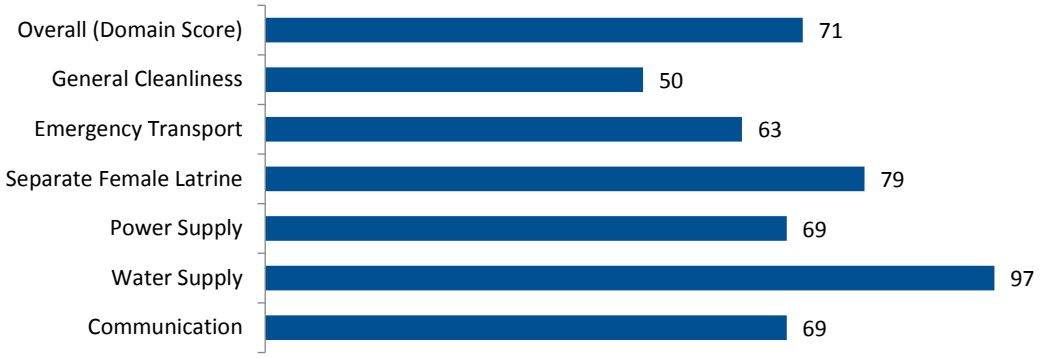
Table 38: Basic amenities at THQ Hospitals

Mean availability of basic amenities at THQ Hospitals

	Situation at THQ Hospitals (n=58)
Sub-Domains of Basic Amenities	Percentage
Communication services	69
Water source	97
Electricity supply	69
Client latrines	79
Emergency transport services	63
General cleanliness	50
Overall mean (domain score)	**71**

The overall situation in the domain of basic amenities at the THQ Hospitals revealed an encouraging picture with majority facilities scoring well on account of each sub-domain. However, vast variations occurred amongst the THQ Hospitals within six sub-domains of basic amenities, scoring as high as 97% in sub-domain water supply and as low as 50% in sub-domain general cleanliness (Figure14).

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



5.1.2 Facility Management

The domain score of 63 (overall mean) in facility management displayed a somewhat satisfactory picture with vast variations amongst the sub-domains scores (Table 39).

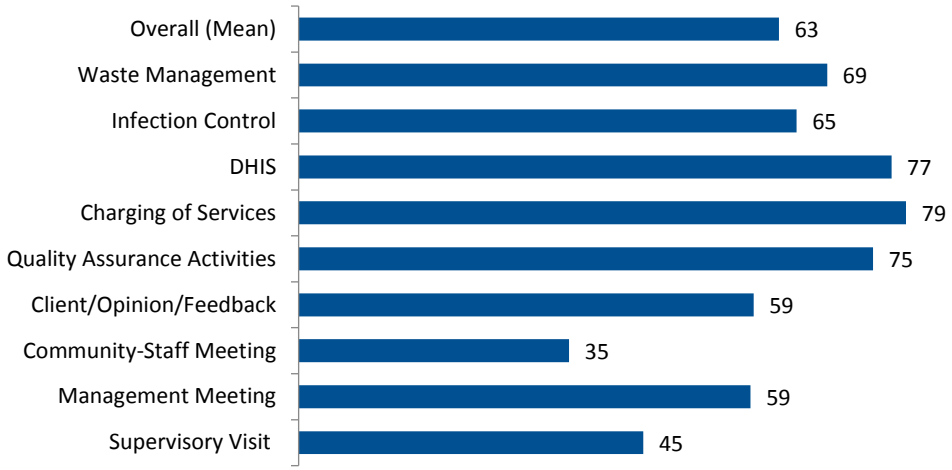
Table 39: Management functions at THQ Hospitals

Mean of management functions and practices at THQ Hospitals

Sub-Domains of Facility Management	Situation at THQ Hospitals (n=58) Mean (Percentage)
Supervisory visit	45
Management meeting	59
Community-staff meeting	35
Client opinion/feedback	59
Quality assurance activities	75
Charging of services	79
DHIS	77
Infection control	65
Waste management	69
Overall mean (domain score)	**63**

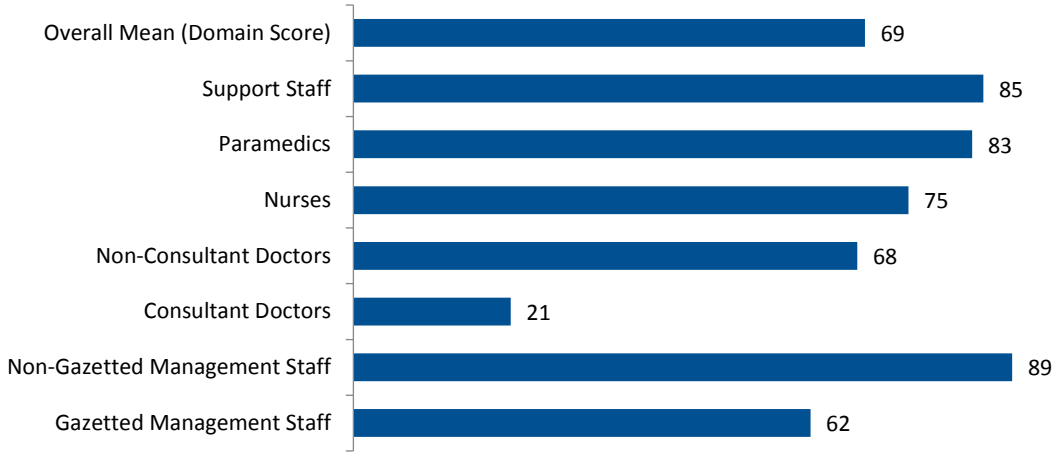
The facilities scored relatively well on account of charging of services, DHIS and quality assurance, but major gaps were identified in conduct of community staff meetings, supervisory visits, management meetings and client opinion and feed back (Figure 15).

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



5.1.3 Human Resource

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



5.1.4 Diagnostic Services

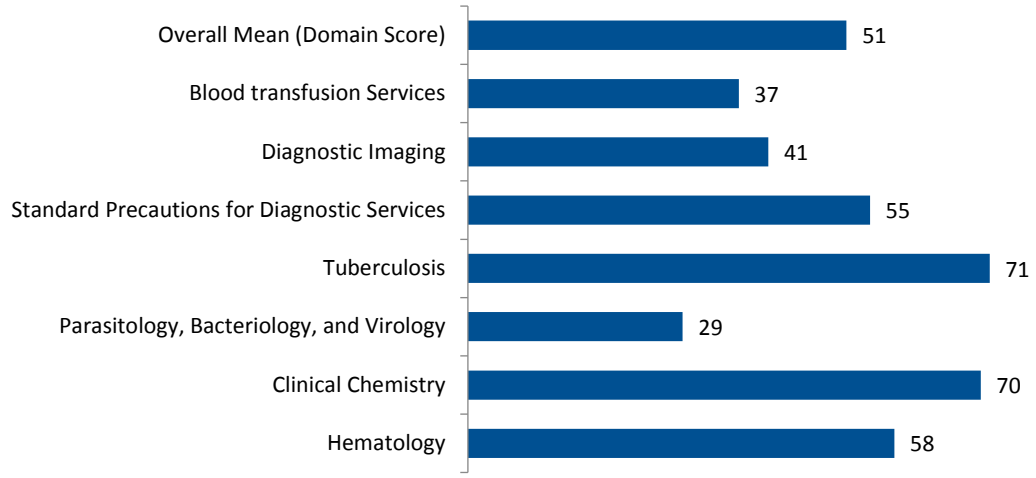
The overall status of health facilities with reference to domain of diagnostic services is summarized in Table 40.

Table 40: Summary of diagnostic services at THQ Hospitals

Mean of diagnostic services at THQ Hospitals

Sub-Domains of Diagnostic Services	Situation at THQ Hospitals (n=58)
	Mean (Percentage)
Hematology	58
Clinical Chemistry	70
Parasitology, Bacteriology, and Virology	29
Tuberculosis	71
Standard precautions for diagnostic services	55
Diagnostic imaging	41
Blood transfusion	37
Overall mean (Domain Score)	**51**

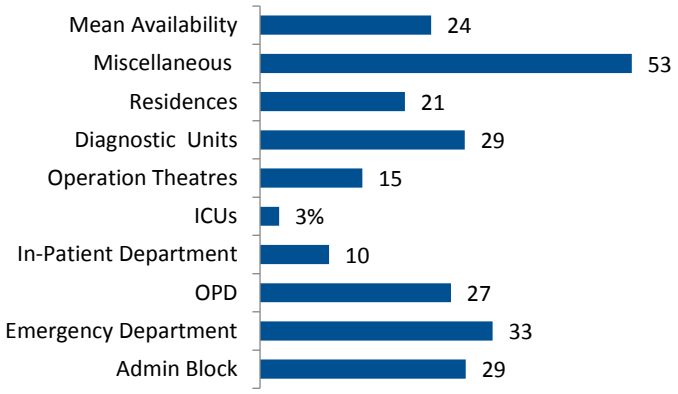
Figure 17: Overall Mean (in %) of Diagnostic Services at THQ Hospitals



5.1.5 Infrastructure

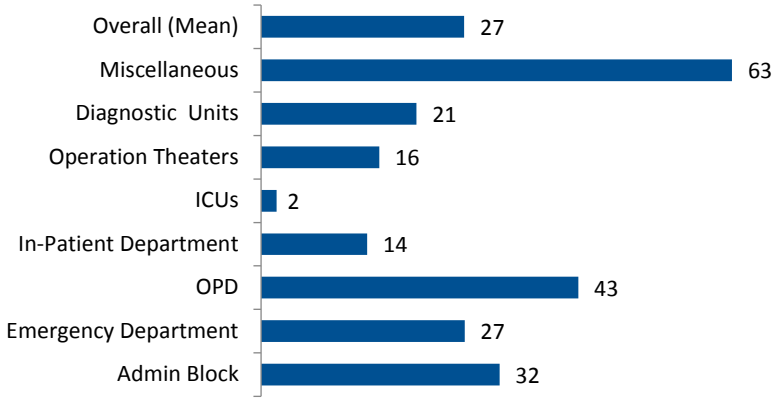
Summing up all the values provided an overall status of each sub-domain, which when aggregated provided domain score for overall availability and readiness status of infrastructure (Figure 18).

Figure 18: Mean Availability (in %) of Infrastructure at THQ Hospitals



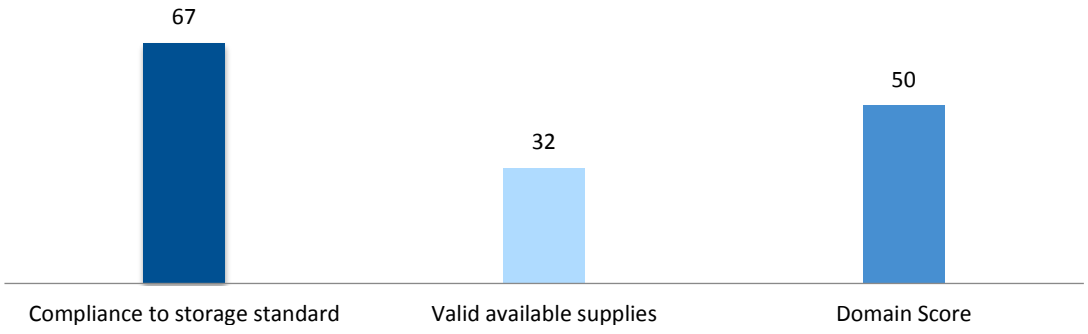
5.1.6 Equipment

Figure 19: Mean Availability (in %) of Equipment at THQ Hospitals



5.1.7 Medicines and Supplies

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



5.1.8 General Facility Readiness Index

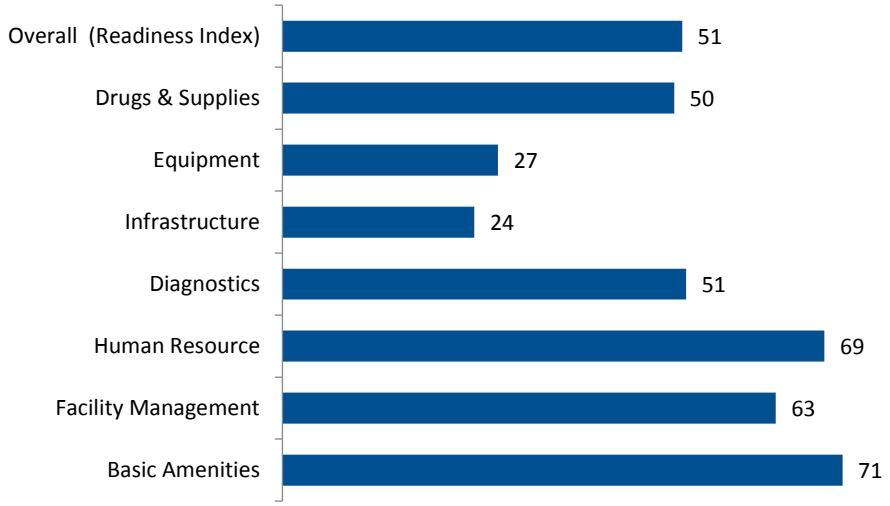
Based on the individual domain scores, readiness index of all 58 THQ Hospitals of Sindh has been calculated, which is 46%. Overall, the THQ Hospitals scored minimum in the domains of Equipment (19%), Infrastructure (24%), Human resource (41%), and Medicine and Supplies (50%) (Table 41; Figure 21).

Table 41: General Facility Readiness Index at THQ Hospitals

Mean index

Domains	Mean status at THQ Hospitals (n=58)
	Percentage
Basic amenities	71
Facility management	63
Human resource	69
Diagnostics	51
Infrastructure	24
Equipment	27
Drugs & supplies	50
Readiness Index	**51**

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

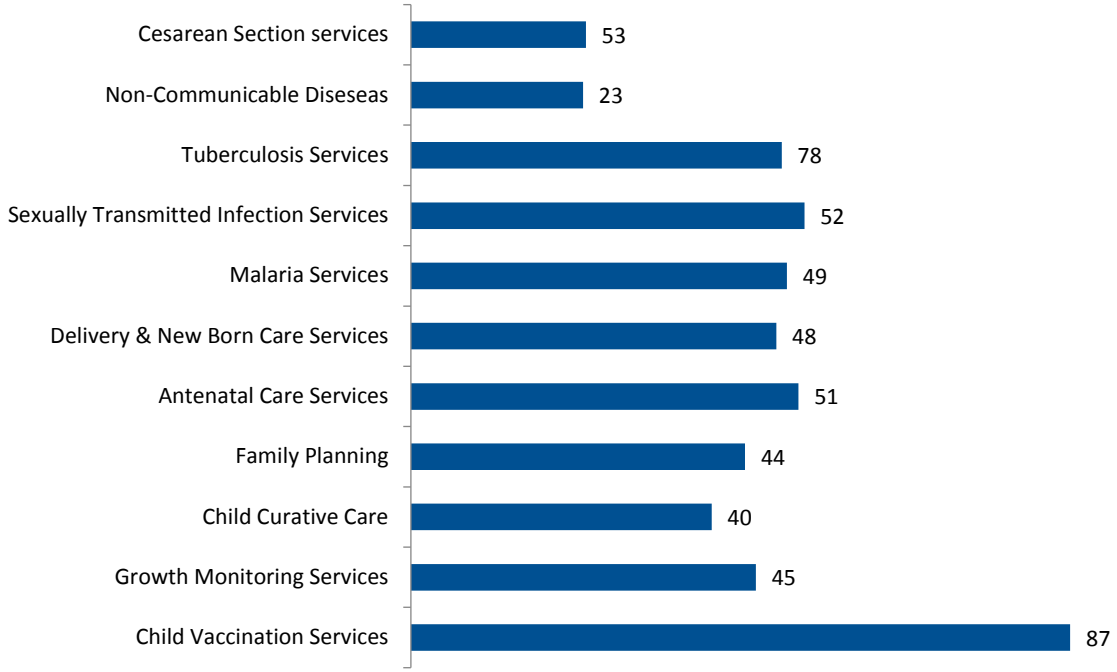


5.2 Annex 2: Service Specific Readiness Indices

Service specific readiness index for each of the individual services 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 22: Service Specific Readiness Scores (in %) of Specialized Services at THQ Hospitals



5.3 Annex 3: Yardstick for Equipment

Table 42: Yardstick for THQ Hospitals Equipment

Equipment Items	Standard Quantity	Equipment Items	Standard Quantity	Equipment Items	Standard Quantity
Management		**Medical Intensive Care Unit**		**Dentistry Ward**	
Medical Superintendent Room		I.C.U Bed	10	Two Crank Fowler Bed	2
Large Office Table With Cabinet	1	Bed Side Locker	10	Bed Side Locker	2
Revolving Chair	1	Suction Machine	2	Settee	1
Office Chair	30	Cardiac Monitor	4	Suction Machine	1
Sofa Set	1	Central Monitoring System 10 Channel	1	Oxygen Flow Meter	1
Computer With LCD Screen Complete Set	1	Crush Trolley	1	Oxygen Cylinder	2
Telephone Set	1	Pulse Oximeter	1	Operation Theater Suite	
Laser jet Printer	1	Dinamap	4	Main Operation Theater	
Fax Machine	1	Sphygmomano-meter	2	Surgeon Room	
Split Air Conditioner	1	Stethoscope	2	Table	1
Office Locker	1	E.C.G Machine	1	Settee	1
Television Set	1	Ventilator	1	Telephone Set	1
Additional MS Room		Infusion Pump	2	X-Ray Illuminator	1
Large Office Glass Table With Cabinet	1	Defibrillator	1	Hooks In Changing Room	6
Office Chair	2	Glucometer	2	Anesthetist Room	
Revolving Chair	1	Nebulizer Machine	1	Office Table	1
Computer With LCD Screen Complete Set	1	Laryngoscope (Set)	2	Office Chair	1
Telephone Set	1	Refrigerator	1	X-Ray Illuminator	1
Office Locker	1	Steamer	1	Preparation Room	
Deputy MS Room		Instrument Trolley	1	Two Crank Fowler Bed With Drip Stand	2
Large Office Glass Table With Cabinet	1	Cupboard	1	Cardiac Monitor Multifunction	1
Office Chair	4	Split Air Conditioner	1	Dinamap Monitor	1
Revolving Chair	1	Oxygen Flow Meter	6	Oxygen Flow Meter	1

Equipment Items	Standard Quantity	Equipment Items	Standard Quantity	Equipment Items	Standard Quantity
Computer With LCD Screen Complete Set	1	Central Oxygen Line	1	**Patient Hold Room**	
Telephone Set	1	Oxygen Cylinders	6	Two Crank Fowler Bed	2
Office Locker	1	**Duty Doctor Room**		Cardiac Monitor Multifunction	1
Admin Room		Office Table	1	Dinamap	1
Office Table	2	Office Chair	2	Oxygen Flow Meter	1
Office Chair	6	Revolving Chair	1	**Scrub Room**	
Revolving Chair	1	Telephone Set	1	Dispenser For Scrub Solution	1
Desktop Computer With Monitor (Complete Set)	1	X-Ray Illuminator	1	**Utility Store**	
Office Locker	1	Examination Couch	1	Racks	1
Account Room		Stethoscope	1	**Obstetrics & Gynecology Ward**	
Office Table	2	Sphygmomano-meter	1	Anaesthesia Machine With Ventilator	2
Office Chair	4	**Nursing Station**		Hydraulic O.T Table	2
Revolving Chair	1	Revolving Chair	1	Diathermy Machine	2
Desktop Computer With Monitor Complete Set	1	Telephone Set	1	Multipart Monitor	2
Office Locker	2	Cupboard	1	Suction Machine (Heavy Duty)	2
Conference Room		Sphygmomano-meter	1	Overhead Operating Light	2
Conference Table	1	Stethoscope	1	Ambu Bag (Adults)	1
Chair	10	**Locker Rooms Male & Female**		Ambu Bag (Pediatrics)	1
Multimedia	1	Lockers Rack Metal	1	Digital Video Colposcope	1
Screen	1	**Obstetrics & Gynecology**		C.T.G Machine	1
MIS/Computer Room		**Nursing Station**		Hysterectomy Set	2
Desktop Computer With All Accessories	1	Revolving Chairs	1	L.S. Cesarean Section Set	4
Office Table	1	Counter	1	D & C. Set	4
Office Chair	2	Telephone Set	1	D & E Set	4
Library		Sphygmomano-meter	1	Episiotomy Set	4

Equipment Items	Standard Quantity	Equipment Items	Standard Quantity	Equipment Items	Standard Quantity
Book Racks	2	Stethoscope	1	General Surgery Set	2
Chairs	10	Steel Almirah	1	Defibrillator	1
Table	2	File Cabinet	1	Oxygen Flow Meter	6
Telephone Set	1	**Ward**		Oxygen Central Line	1
Emergency & Casualty		Stretcher Trolleys	1	Oxygen Cylinder	4
Reception/ Nursing Station		Wheel Chairs	1	Nitrous Oxide Central Line	1
Revolving Chair	1	Ward Screen	1	Nitrous Oxide Cylinder	2
Telephone Set	1	Dirty Linen Trolley	1	Instrument Trolley (Fixed)	4
Cupboard	1	Two Crank Fowler Bed	10	Instrument Trolley (Adjustable)	2
Sphygmomano-meter	1	Ordinary Beds	10	Surgical Drums	6
Stethoscope	1	Mattress With Cover	20	Instrument Tray	4
RMO Room/s		Bed Side Locker	20	Emergency Resuscitation Trolley	1
Office Table	1	Clean Linen Trolley	1	Split A/C (1 Ton)	1
Office Chair	1	Over The Bed Table	20	Portable Spot Light	1
Revolving Chair	1	Bed Side Bench	20	Normal Delivery Set	2
X-Ray Illuminator	1	Medicine Trolley	1	Vacuum Extractor	1
Examination Couch	1	Weighing Scale	1	Pulse Oximeter	1
Stethoscope	1	Couch For Mother Feed	1	Drip Stand	4
Sphygmomano-meter	1	Drip Stand	16	**General Surgery**	
Diagnostic Set	1	Stainless Steel Bucket	20	Oxygen Flow Meter	3
Medico Legal Officer Room		Urinals	2	Oxygen Central Line	1
Office Table	1	Bedpans	2	Oxygen Cylinder	4
Office Chair	1	**Isolation Rooms**		Nitrous Oxide Central Line	2
Revolving Chair	1	Two Crank Fowler Bed	1	Laryngoscope	2
X-Ray Illuminator	1	Mattress With Cover	1	Pneumatic Tourniquet	1
Examination Couch	1	Bed Side Locker	1	Diathermy Machine	2

Equipment Items	Standard Quantity	Equipment Items	Standard Quantity	Equipment Items	Standard Quantity
Emergency Ward For Male		Over The Bed Table	1	Hydraulic Operating Table	2
Emergency Resuscitation Trolley	1	Bed Side Bench	1	O T Halogen Top Light	2
Multifunction Monitor	1	Medicine Trolley	1	Revolving Stool	2
ECG Machine With Trolley	1	**Treatment Room**		Cardiac Monitor Multifunction	2
Two Crank Fowler Bed	6	Medicine Trolley	1	Minor Set	2
Bed Side Locker	6	Examination Couches	1	Major General Surgery Set	2
Suction Machine	1	Revolving Stool	1	Appendectomy Set	2
Cardiac Monitor	1	Foot Stepper	1	Fine Set For Plastic & Vascular	1
Diagnostic Set	1	Syringe Cutter	1	Urethral Dilators (Set)	1
Pulse Oximeter	1	Suction Machine Portable	1	Oxygen Flow Meter	1
Dinamap	2	X - Ray Illuminator	1	Instrument Trolley	6
Sphygmomano-meter	1	Portable B.P Apparatus	1	Crush Trolley	1
Stethoscope	1	Stretcher Trolley	1	Suction Machine	2
Defibrillator	1	Nebulizer	1	Defibrillator	1
Glucometer	1	Drip Stand	1	X-Ray Illuminator	1
Nebulizer Machine	1	Glucometer	1	Stethoscope	1
Steamer	1	**Medicine Store**		Sphygmoman-ometer	1
Oxygen Flow Meter	4	Racks	2	**E.N.T Surgery**	
Central Oxygen Line	1	**Pantry/Kitchen**		Oxygen Flow Meter	2
Oxygen Cylinder	4	Utensils / Equipment	4	Oxygen Central Line	1
Emergency Ward For Female & Pediatrics		Frying Pan	1	Oxygen Cylinder	4
Two Crank Fowler Bed	4	Cooking Pan	1	Nitrous Oxide Central Line	2
Bed Side Locker	4	Refrigerator	1	Desk Top Microscope	1
Suction Machine	1	Water Cooler	1	Projector Multimedia	1
Cardiac Monitor	2	Food Distribution Trolley	1	Laser Diode Microscope Complete Set	1

Equipment Items	Standard Quantity	Equipment Items	Standard Quantity	Equipment Items	Standard Quantity
Emergency Resuscitation Trolley	1	Stove	1	Plethysmo-graphy Complete Set	1
ECG Machine With Trolley	1	**Labor Room**		Tympanometer	1
Diagnostic Set	1	Multipurpose Monitor	1	Auditory Brain Stem Response Test Meter	1
Pulse Oximeter	2	Suction Machine (Heavy Duty)	1	Rigid Esophago-scope	1
Dinamap	2	Ambu Bag (Adults)	1	Rigid Bronchoscope	1
Sphygmomano-meter	2	Ambu Bag (Pediatrics)	1	Fiberoptic Dilators (Gum Elastic B)	1
Stethoscope	2	Cardiotocograph Machine	1	Stroboscope With Monitor	1
Defibrillator	1	D & C. Set	2	Diathermy Machine	1
Glucometer	1	D & E. Set	2	OT Top Light	1
Nebulizer Machine	1	Episiotomy Set	2	Revolving Stool	2
Steamer	1	Delivery Set	2	Cardiac Monitor Multifunction	1
Oxygen Flow Meter	4	Defibrillator	1	Instrument Trolley	4
Central Oxygen Line	1	Oxygen Flow Meter	4	Crush Trolley	1
Oxygen Cylinder	4	Central Oxygen Line	1	Suction Machine	1
Portable Spot Light	1	Oxygen Cylinders	4	Defibrillator	1
Medicine Store		Nitrous Oxide Cylinder	2	Operating Table	1
Revolving Chair	1	Instrument Trolley	6	Stethoscope	1
Racks For Medicines	2	Medicine Trolley/Tray	1	Sphygmomano-meter	1
Refrigerator	1	Surgical Drums	6	Laryngo-scopes (Set)	2
Portable X-Ray		Emergency Resuscitation Trolley	1	ENT Instrument Set	2
Portable X-Ray Machine 100 Ma	1	Refrigerator	1	Telephone Set	1
X-Ray Castes	6	Portable OT Light	1	Split Unit 1.5 Ton	1
Emergency Operation Theater		Delivery Table	2	Eye Surgery	
O.T Top Light	1	Suction Machine	1	Oxygen Flow Meter	2
O.T Table	1	Baby Running Trolley With Warmer	1	Oxygen Central Line	1
Revolving Stool	1	Normal Delivery Set	2	Oxygen Cylinder	4

Equipment Items	Standard Quantity	Equipment Items	Standard Quantity	Equipment Items	Standard Quantity
Foot Step	1	Vacuum Extractor	1	Nitrous Oxide Central Line	2
Telephone Set	1	Instrument Trolley	1	Slit Lamp	1
Cardiac Monitor Multifunction	1	Pulse Oximeter	4	Direct Ophthalmo-scope	1
Minor Instruments Set	2	Drip Stand	1	Indirect Ophthalmo-scope	1
Dressing Set	2	Foot Stand	2	Phoropter	1
Circumcision Set	1	Stainless Steel Bucket	1	Retinoscope	1
Defibrillator	1	Split A/C (1 Ton)	1	Autorefractors	1
Instrument Trolley	1	**Pediatrics**		A/B Scan	1
Crush Trolley	1	**Reception / Nursing Station**		Autoclave	1
Suction Machine	1	Revolving Chair	1	Surgical Instruments Set	2
X-Ray Illuminator	1	Telephone Set	1	Lensometer/ Lensmeter	1
Stethoscope	1	Cupboard	1	Air Puff (Non-Touch)	1
Sphygmomano-meter	1	Crush Trolley	1	Kerato-meter	1
Surgical Drums	2	Stethoscope	1	Operating Table	1
Oxygen Flow Meter	1	Sphygmomano-meter	1	Phaco Machine	1
Central Oxygen Line	1	**Ward Doctor Room**		Posterior Vitrectomy	1
Central Oxygen Cylinder	2	Office Table	1	Cryo-machine	1
Dressing & Pop Room		Office Chair	1	Surgical Magnet	1
Dressing Trolley	1	Visitor Chair	1	CCT System	1
Minor Instrument Set	1	**Ward**		Surgical Chair	1
Instrument Tray/Trolley	1	Two Crank Fowler Bed	4	Operating Microscope	1
Portable Spot Light	1	Ordinary Beds	10	Revolving Stool	1
Examination Couch	1	Mattress With Cover	14	Telephone Set	1
P.O.P Cutter	1	Bedside Lockers	14	Cardiac Monitor Multifunction	1
Scrub Room		Over The Bed Table	14	Instrument Trolley	4
Dispenser For Scrub Solution	1	Bed Side Bench	14	Crush Trolley	1
Outpatient Services		Glucometer	2	X-Ray Illuminator	1

Equipment Items	Standard Quantity	Equipment Items	Standard Quantity	Equipment Items	Standard Quantity
Medical And Chest OPD		Weighing Machine	1	Diathermy Machine	1
Office Table	1	Portable B.P Apparatus	2	Defibrillator	1
Office Chair	2	Drip Stand	10	Stethoscope,	1
Revolving Chair	1	X- Ray Illuminator	1	Sphygmomano-meter	1
Telephone Set	1	Medicine Trolley	1	Laryngo-scopes (Set)	1
X-Ray Illuminator	1	Stainless Steel Bucket	10	**Recovery/Surgical ICU**	
Examination Couch	1	Portable Screens	2	Multi purpose Monitor	2
Stethoscope	1	Ward Screen	2	ECG Machine	1
Sphygmomano-meter	1	**Isolation Room**		Defibrillator With ECG Display	1
Diagnostic Set	1	Two Crank Fowler Bed	1	Suction Machine (Heavy Duty)	2
Weighing Scale	1	Bed Side Locker	1	Kidney Tray	4
Height Scale	1	Mattress With Cover	1	Infusion Pump	2
Obstetrics & Gynecology OPD		Over The Bed Table	1	Ventilator	1
Office Table	1	Bed Side Bench	1	Emergency Resuscitation Trolley	1
Office Chair	2	Medicine Trolley	1	Two Crank Fowler Beds	6
Revolving Chair	1	**Treatment Room**		Bedside Lockers	6
Telephone Set	1	Medicine Trolley	1	Mattress With Cover	6
X-Ray Illuminator	1	Two Crank Fowler Bed	1	Drip Stand	6
Examination Couch	1	Examination Table	1	Portable X-Ray Machine 100 Ma	1
Stethoscope,	1	Foot Stepper	1	A/C Split (1.5 Ton)	1
Sphygmomano-meter	1	Bed Side Locker	1	**Central Sterilization Services Department**	
Diagnostic Set	1	Syringe Cutter	1	Autoclave Double Door	1
Vaginal Speculum	1	Suction Machine Portable	1	Autoclave Double Steam. Single Door	1
Portable Spot Light	1	X - Ray Illuminator	1	Disinfecting Instrument Washer Double Door	1

Equipment Items	Standard Quantity	Equipment Items	Standard Quantity	Equipment Items	Standard Quantity
Dressing Set	2	Portable B.P Apparatus	1	Rotary Sealing Machine With Work Station	1
Pediatrics OPD		Stretcher Trolley	1	Instrument Cleaner Super Sonic	1
Office Table	1	Nebulizer	1	Auto Fine Lumen Cleaner	1
Office Chair	2	Drip Stand	1	Dry Cabinet Single Door For Anesthesia	1
Revolving Chair	1	Glucometer	1	Water Distiller Complete	1
Telephone Set	1	Racks (Medicine Store)	1	**Clean/ Steriliser Area**	
X-Ray Illuminator	1	**Pantry/Kitchen**		**Diagnostics**	
Examination Couch	1	Utensils / Equipment	1	**Pathology Department**	
Stethoscope	1	Frying Pan	1	**Sample Collection Room**	
Sphygmomano-meter	1	Cooking Pan	1	Collection Chair	1
Diagnostic Set	1	Refrigerator	1	Examination Couch	1
Baby Weighing Scale	1	Water Cooler	1	Blood Sample Rotator	1
Dermatology OPD		Food Distribution Trolley	1	Rack For Tubes	1
Office Table	1	Stove	1	Syringe Cutter	1
Office Chair	2	**Waiting Area**		**Pathologist Office**	
Revolving Chair	1	Chairs	4	Office Table	1
Telephone Set	1	**New-born & NICU**		Office Chair	1
X-Ray Illuminator	1	Baby Incubator	4	Revolving Chair	1
Examination Couch	1	Multipurpose Monitors	4	Computer With Monitor Complete Set	1
Stethoscope	1	Pulse Oximeter	2	Examination Couch	1
Sphygmomano-meter	1	Infusion Pumps	2	Office Locker	1
Diagnostic Set	1	Suction Machine (Heavy Duty)	2	Split A/C	1
Weighing Scale	1	Phototherapy Unit	2	**Haematology Section**	
Height Scale	1	Ventilator	1	Haematology Analyser	1
Dressing Trolley	1	Baby Weighing Scale	1	Microscope	2

Equipment Items	Standard Quantity	Equipment Items	Standard Quantity	Equipment Items	Standard Quantity
Portable Light	1	Radiant Warmer	1	Refrigerator	1
Examination Lens	1	Overhead Warmer	1	Hb Electro-phoresis Fully Automatic	1
Surgical OPD		Resuscitation Trolley	1	Blood Sample Rotator	1
Office Table	1	ECG Machine	1	Juster Fixed	1
Office Chair	2	Defibrillator With ECG Display	1	Juster Adjustable	1
Revolving Chair	1	Medical Trolley	1	Modified Microtome	1
Telephone Set	1	Lactometer	1	Micro pipettes	1
X-Ray Illuminator	1	Nebulizer	1	Electronic Balance	1
Examination Couch & Privacy	1	Baby Cot	4	Centrifuge Machine	1
Stethoscope,	1	Ward Screen	1	Set Of Glassware	1
Sphygmomano-meter	1	Drip Stand	6	Rack For Tubes	2
Diagnostic Set	1	**Pediatric Nursery**		Slides Rack	1
Proctoscopes (Set)	1	Baby Cot	4	Office Table	1
Portable Spot Light	1	Two Crank Fowler Bed	6	Revolving Chair	1
Dressing Trolley/Tray	1	Mattress With Cover	6	Revolving Stool	2
Dental OPD		Bedside Locker	6	Split Air Conditioner	1
Chair	1	Drip Stand	6	**Microbiology Section**	
Light	1	Multipurpose Monitors	2	Office Table	1
Hand Piece Unit	1	Infusion Pumps	2	Revolving Chair	2
Suction Machine	1	Suction Machine	2	Revolving Stool	2
Compressor	1	**Surgical**		Microscope	2
Dental Hand Instruments (Set)	2	**Reception / Nursing Station**		Centrifuge Machine	1
Aseptic Trolley	1	Revolving Chair	1	Incubator	1
Dental Autoclave	1	Telephone Set	1	Oven	1
Amalgamator	1	Cupboard	1	Autoclave	1
Dental X-Ray Unit	1	Crush Trolley	1	Computer With Monitor Complete Set	1
Intraoral X-Ray Film Processor	1	Stethoscope	2	Split Air Conditioner	1

Equipment Items	Standard Quantity	Equipment Items	Standard Quantity	Equipment Items	Standard Quantity
X-Ray View Box	1	Sphygmomano-meter	2	Refrigerator	1
Lead Apron	1	Emergency Resuscitation Trolley/Tray	1	Urine Analyser	1
Ultrasonic Scalar	1	Glucometer	1	Water Bath	1
Dental Operating Stool	1	Weighing Machine	1	Slides Rack	2
Ultraviolet Sterilizer	1	**Surgical Ward Male**		**Chemistry Section**	
Eye OPD		Drip Stand	10	Office Table	1
Office Table	1	Stainless Steel Bucket	10	Revolving Chair	2
Office Chair	2	Urinals	2	Revolving Stool	2
Revolving Chair	1	Bedpans	2	Refrigerator	1
Telephone Set	1	Two Crank Fowler Bed	3	Split Air Conditioner	1
X-Ray Illuminator	1	Ordinary Patient Bed	6	Centrifuge Machine	1
Examination Couch	1	Bed Side Locker	9	Water Bath	1
Stethoscope	1	Mattress With Cover	9	Biochemistry Analyser	1
Sphygmomano-meter	1	Settee	1	Arterial Blood Gases Machine	1
Diagnostic Set	1	Suction Machine	1	Electrolytes Analyser	1
Refraction Set	1	Oxygen Flow Meter	2	Electronic Balance	1
Slit Lamp	1	Oxygen Central Supply Line	1	**Blood Bank**	
Snellen Chart	1	Oxygen Cylinder	4	Office Table	1
Field Analyser	1	Ward Screen	2	Revolving Chair	2
Ophthalmoscope	1	**Surgical Ward Female**		Examination Couch	2
Retinoscope	1	Two Crank Fowler Bed	3	Blood Storage Refrigerator	1
A Scan	1	Ordinary Patient Bed	6	Water Bath	1
Weighing Scale	1	Mattress With Cover	9	Microscope	1
ENT OPD		Bed Side Locker	9	Hematology Analyser	1
Office Table	1	Settee	1	Blood Bag Sealer	1
Office Chair	2	Suction Machine	1	Platelet Agitator	1
Revolving Chair	1	Glucometer	1	Chelation Therapy Infusion Pump	1

Equipment Items	Standard Quantity	Equipment Items	Standard Quantity	Equipment Items	Standard Quantity
Telephone Set	1	Oxygen With Flow Meter	2	Hb Electro-phoresis (Fully Automatic)	1
X-Ray Illuminator	1	Drip Stand	9	Fresh Plasma Separator	1
Examination Couch	1	Stainless Steel Bucket	9	Chemistry Analyser	1
Stethoscope	1	Urinals	2	Incubator	1
Sphygmomano-meter	1	Bedpans	2	Blood Bag Rotator	1
Diagnostic ENT Set	1	Ward Screen	2	Digital Blood Shaker/Flow	1
In-Patient Services		**Dermatology**		Precision Calibration Weight For Shaker	1
Medical Ward (Male)		**Derma/Burn Ward (Male)**		Centrifuge Machine	1
Nursing Station		Glucometer	1	Centrifugal Cell Washer (Electronic)	1
Revolving Chair	1	Weighing Machine	1	Hot Air Oven	1
Telephone Set	1	Portable B.P Apparatus	1	Ultrasound Water Bath	1
Cupboard	1	Emergency Resuscitation Trolley	1	Sphygmomano-meter	1
Sphygmomano-meter	1	Drip Stand	4	Stethoscope	1
Stethoscope	1	X - Ray Illuminator	1	Weighing Scale	1
Ward		Suction Machine	1	Spring Scale 500 Ml	1
Two Crank Fowler Bed	4	Laryngoscopes (Set)	2	Ordinary Fridge	1
Ordinary Patient Bed	6	Infusion Pump	1	Split Air Conditioner	1
Bed Side Locker	10	Defibrillator	1	**Laboratory In Charge Room**	
Mattress With Cover	10	Ventilator	1	Office Table	1
Over The Bed Table	10	Dressing Set	2	Office Chair	1
Bed Side Bench	10	Refrigerator	1	Revolving Chair	1
Medicine Trolley	1	Two Crank Fowler Bed	4	Computer With Monitor Complete Set	1
Steel Almirah	1	Mattress With Cover	4	Office Locker	1
Ward Screen	1	Bed Side Locker	4	**Staff Room**	
Stretcher	1	Bed Side Bench	4	Office Table	1

Equipment Items	Standard Quantity	Equipment Items	Standard Quantity	Equipment Items	Standard Quantity
Wheel Chair	1	Split A/C (1 Ton)	1	Chair	2
Drip Stand	10	Ward Screen	2	Office Locker	1
Stainless Steel Bucket	10	Urinal	2	**Radiology Department**	
Urinal	2	Bedpan	2	**X-Ray / Dark Room**	
Bedpan	2	**Derma/Burn Ward (Female)**		X-Ray Machine 500 Complete Set	1
Medical Ward Female		Glucometer	1	X-Ray Machine 800 Complete Set	1
Duty Doctor Room		Weighing Machine	1	Cassettes 8*10	1
Office Table	1	Portable B.P Apparatus	1	Cassettes 10*12	1
Office Chair	2	Emergency Resuscitation Trolley	1	Cassettes 12*15	1
Revolving Chair	1	Drip Stand	4	Cassettes 14*17	1
X-Ray Illuminator	1	X -Ray Illuminator	1	X-Ray Illuminator	1
Stethoscope	1	Suction Machine	1	Mammo-graphy Equipment	1
Sphygmomano-meter	1	Laryngoscopes (Set)	1	Tank For Fixer, Developer & Running Water	1
Examination Couch	1	Infusion Pump	2	Computer With Monitor Complete Set	1
Office Table	1	Defibrillator	1	Laser Jet Printer	1
Nursing Station		Ventilator	1	Office Table	1
Revolving Chair	1	Dressing Set	2	Office Chair	1
Telephone Set	1	Refrigerator	1	Revolving Chair	1
Cupboard	1	Two Crank Fowler Bed	4	Revolving Stool	1
Sphygmomano-meter	1	Mattress With Cover	4	Ultrasound Room	
Stethoscope	1	Bed Side Locker	4	Color Doppler Echo-cardiograph	1
Telephone Set	1	Bed Side Bench	4	Grey Scale Ultrasound	1
Ward		Split A/C (1 Ton)	1	Office Table	1
Two Crank Fowler Bed	4	Ward Screen	2	Office Chair	2
Ordinary Bed	6	**Eye & ENT**		Revolving Chair	1
Bed Side Locker	10	**ENT & Eye Ward Male**		Examination Couch	1

Equipment Items	Standard Quantity	Equipment Items	Standard Quantity	Equipment Items	Standard Quantity
Mattress With Cover	10	**Reception / Nursing Station**		**ECG / ETT Room**	
Over The Bed Table	10	Revolving Chair	1	ECG Machine	1
Bed Side Bench	10	Telephone Set	1	ETT Machine	1
Medicine Trolley	1	Cupboard	1	Office Table	1
Steel Almirah	1	Crush Trolley	1	Office Chair	2
Ward Screen	1	Stethoscope	1	Revolving Chair	1
Stretcher	1	Sphygmomano-meter	1	Examination Couch	1
Wheel Chair	1	**Ward**		**Medicine Store**	
Drip Stand	10	Two Crank Fowler Bed	4	Revolving Chair	1
Urinal	2	Ordinary Patient Bed	4	Rack For Medicines	4
Bedpan	2	Mattress With Cover	8	Refrigerator	1
Stainless Steel Bucket	10	Bed Side Locker	8	Computer With Monitor Complete Set	1
Ward Screen	1	Settee	1	Office Table	1
Isolation Room		Suction Machine	1	Office Chair	2
Two Crank Fowler Bed	1	Oxygen Flow Meter	1	Telephone Set	1
Bed Side Locker	1	Oxygen Central Supply Line	1	**Other Items**	
Settee	1	Oxygen Cylinder	1	Submersible Pump For Tube Well	1
Oxygen Cylinder With Flow Meter	1	Drip Stand	8	Transfer Pump From Under Ground Tank (UGT) To Over Head Tank (OHT)	1
Split Air Conditioner	1	Ward Screen	2	Sub-Station Equipment	1
Cardiac Monitor Multi-Function	1	**ENT & Eye Ward (Female)**		Cold Storage (For Morgue)	1
Suction Machine	1	**Reception / Nursing Station**		Central Liquid Oxygen Plant	1
Treatment Room		Revolving Chair	1	Incinerator	1
Two Crank Fowler Bed	1	Telephone Set	1	**Automobile**	
Bed Side Locker	1	Cupboard	1	Ambulance/s	2
Settee	1	Crush Trolley	1		

Equipment Items	Standard Quantity	Equipment Items	Standard Quantity	Equipment Items	Standard Quantity
Electrical		Mattress With Cover	8	Drip Stand	8
Suction Machine	1	Bed Side Locker	8	Ward Screen	1
Oxygen Flow Meter	1	Settee	1	Generator 550 KV	1
Syringe Cutter	1	Suction Machine	1	Generator Installation	1
Drug Racks (Drug Room)	1	Oxygen Flow Meter	2	**Security**	
Stethoscope	1	Oxygen Central Supply Line	1	Office Table	1
Sphygmomano-meter	1	Oxygen Cylinder	2		
Ward		Ordinary Patient Bed	4		
Two Crank Fowler Bed	4	Lift	1		

5.4 Annex 4: List of Respondents

Table 43: List of Respondents for THQ Hospitals

THQ Hospital	Name of Respondent	Designation
	Badin	
THQH Golarchi	Dr Abdul Raheel Arai	Medical Superintendent
THQH Matli	Dr Muhammad Azam	Medical Superintendent
THQH Tando Bago	Dr Zakir Hussain	Medical Superintendent
	Dadu	
THQH Johi	Dr. Aziz Ahmed Chandi	Medical Superintendent
THQH Khairpur Nathan Shah	Dr. Maqsood Ahmed Abbasi	Medical Superintendent
THQH Mehar	Dr. Imam Ud Din Khoso	Medical Superintendent
	Ghotki	
THQH Daharki	Dr. Per Manand	Medical Superintendent
THQH Ghotki	Dr. Mushtaq Ahmed Baj	Medical Superintendent
THQH Sheikh Hamdan	Dr. Fayz Ali Rajput	Medical Superintendent
THQH Ubauro	Dr. Mumtaz Hussain Dahar	Medical Superintendent
	Hyderabad	
THQH CDF	Dr. Muhammad Usman Haroon	Medical Superintendent
THQH Hazrat Khadija	Dr. Abdul Salam	Medical Officer
THQH Qasimabad	Dr. Ashraf Bhurgari	Medical Superintendent
THQH Kohsar	Dr. Ali Nawaz Memon	Medical Superintendent
THQH Paretabad	Dr. Muhammad Saleem	Medical Superintendent
THQH Shah Bhitai Latifabad	Dr. Muhammad Aslam Sheikh	Medical Superintendent
THQH Tanga Stand	Dr. Ghufran Ahmed	Medical Superintendent
	Jacobabad	
THQH Thul	Dr. Amjad Ali Shah Bukhari	Medical Superintendent
THQH Garhi Khairo	Dr. Sawan Sheikh	Casualty Medical Officer
	Jamshoro	
THQH Manjhand	Dr. Muhammad Sadique	Medical Superintendent
THQH Sehwan	Dr. Moinuddin Siddique	Medical Superintendent
THQH Thano Bula Khan	Dr. Tek Chand	Medical Superintendent

THQ Hospital	Name of Respondent	Designation
	Qambar Shahdadkot	
THQH Qambar	Dr. Gul Muhammad	Medical Superintendent
THQH Miro Khan	Dr. Abdul Sattar Gopi	Medical Superintendent
THQH Shahdadkot	Dr. Najam Ud Din	Medical Superintendent
THQH Warah	Dr. Iman Ali Tonio	Medical Superintendent
	Kashmore	
THQH Kandhkot	Dr. Nazir Ahmed Awan	Medical Superintendent
THQH Kashmore	Dr. Liaquat Ali	Medical Superintendent
	Khairpur	
THQH Kot Diji	Dr. Mir Abid Raza Tal	Medical Superintendent
	Larkana	
THQH Arija	Dr. Muhammad Iqbal Jagerani	Medical Superintendent
THQH Dogri	Dr. Ahmed Ali Shah	Medical Superintendent
THQH Ratodero	Dr. Imdad Ali	Medical Superintendent
	Matiyari	
THQH Hala	Dr. Muhammad Memon	Medical Superintendent
THQH Saeedabad	Dr. Imtiaz Ahmed Kaki	Medical Superintendent
	Mirpur Khas	
THQH Kot Ghulam Muhammad	Dr. Muhammad Ashraf	Medical Superintendent
THQH Digri	Dr. Dazalur Rehman	Medical Superintendent
	Naushahro feroze	
THQH Kandiaro	Dr. Muhammad Malook Channar	Medical Superintendent
THQH Moro	Dr. Abdul Karim Dahri	Medical Superintendent
	Sanghar	
THQH Sinjhoro	Dr. Noor Muhammad Mangrio	Medical Superintendent
THQH Khipro	Dr. Liaquat Ali	Medical Superintendent
THQH Tando Adam	Dr. Muhammad Ameer	Medical Superintendent
	Shikarpur	
THQH Lakhi	Dr. Saeed Zubair Ali	Medical Superintendent
THQH Madeji	Dr. Muhammad Nawaz Mahar	Medical Superintendent
THQH Ganga Bai	Dr. Vengus Ayaz	Sr. Women Medical Officer

THQ Hospital	Name of Respondent	Designation
Shaheed Benazirabad		
THQH Sakrand	Dr. Moinuddin	Medical Superintendent
Sujawal		
THQH Jati	Dr. Rasool Bux Magsi	Medical Superintendent
THQH Mirpur Bathoro	Dr. Shabbir Ahmed Samm	Medical Superintendent
THQH Sujawal	Dr. Amir Ali Shah	Medical Superintendent
Sukkur		
THQH Bagarji	Dr. Abdul Sattar	Medical Superintendent
THQH Rohri	Dr. Muhammad Hafeez Mughal	Medical Superintendent
THQH Pano Aqil	Dr. Altaf Hussain Shah	Medical Superintendent
Tharparkar		
THQH Chachro	Dr. Mohan Lal	Medical Superintendent
THQH Diplo	Dr. Manzoor Ahmed Memoon	Medical Superintendent
THQH Nagarparkar	Dr. Allah Dino	Medical Superintendent
Thatta		
THQH MP Sakro	Dr. M. Sammi Bhutto	Medical Superintendent
Umerkot		
THQH Kunri	Dr. Metha Ram	Medical Superintendent
THQH Pithoro	Dr. Har Kirshan Khatri	Medical Superintendent
THQH Samaro	Dr. Mohan R Talwani	Medical Superintendent

References

Adams, J., Bartram, J., & Chartier, Y. (2008). *Essential environmental health standards in health care.* Geneva: World Health Organization.

BMA Central Consultants and Specialists Committee. (July 2008). *The role of the consultant.* BMA.

Creel, L. C., Sass, J. V., & Yinger, N. V. (2002). *Client Centered Quality: Client's Perspectives and Barriers to Receiving Care.* Washington: Population Council and Population Reference Bureau.

Department of Health, Government of Sindh. (2014). *Essential Medicines List.* USAID DELIVER.

Department of Health-Government of Sindh. (2010). Human Resource Yardsticks.

Frost, S. (n.d.). *The Importance of Training & Development in the Workplace*. Retrieved from Houston Chronicle: http://smallbusiness.chron.com/importance-training-development-workplace-10321.html= Retrieved on 2nd Dec, 2015

Garrison, K., Caiola, N., Sullivan, R., & Lyman, P. (2004). *Supervising Healthcare Services: Improving the Performance of People.* Baltimore: JHPIEGO Corporation.

Goldman, D., Vaiana, M., & Romley, J. (2010). The Emerging Importance of Patient Amenities in Hospital Care. *New England Journal of Medicine*, 363: 2185-2187.

Gupta, N., & Dal Poz, M. R. (2009). Assessment of Human Resources for health using cross national comparison of facility surveys in six countries. *Human Resources for Health 2009 7:22*.

Howard, G., Bogh, C., Goldstein, G., Morgan, J., Pruss, A., Shaw, R., & Teuton, J. (2002). *Healthy Villages- A guide for communities and community health workers.* Geneva: World Health Organization.

Kabene, S. M., Orchard, C., Howard, J. M., Soriano, M. A., & Leduc, R. (2006). The importance of human resources management in health care: a global context. *Human Resources for Health 2006 4:20*.

Lagarde, M., & Palmer, N. (2008). The impact of user fees on health service utilization in low- and middle-income countries:how strong is the evidence. *Bulletin of the World Health Organization*, 86: 839-48.

Murray, C. J., & Evans, D. (2003). *Health Systems Performance Assessment- Debates, Methods and Empiricism.* Geneva: world Health Organization.

National MNCH Program, Government of Pakistan. (2010-2011). *Health Facility Assessment Survey - Provincial Report of Sindh.*

Parand, A., Dopson, S., Renz, A., & Vincent, C. (2014). The role of hospital managers in qualityand patient safety: a systematic review. *BMJ Open 2014; 4(9): e005055*.

PDSSP-TAMA, Government of the Punjab. (June 2010). *Induction and Retention of Nurses: Resolving of the Planning Mismatch.* PDSPP-TAMA, Government of the Punjab.

Picker Institute Europe. (2015, November 30). *Using patient feedback*. Retrieved from http://www.nhssurveys.org/Filestore/documents/QIFull.pdf- Retrieved on 30th Nov,2015

Savigny, D. d., & Adam, T. (2009). *Systems thinking for health systems strengthening.* Geneva: Alliance for Health Policy and Systems Research-World Health Organization.

Shaw, C. (2003). *How can hospital performance be measured and monitored?* Retrieved from WHO Regional Office for Europe (Health Evidence Network Report): http://www.euro.who.int/__data/assets/pdf_file/0009/74718/E82975.pdf- Accessed on 30th nov, 2015

Sodani, P. R., Kumar, R. K., & Sharma, L. (2010). Measuring Patient Satisfaction: A Case Study to Improve Quality of Care at Public Health Facilities. *Indian Journal of Community Medicine*, 35(1): 52-56.

Technical Resource Facility. (2011-2012). *Health Facility Assessment-Pakistan.* Technical Resource Facility.

The World Bank. (2015). *Diagnostic Services*. Retrieved from http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTHEALTHNUTRITIONANDPOPULATION/EXTHSD/0,,print:Y~isCURL:Y~contentMDK:20190820~menuPK:438812~pagePK:148956~piPK:216618~theSitePK:376793,00.html- Retrieved on 3rd Dec, 2015

TriStar Summit Medical Center. (2014). *Standard Precautions*. Retrieved from http://tristarsummit.com/hl/?/2010812166/Standard-Precautions- Retrieved on 7th Dec, 2015

USAID. (2012). *USAID Technical Assistance Unit for Health-Human Resource Strategy Department of Health, Government of Sindh.*

Wesley Medical Imaging. (2016). *Diagnostic imaging definitions*. Retrieved from http://www.wesleymedicalimaging.com.au/diagnostic-imaging.php

WHO Regional Office for South east Asia and Western Pacific. (2004). *Practical Guidelines for Infection Control in Health care.* World Health Organization.

WHO,UNICEF. (n.d.). *Improved and unimproved water sources and sanitation facilities*. Retrieved from WHO/UNICEF Joint Monitoring Programme (JMP) for Water Supply and Sanitation: http://www.wssinfo.org/definitions-methods/watsan-categories/

World Health Organization. (2005). Management of CVD in low resource settings- facility capacity assessment. Geneva, Switzerland.

World Health Organization. (2006). *Working together for health.* Geneva: WHO.

World Health Organization. (2015, June). *Blood safety and availability- Fact sheet N 279*. Retrieved from WHO-Media Centre: http://www.who.int/mediacentre/factsheets/fs279/en/

World Health Organization. (2016). *Medical devices-Definitions*. Retrieved from http://www.who.int/medical_devices/definitions/en/

CONTECH INTERNATIONAL

The Health Systems Strengthening Component of USAID's Maternal and Child Health (MCH) Program is funded by the United States Agency for International Development (USAID) and implemented by JSI Research & Training Institute, Inc., with Contech International, Rural Support Programmes Network (RSPN), and Heartfile as Consortium Partners.