KHYBER PAKHTUNKHWA HUMAN RESOURCE FOR HEALTH

November 2015

Office of Research, Innovation & Commercialization (ORIC)

Khyber Medical University Peshawar

Department of Health, Khyber Pakhtunkhwa

World Health Organization (WHO)

Acknowledgment

The Office of Research Innovation & Commercialization (ORIC), Khyber Medical University (KMU), Peshawar and department of Health Khyber Pakhtunkhwa conducted the study of Human Resource for Health Profile for the province of Khyber Pakhtunkhwa (KPK) with the financial and technical support from World Health Organization (WHO) Pakistan.

The study was made possible due to the sincere efforts and interest of Vice Chancellor, KMU; Prof. Dr. Muhammad Hafizullah to create first profile of Human Resources for Health of KPK province.

Cooperation of all Officers, Healthcare Managers, Focal Persons and all stakeholders of public and private sector is highly appreciated.

We are particularly thankful to Dr. Pervez Kamal Khan, Director General Health Services KPK, Dr. Kamran Yousaf Medical Superintendent, Civil Hospital Akora Khattak, Health Department KPK and Director KPK Health Care Commission for their hard work, energy and time devoted to this study.

We are grateful for the cooperation from WHO Pakistan leadership and senior management, more especially the WHO representative, Dr. Michel Thieren, Dr. Zulfiqar Khan, Dr. Saeed Akbar Khan and Dr. Bilal Behrawar Khan for facilitating the research team.

Sincerely,

Dr. Zia Ul Haq (Principal Investigator)
PhD Public Health (Glasgow), MPH (Pak), MBBS (Pak)
Associate Professor of Public Health & Director- Office of Research Innovation & Commercialization (ORIC), Khyber Medical University, Peshawar, Pakistan
Hon. Clinical Senior Lecturer, Institute of Health & Well-being, University of Glasgow, UK
drzia@kmu.edu.pk; zia.ulhaq@glasgow.ac.uk
+92 91 9217258, +92 333 925 8763

Preface

Provincial Health department aims to provide healthcare services to the people of Khyber Pakhtunkhwa at their doorsteps with equity and uniform coverage. Health being a unique entity, no compromise can be made in achieving its goals. In order to achieve Sustainable Development Goals 2030; political situation, geographical condition, cultural beliefs and health needs in province should be given due consideration. Keeping in view the emerging health issues due to global driving forces and to improve health status of people, various aspects of Health Human Resource (HRH) must be studied. The health staff should have the capacity and knowledge relating to their jobs and demonstrate best practice regarding provision of healthcare services. HRH must be available and distributed in all parts of the province in required number sufficient to satisfy needs and acquire the desired goals. Other resources like equipment cannot be utilized without the availability of desired quality and quantity of human resource. Large amount of equipment worth billions of rupees, are lying in the district stores of Khyber Pakhtunkwa (KPK) as "Not in Use". Most of these are new and not installed. Major reason given by the district health officers is the non-availability of HRH.

Pakistan is the 6th most populous country of the world with an estimated current population of 199 million in 2014, which is 2.5% of the world's population. Population of Khyber Pakhtunkhwa is 27,548,000. According to the World Health Report, Pakistan is among the 57 countries with acute HRH shortage. In order to solve the HRH shortage in KPK, the first step is to map it in context of health needs, political, cultural, geographical condition and attainment of the overall goals. This information will be used to make plans and policies for sustainable condition of proper HRH availability in all parts of the province. World Health Organization's health planning and management tool "Workload Indicators of Staffing Need" (WISN) can be applied by managers in decision making of number and types based on health worker workload, with activity and time standards.

EXECTIVE SUMMARY

Healthcare is a basic human right and a persistent need of life. A number of resources are required for healthcare provision. *Human resource for Health* (HRH) is the most important, living resource without which healthcare service cannot be imagined. All other resources like funds, drugs, vehicles and infrastructures, diagnostics and other equipment will work only when properly utilized by a trained health worker.

Population of Khyber Pakhtunkhwa (KPK) is 27,548,000 (estimated for 2014) with urban 5170,000 and rural 22,378,000. Area is 74,521 square meter. For administrative purpose it is divided into 26 districts after the addition of Tor Ghar, upper and lower Kohistan in the recent past.

The proposed method of conducting this study was presented by Dr. Zia Ul Haq (principal investigator-Associate Prof of Public Health & Director ORIC KMU) in a meeting which was attended by Prof. Dr Muhammad Hafizullah (Vice Chancellor, KMU), Dr. Zulfiqar Khan (Coordinator -Health System Strengthening, WHO Country Office), Dr. Saeed Akbar Khan (Team Leader, WHO KPK) and Dr. Parvez Kamal (DG Health KPK).

We found that doctors of KPK (with basic degree only) registered with Pakistan Medical & Dental Council (PMDC) up to 26th October, 2015 are 18,231 (12,162 male doctors and 6069 female doctors). Doctors (with basic degree only) are 0.66 per thousand population of KPK. Number of doctors registered with PMDC as specialists, till same date, in the province of KPK is 4721 (3692 male and 1029 female). Sanctioned posts of doctors in Health department KPK are 4679, filled posts are 2650 and vacant posts are 2143. Percentage of filled posts is 56.6%. There are 0.17 doctors of public sector per 1000 population in the province. Total doctors working in private sectors registered with KPK Health Care Commission (HCC) until 2014 are 3607. However, registration of many more doctors in private sector is under progress and we will be able to report it in 3-4 weeks time.

Dental surgeons having basic degree only, registered with PMDC, are 2265 (1020 male and 1245 female). Dental surgeons registered as specialist till the same date are 296 (222 male and 74 female). Number of dental surgeons (filled posts) in public sector health facilities are 56. In addition, Khyber College of Dentistry has 77 dental surgeons working as teaching staff. Dental section of Ayub Medical

College, Abbottabad has 6 BDS doctors as teaching staff. Dental surgeons registered in private sectors, by KP**, HCC** are 234. Further registration in private sector is in progress.

Pharmacists working in public sector are 47, including chief pharmacists 4, senior pharmacists 4, pharmacists 13 and drug inspectors 26. At present there is no valid data of pharmacists in private sector. They are mostly unemployed or under employed.

Total sanctioned posts for nurses in public sector are 5611, with 3865 filled and 1746 vacant posts. Filled posts are 68.9 %. These are charge nurses 3492, male nurses 200, head nurses (BPS 17) 116, nursing superintendents 13 and sister tutors 44. There are 13 schools of nursing and 2 public health schools in the province.

Community Health workers that include both Lady Health Workers (LHW) and community mid wives are 12064 in the province. They are working for primary healthcare, family planning and MNCH services.

Combined number of paramedics including nurses and pharmacists in public sector is 26,321 (1.00 per 1000 population).

In private sector, KPK Health Care Commission (KP, HCC), previously known as Health Regulatory Authority (HRA) sector registered; total doctors 3607, General Practitioner 689, Hakims 290, Homeopathic doctors 692. They have registered 650 hospitals, 25 maternity homes, 650 laboratories and 12 CT Scan centers. HCC in collaboration with the primary investigator has now planned to collect information about all aspects of HRH in different sectors in all parts of the province in order to regulate their number and quality. Office of Research Innovation and Commercialization (ORIC), KMU has agreed for shared efforts with HCC to achieve the desired goal. Almost complete information of all HRH in the province will be gained within a month, till the Mid of January, 2016, insha'ALLAH.

There is some HRH information system of public sector but is not enough to meet the need of health planning in the province. There no HRH information system at all for the private sector. The concerned authorities have no required knowledge about HRH situation in all parts of the province and consequently fail to manage this issue. This results in loss of large amount of funds and other resources.

Health indicators of the province are poor and Millennium Development Goals were not achieved as right number of properly trained health workforce is not available to fulfill the health needs in all parts of the province.

KPK has a large public sector healthcare system with network of health facilities extended to all parts of province. A large number of these facilities in the rural areas are non-functional due to unavailability of HRH. Population in the rural areas which is four times more than that of urban areas is deprived of healthcare services. HRH are more concentrated in the urban areas with a much smaller population. This results in multiple issues in healthcare provision for health workers, patients, their families and the government. Due to HRH crisis in periphery, people seek healthcare in big cities where health staff are overworked and unable to provide quality care. Families face catastrophic health expenditure, traffic and transportation difficulties and accommodation problems. They are often left with no satisfactory solution to their problem.

This research provides further evidences to highlight the need of HRH system in the province of KPK. In order to solve HRH crisis the first step is to improve Health System Governance. A dedicated HRH department needs to be established in order to achieve desired standards of HRH in right quality and number in all parts of province. It is anticipated that the findings of this report will provide a foundation for future research, both in terms of corroborating the findings and investigating new questions which have now emerged from this study.

Table of Contents

List of Tables

List of Figures

Abbreviations

AFP	Acute Flaccid Paralysis
ADB	Asian Development Bank
BEMS	Bachelor of Eastern Medicines and Surgery
BHMS	Bachelor of Homoeopathic Medical Sciences
BHUs	Basic Health Units
BPS	Basic Pay Scales
CIDA	Canadian International Development Agency
CSHP	Career Structure for Health Personnel Scheme
CPSP	College of Physicians & Surgeons
CME	Continued Medical Education
CPD	Continued Professional Development
CCI	Council of Common Interests
CCF	Country Coordination and Facilitation
CLL	Current Legislative List
DFID	Department for International Development
DG	Director General Health
DGHS	Director General Health Services
DGN	Director General Nursing
DEWS	Disease Early Warning System
DHQ	District Head Quarters
DHDCs	District Health Development Centers
DHIS	District Health Information System
DFPs	Districts Focal Persons
EPI	Expanded Program on Immunization
FWC	Family Welfare Centers
FWWs	Family Welfare Workers
FTJ	Fazil-Tibb-Wal-Jarhat
FBS	Federal Bureau of Statistics
FLL	Federal Legislative Lists
FATA	Federally Administered Tribal Areas

GHWA	Global Health Workforce Alliance
GDP	Gross Domestic Product
HCC	Health Care Commission (previous HRA)
HMIS	Health Management Information System
HRA	Heath Regulatory Authority
HSRU	Health Sector Reform Unit
HSA	Health Services Academy
HWC	Health Welfare Committee
HEC	Higher Education Commission
HMS	Homoeopathic Medical Sciences
HI&ES	Household Income and Expenditure Survey
HDI	Human Development Index
HRH	Human Resources for Health
IMR	Infant Mortality Rate
IUATLD	International Union Against Tuberculosis and Lung Diseases
IVM	Integrated Vector Management
JICA	Japan International Cooperation Agency
JLI	Joint Learning Initiative
KMU	Khyber Medical University
KPK	Khyber Pakhtunkhwa
LHV	Lady Health Visitor
LHW	Lady Health Workers
MCH	Maternal and Child Health
MNCH	Maternal Neonate and Child Health
MTDF	Mid Term Development Framework
MDGs	Millennium Development Goals
MOH	Ministry of Health
MICS	Multiple Indicator Cluster Survey
NACP	National AIDS Control Program
NCRP	National Coordinated Research Program
NCH	National Council for Homeopathy
NCT	National Council for Tibb

NFC	National Finance Commission Award
NHIRC	National Health Resource Information Center
NHSP	National Health Survey of Pakistan
NIH	National Institute of Health
NP-FPPHC	National Program for Family Planning and Primary Health Care
NP-PCB	National Program for Prevention & Control of Blindness
NTP	National TB Control Program
NGOs	Non-Governmental Organizations
OEC	Overseas Employment Corporation
PCSIR	Pakistan Council of Scientific and Industrial Research
PDHS	Pakistan Demographic and Health Survey
PIMS	Pakistan Institute of Medical Sciences
PIHS	Pakistan Integrated Household Survey
PMDC	Pakistan Medical & Dental Council
PMRC	Pakistan Medical Research Council
PNC	Pakistan Nursing Council
PPAF	Pakistan Poverty Alleviation Fund
PSLM	Pakistan's Social and Living Standards Measurement Survey
PWS	Patient Welfare Society
PCP	Pharmacy Council for Pakistan
PWD	Population Welfare Department
PRSP	Poverty Reduction Strategy Paper
PHC	Primary Health Care
PSDP	Public Sector Development Program
PFC	Provincial Finance Commission
PHDC	Provincial Health Development Centers
PPP	Public Private Partnership
RHS	Reproductive Health Service
RBM	Roll Back Malaria
RCH	Rural Health Centers (RHC)
SMO	Senior Medical Officer
SWD	Social Welfare Department

THQ	Tehsil Head Quarters
TTH	Tertiary care Teaching Hospital
TBA	Traditional Birth Attendants
TB	Tuberculosis
U5MR	Under-five mortality rate
UKAID	United Kingdom Aid
UNCIEF	United Nations Children's Fund
USAID	United States Aid
USI	Universal Salt Iodization
UHS	University of Health Sciences
WAPDA	Water and Power Development Authority
WFP	World Food Program
WHO	World Health Organization
WHR	World Health Report

SECTION 1 - INTRODUCTION

World health Report 2006, pointed out acute shortage of human resource for health in most of the countries. Pakistan is also included in the countries with acute HRH shortages. HRH shortage can reverse achievements made in the last decades of 20th century [1]. Growing poverty and increasing burden of infectious diseases in the poor countries is reducing life expectancy to nearly half of that of rich countries. These emerging health conditions may be addressed by proper management of Human Resource for Health (HRH) situation. This is only possible if complete data on the subject is available.

In order to improve healthcare provision and health status it is necessary to map and profile all human resources in the province. This will enable the authorities to know about the number, quality, density, distribution, shortages and requirement in different parts of the province. It can be used as a tool to solve HRH issues in the province. Unique political, cultural and geographical situation of the understudy province are considered.

The study of health workforce will help achieve universal healthcare coverage [2]. This documentation will form a firm basis for HRH management and HRH information system.

1.1 Country Coordination and Facilitation Process

Government of Pakistan with the support of Global Health Workforce Alliance (GHWA) initiated a Country Coordination and Facilitation process. Health Services Academy Islamabad was notified as focal institution for this purpose [3]. After approval of 18th amendment in 2010 and its reinforcement in 2011, responsibility of healthcare provision was shifted from federal to provincial governments [4].

1.2 Pakistan Health Profile Initiatives

At a National Health Conference at Islamabad, in 2004 a recommendation was made to establish a commission to review the HRH shortage in the country. Later on the issue was raised by Joint Learning Initiative (JLI) and WHO World health Report.

1.2.1 Country Coordination and Facilitation Committee

Ministry of health (MOH) convened a meeting of stakeholders from all provinces in 2009 to make strategy for Pakistan HRH. It was found that no valid and complete data is available on HRH. Hence it was not possible to make policy for future. In 2009, countrywide HRH assessment study, including

private sector, was conducted with the support of World Health Organization. The objective was to plan country HRH strategy.

1.2.2 Review of Country Coordination and Facilitation Activities

In 2010, Process of country Coordination and Facilitation was started in the country, with the support of Global health Workforce Alliance (GHWA). Health Services Academy (HSA) was notified by MOH as focal institute for this purpose.

On 31st May 2010, a stakeholders meeting was conducted in Islamabad for their orientation on CCF process. In July 2010, a training workshop for capacity building of stakeholders from all provinces was conducted in Cairo. A CCF action plan for Pakistan was proposed and focal persons for the provinces were nominated. Two consecutive meetings, one in November 2010 in Islamabad and other in December 2010 in Bhurban on the same agenda were arranged. Objective was to implement it in the provinces. Special situation in each province was a matter of concern. However, CCF process was made difficult due to the introduction of 18th amendment. Later on, public sector stakeholders were identified at federal, provincial and district levels and also at relevant institutions. Stakeholders from private sectors, social organizations and parastatal organizations were also sorted out.

1.2.3 Federal Committee for HRH

Table 1 Federal Committee for HRH

Executive Director HAS	Secretary CCF
Line Ministries	Member
Health Regulatory Authorities	Member
PMDC, PNC, Pharmacy Council and relevant institutions	Member
HEC	Member
Developmental Partners	Member
Chairmen of all provincial CCF committees	Member

1.2.4 Provincial CCF Committee

Table 2 Provincial CCF Committee

Chief Secretary	Chairman CCF
Secretary Health	Secretary CCF
Secretary Finance	Member
Secretary Education	Member
Secretary P&D	Member

Heads of Health HRD institutions	Member
Vice Chancellors Universities	Member
Parliamentarians	Member
Health Professional Associations	Member
Provincial Director Health Services	Member
Director Provincial Health Development Center	Member
CEO PRSP	Member
Chairman of all Districts CCF committees	Member

1.2.5 District CCF Committee

Table 3 District CCF Committee

Deputy Commissioner	Chairman CCF at district level
District Health Officer	Secretary CCF at district level
District finance Officer	Member
District Education Officer	Member
Medical Superintendent DHQ Hospital	Member
Patient Welfare society	Member
Health Professional Association	Member
Director Health Development Center	Member
District Manager PRSP	Member

1.3 CCF and KPK Health Profile

As compared with Punjab and Sind no substantial advancement has been observed regarding KPK HRH aligned with CCF process. Financial Department has initiated a general human resource information system that is still in process. Partial data on HRH has been gathered by different departments/ organizations for various purposes. Mapping HRH with respect to health needs, geography, politics, culture and other parameters has not been conducted with the objective to address HRH shortage in the province.

1.4 KPK HRH Profile

KPK Health Department is the second largest department in the province and has more than 30,000 employees. Minister of Health, being a public representative, is the chief of health department and health system governance. Secretary health is the Principal Accounting Officer. Director General Health Services is responsible for implementing health programs and health services delivery in the province. District Health Officers are responsible for primary and secondary health services provision in their districts. Autonomous bodies, like Health Regulatory Authority, Health foundation, teaching hospitals and medical colleges are working under the provincial assembly legislation.

1.5 Health Needs

Healthcare services needs to be provided to the people at their doorstep. People should have access to the health facilities. Maternal mortality rates, infant mortality rates and communicable and non-communicable diseases need to be controlled. The goal is to improve health status of the people. Prior need base assessment of HRH requirement is essential for judicious planning and to achieve our objectives and Millennium Development Goals [2]. The definition of HRH in line with WHO is

"All people engaged in actions whose primary intent is to enhance health". Which includes:

- Mothers
- Caregivers
- Health Managers
- Supporting Staff (including paramedics, Clerical Staff, Ward orderly and others)

1.6 Purpose of Study

The purpose of this study is:

- To improve health status of the people of KPK by improving HRH situation.
- This will help to plan for achievement of Sustainable Development Goals and universal coverage.
- HRH information system can be initiated with this study.
- Need based HRH production and availability can be planed.
- Evidence based HRH policy can be made.
- The resources can be directed towards maximum and judicious benefits.
- Gaps for further research on the subject will be identified.

1.7 Objectives

The objectives of the study are:

- To collect and assemble data based on number, qualification, production and distribution of positions.
- To identify HRH Training and Continuing professional development programs and institutions in the entire province.
- To determined the HRH placement and utilization in the province.
- To identify and asses HRH related polices, strategies and plans in the province.

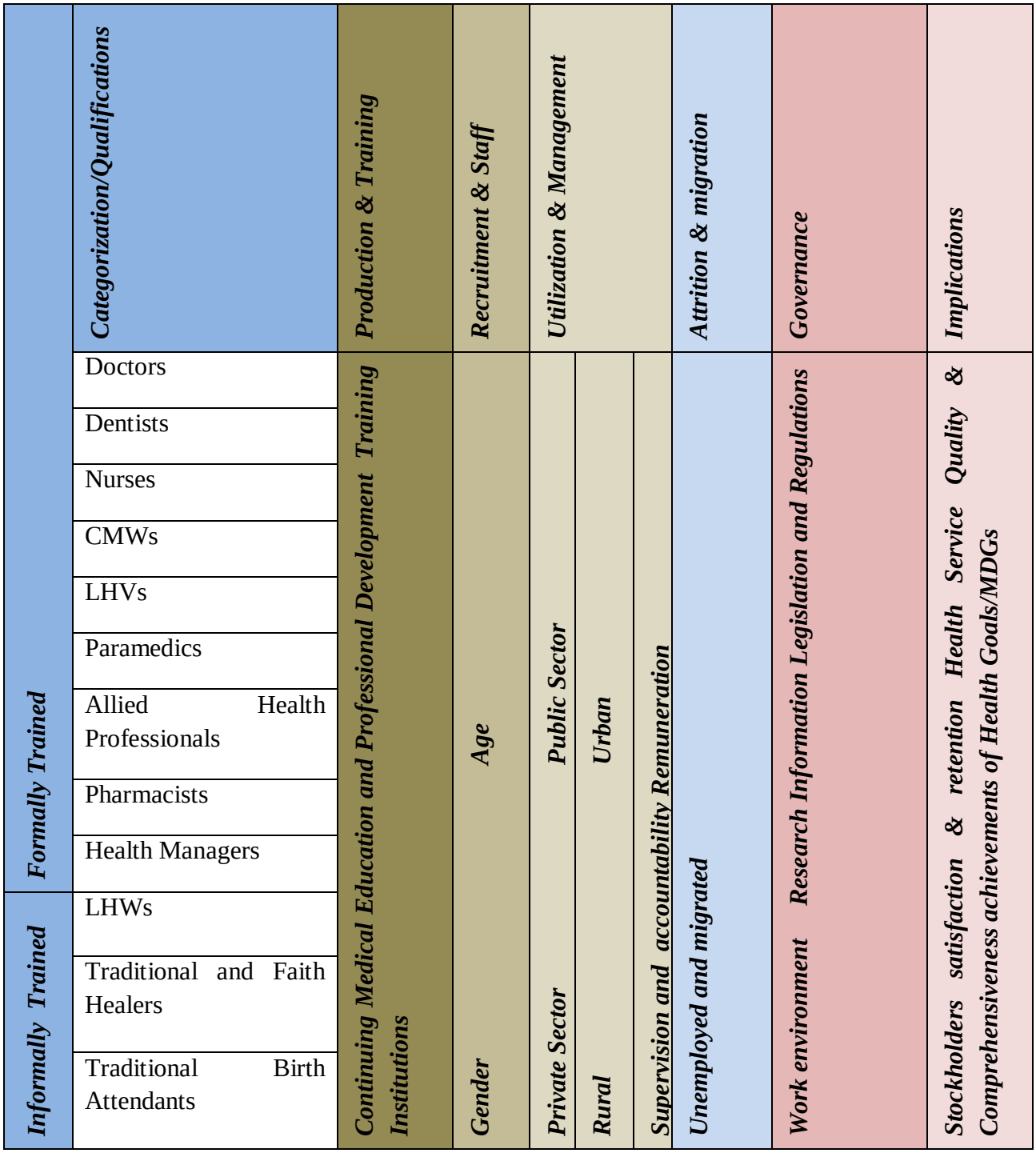
1.8 METHODOLOGY

The proposed method of conducting this study was presented by Dr. Zia Ul Haq (principal investigator-Associate Prof of Public Health & Director ORIC KMU) in a meeting which was attended by Prof. Dr Muhammad Hafizullah (Vice Chancellor, KMU), Dr. Zulfiqar Khan (Coordinator -Health System Strengthening, WHO Country Office), Dr. Saeed Akbar Khan (Team Leader, WHO KPK) and Dr. Parvez Kamal (DG Health KPK).

Director General Health Services (DGHS), KPK being nominated as focal person and investigators for the study. Secondary data was collected from different departments dealing with human resource for health that is Health Department, Office of the Director General Health Services, Principal Nursing Colleges/Schools, Provincial Maternal and Neonatal Child Health Program Office, National Program for Family Planning and Primary Health Care, Regulatory Authorities and Professional Association, Academic Institutions both private and public, Pakistan Railways, WAPDA, Social Security Department and Private Institutions and other secondary data centers located in Province of KPK. In addition, primary data was collected from the private hospital in collaboration with KPK Health Care Commission. Initial data is presented in this report and detailed report will be submitted in a month time, insha'ALLAH.

1.9 Conceptual framework

Figure 1 Standard toolkits for data collection was developed



The HRH Profile Framework defines the data required for providing a comprehensive picture of the Health Workforce situation in KPK. The HRH data was accessed from departments / sectors dealing with / engaged in HRH i.e. KPK Health Department, Office of the DGHS KPK, HSRU, Home Department, Office of the Nursing Council, Provincial MNCH Program Coordinator, National Program for Family Planning & Primary Health Care, Regulatory Authorities and Professional Associations, Academic Institutions both Private and Public, Auqaf Department, Local Bodies, Pakistan Railways, WAPDA, Employees of Social Security and Private Institutions located in the province.

1.10 DATA ANALYSIS

Descriptive Statistics: Data Collection tools were used for collecting quantitative data. The STATA software was used for:

- Variables definitions
- Calculating Frequencies and percentages where appropriate.
- For checking the significance of data, Chi square test and t-test were applied, where appropriate.

1.11 STUDY POPULATION

Definition and categorization of health workers (by WHO) were used for the study, keeping in view local nomenclature and designations. The following categories were included in the study population:

- Health Workers from Public Sector
- Health Workers from Government Sector
- Health Workers from Armed Forces.

1.12 DATA COLLECTION PROCEDURES

Following are the data collection procedures:

- The data collection for this study was undertaken from May to November 2015.
- The study Management, Organization and Supervision were done by Vice Chancellor Khyber Medical University Peshawar, Director ORIC Khyber Medical University Peshawar, Director General Health Services KPK Peshawar.
- A team for data collection was constituted.
- A five member data collection team was for accessing information sources and filling the Proforma.

- Focal persons were identified in all major data sources to help the data collection team members.
- The study was initiated with the assumption that secondary data for all categories of health workers in both the public and private sector will be available. However records were largely available for health workers working in the Public Health Sector and in some of the large para-statal organizations.
- Secondary data for HRH Workers from the private sector was largely unavailable.
- Data was handed over to the Data Management Unit at the KMU for data entry and analysis.
- Data entry and cleaning was done using SPSS, and analysis was carried out using STATA.

1.13 DATA SOURCES/PLAN OF ACTION

A meeting held on 1st June 2015 at Khyber Medical University (KMU) chaired by Dr. Zia Ul Haq, Director ORIC-KMU. All focal persons nominated for the study attended the meeting in order to prepare a Plan of Action based on study objectives.

PLAN OF ACTION:

Data sources were classified according to objectives of study. For each objective and relevant set of data, one focal person was nominated.

Duration of data collection by all the focal persons : June 1, 2015 up to October 31, 2015.

OBJECTIVE 1: TO COLLECT AND COMPARE DATA ON NUMBER, QUALIFICATION AND GENDER DISTRIBUTION

Data Sources: Pakistan Medical and Dental Council, Pakistan Nursing Council, Paramedic Council, College of Medical Technology, College of Para Medical Technology, KPK Medical Faculty, Pakistan Physical Therapy Society , National Program for PHC and FP, MNCH & CMW Program, College and Association/Society of family physicians, Homeopathic and Tibb Councils

OBJECTIVE 2: DISTRIBUTION AND UTILIZATION OF HRH

Data Sources: Department of Health KPK, District Health Offices, DGN Office, DG Health Office, National Program for PHC and FP, MNCH & CMW Program, College and Association/Society of family physicians, Homeopathic and Tibb Councils, WHO 2009 4 Districts Assessment, HSRP

OBJECTIVE 3: DOCUMENT HRH TRAINING AND CONTINUING PROFESSIONAL DEVELOPMENT ARRANGEMENTS AND INSTITUTIONS

Data Sources: Medical Universities, Medical Colleges and Teaching Hospitals, CPSP, Nursing College, Allied Health Professionals Institutes, Paramedic Institutes, Homeopathic and Tibb

OBJECTIVE 4: DETERMINE HRH MANAGEMENT AND UTILIZATION SYSTEMS Data Sources:

Data Sources: Health Department-Provincial and District, Health Programs' provincial offices

OBJECTIVE 5: RECORD THE POLICIES, STRATEGIES AND PLANS FOR HRH

Data Sources: Planning Commission, HSA, WHO, KPK Health Department, World Wide Web

SECTION 2: PROVINCE OF KHYBERPAKHTUNKHWA

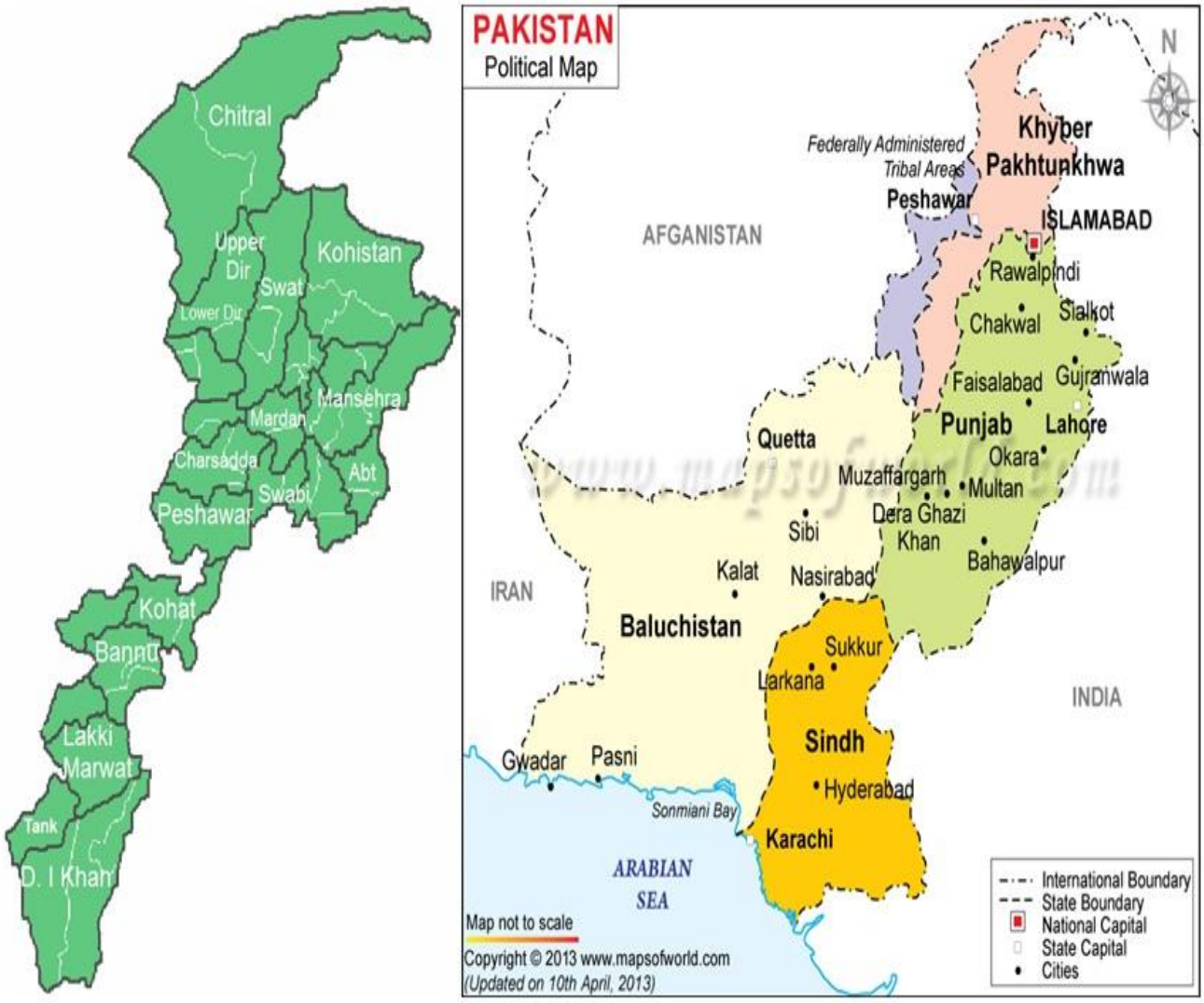
2.1 GEOGRPHY

KPK is situated on the Iranian plateau. The famous Khyber Pass links the province to Afghanistan. Geographically the province could be divided into two zones the northern and southern. The major rivers of the province are the Kabul, Swat, Chitral, Kunar, Siran, Panjkora, Bara, Kurram, Dor, Haroo, Gomal and Zhob. KPK province is located in northwest of the country. Peshawar is the capital and largest city. Province has a long border with Afghanistan and shared border with Iran. Area is 74,521 square meter. Total estimated population in 2014 was *28,000,000*.

2.2 Climate

The climate of KPK varies greatly within different region in its size. The climate of KPK is mild in the summer with exception of some district and intensely cold in the winter. The air is generally very dry, the daily and annual range of temperature is quite large. Rainfall also varies widely and large parts of KPK are dry [5]. The KPK province also contains the wettest parts of Pakistan. The moonsoon rains season is from the mid of June to the mid of September. Annual rainfall ranges from around 500 millimetres in the most sheltered areas.

Map of Khyber Pakhtunkhwa



2.3 Political Context

Table 4 The province is divided into 26 districts with recent additions of the district; Tor Ghar, and Kohistan:

S.No	District	Headquarters	Area (km²)	Population (1998)	Density (people/km²)
1	Abbottabad	Abbottabad	1,967	880,666	448
2	Bannu	Bannu	1,227	675,667	551
3	Battagram	Battagram	1,301	307,278	236
4	Buner	Daggar	1,865	506,048	271
5	Charsadda	Charsadda	996	1,022,364	1,026
6	Chitral	Chitral	14,850	318,689	21
7	Dera Ismail Khan	Dera Ismail Khan	7,326	852,995	116
8	Hangu	Hangu	1,597	614,529	385
9	Haripur	Haripur	1,725	692,228	401
10	Karak	Karak	3,372	430,796	128
11	Kohat	Kohat	2,545	562,644	221
12	Upper Kohistan	Dassu	7,492	472,570	63
13	Lakki Marwat	Lakki Marwat	3,164	490,025	155
14	Lower Dir	Timergara	1,582	717,649	454
15	Malakand	Batkhela	952	452,291	475
16	Mansehra	Mansehra	4,579	1,152,839	252
17	Mardan	Mardan	1,632	1,460,100	895
18	Nowshera	Nowshera	1,748	874,373	500
19	Peshawar	Peshawar	1,257	2,019,118	1,606
20	Shangla	Alpuri	1,586	434,563	274
21	Swabi	Swabi	1,543	1,026,804	665
22	Swat	Saidu Sharif	5,337	1,257,602	290
23	Tank	Tank	1,679	238,216	142
24	Upper Dir	Dir	3,699	575,858	156
25	Tor Ghar	Tor Ghar	497	185,000	372
26	Lower Kohistan	Pattan	7,492	472,570	63

Provincial Assembly is the chief law making body of the province. Currently it consists of 124 elected members (general seats 89, reserved seats-women 22, and reserved seats-minority 3). Chief Minister is elected by the provincial assembly with approval of the governor. Governor is selected by President of

Pakistan. Chief Executive branch consists of governor and chief minister. Other ministers are appointed by chief minister with approval from governor.

Eighteen (18) federal ministries including health were devolved and power and autonomy were given to provinces after eighteenth (18th) amendment in the constitution [4]. The provinces need technical assistance and support for developing health policies and plans. Federal government having stewardship role will provide technical and financial assistance.

PMDC, PNC, Council of homeopathy and Council of Tibb is functioning at federal level. In case of vertical prsograms, multiple issues were raised including human resources, technical and financial deficiencies. Therefore, close coordination was maintained in that case. Close linkages and coordination need to be continued between the two levels. Federal level will maintain inter provincial coordination.

2.4 ECONOMIC CONTEXT

KPK is the second poorest province of the country after Baluchistan [6]. The contribution of KPK in total GDP, generated in Pakistan, is 10.5 %. Its population is 11.9 % of Pakistan total population. Most of the population of KPK is living below poverty line. Causes of poverty in the province are unemployment, lack of foreign and local investment, low income, lack of modern technology, poor farming, illiteracy, low productivity, political/ law and order situation, corruption and poor governance. Human Development Index for KPK is 0.607 as compared to Islamabad 0.802.

2.5 Health Indicators

An indicator is a measurable statement of program objectives and activities. The efficiency of HRH is reflected in the improvement of health indicators. Crude death rate Expectation of life Infant mortality rate Child mortality rate Under-5 proportionate mortality rate, Maternal (puerperal) mortality rate, Disease-specific mortality rate, Proportional mortality rate.

Health status indicators are considered among the worst in the world. Despite high number of well-trained HRH and existence of network of healthcare delivery system, there is significant improvement in mortality and morbidity indicators and could not meet the Millennium Development Goals (Annex3).

SECTION 3- HEALTH SYSTEM

All organizations, institutions and resources and activities whose primary purpose is to improve health are called health system [7]. This includes personal healthcare, public healthcare services and actions/ services by other sectors that produce health action.

As Pakistan has critical governance, management and financing issues, the health status indicators of the country remain poor. Weak coordination between different sectors, poor health information system and mismanagement are some of the issues.

3.1 KPK Healthcare Delivery System

It comprises of public, private and traditional healthcare delivery systems. Public sector healthcare is provided by health department. Private healthcare system is based on out of pocket expenditure. Traditional/ indigenous system consists of Hakeem's, homeopaths and faith healers.

Table 5 KPK Healthcare Delivery System

Public Sector	**Para-statal Organization**
Teaching/ Tertiary care hospitals	Water and power development authority
District/Tehsil Headquarter Hospitals	Population Welfare department
Rural Health Centers	Social welfare Department
Basic health Units	Pakistan Railways
Civil dispensary	KPK Emergency Services (Rescue 1122)
Community Health workers	KPK employees social security Institutions
	Technical Education and vocational trainings
Private Sector	**Not for Profit**
Clinics	Non-Governmental Organizations
Medical Centers	Philanthropists
Maternity Homes	
Hospitals	
Hakeem's / Homeopaths	

3.2 Public Healthcare Delivery System

The purpose is to provide healthcare services with universal coverage [8]. Three tiers of public healthcare delivery system are; primary, secondary and tertiary health (figure 1, 2).

Figure 2 Health Care Delivery System of KPK

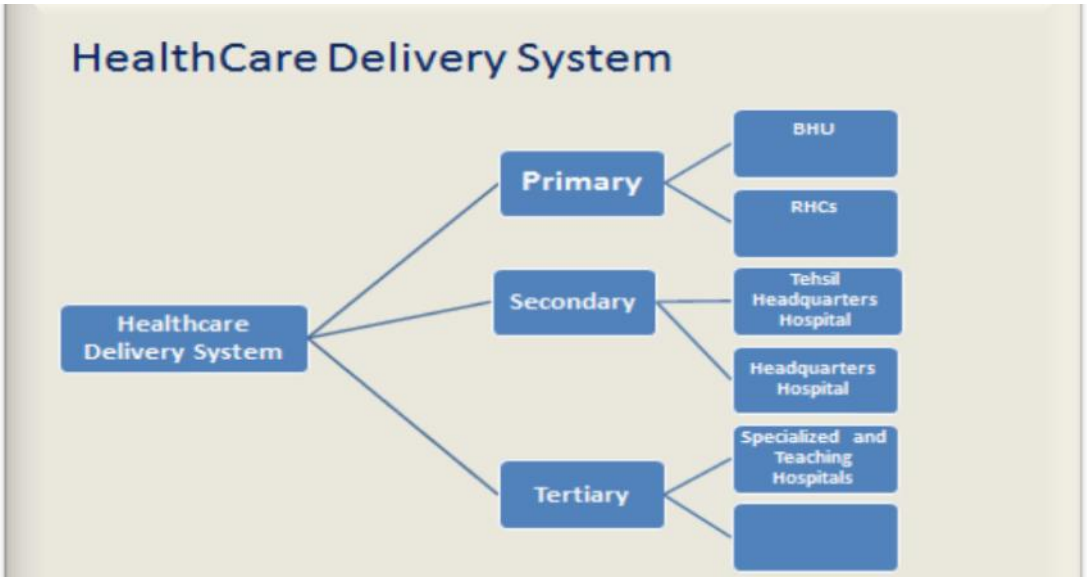
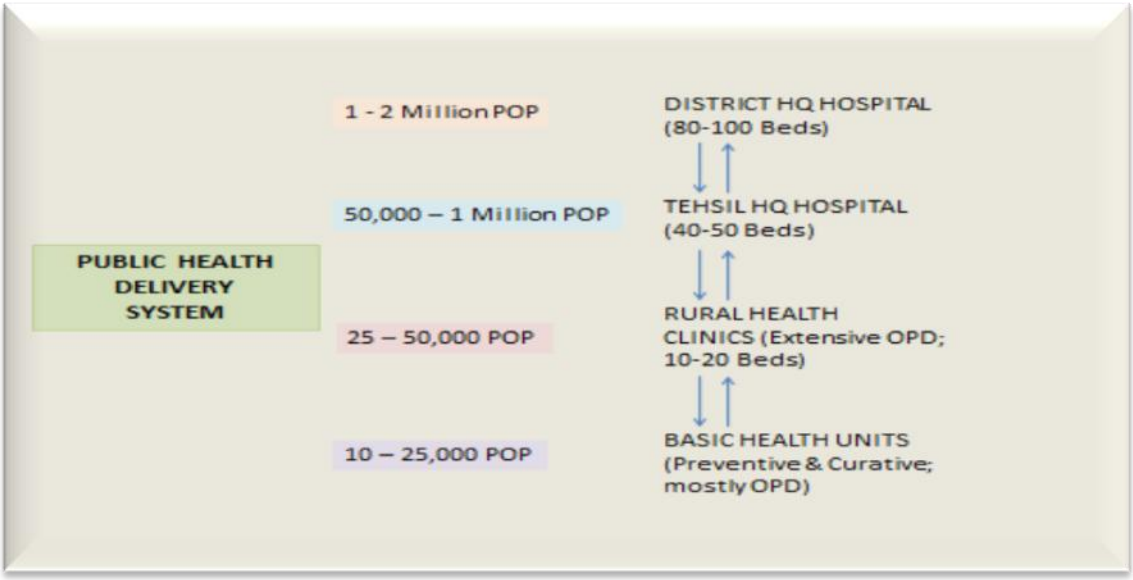


Figure 3 Population wise distribution of Health delivery system



3.3 PUBLIC SECTOR HUMAN RESOURCE FOR HEALTH COLLECTIVE PROFILE

Table 6 The Distribution of Doctors on District wise in KPK

S#	District	Sanctioned Posts	Filled Posts	Vacant Posts	Percent filled
1	Abbott Abad	369	269	105	72.9
2	Bannu	224	101	123	45.1
3	Battagram	75	15	57	20.0
4	Buneer	72	57	15	79.2
5	Charsadda	106	56	61	52.8
6	Chitral	82	30	52	36.6
7	D.I.Khan	229	125	92	54.6
8	Dir Lower	123	73	50	59.3
9	Dir Upper	127	30	87	23.6
10	Hangu	51	23	28	45.1
11	Haripur	156	84	72	53.8
12	Karak	150	62	88	41.3
13	Kohat	143	79	63	55.2
14	Kohistan	32	15	17	46.9
15	Laki Marwat	109	68	141	62.4
16	Malakand	165	135	60	81.8
17	Mansehra	139	104	35	74.8
18	Mardan	268	109	152	40.7
19	Nowshera	143	84	59	58.7
20	Peshawar	1276	826	450	64.7
21	Shangla	104	49	55	47.1
22	swabi	175	103	72	58.9
23	Swat	294	125	169	42.5
24	Tank	56	21	35	37.5
25	Tor Ghar	11	7	5	63.6
	Total	4679	2650	2143	56.6

Source: DHIS Information Cell, Director General Health Services, KPK

Table 7 The Distribution of Paramedical on District wise in KPK

S#	Districts	Paramedical Staff			
		Sanctioned posts	Filled	Vacant	Percent filled
1	Abbott Abad	1337	1334	3	99.8
2	Bannu	1247	1090	157	87.4
3	Battagram	400	326	74	81.5
4	Buneer	315	306	11	97.1
5	Charsadda	1505	1443	62	95.9
6	Chitral	836	808	28	96.7
7	D.I.Khan	1972	1951	21	98.9
8	Dir Lower	1334	1333	1	99.9
9	Dir Upper	850	750	100	88.2
10	Hangu	376	334	42	88.8
11	Haripur	1160	1124	36	96.9
12	Karak	1197	1138	59	95.1
13	Kohat	706	622	84	88.1
14	Kohistan	419	342	77	81.6
15	Laki Marwat	381	344	37	90.3
16	Malakand	671	666	5	99.3
17	Mansehra	1468	1395	73	95.0
18	Mardan	1805	1772	33	98.2
19	Nowshera	1099	1023	76	93.1
20	Peshawar	5419	5307	112	97.9
21	Shangla	504	495	9	98.2
22	swabi	831	823	8	99.0
23	Swat	1421	1288	132	90.6
24	Tank	339	307	33	90.6
25	Tor Ghar				
		27592	26321	1273	95.4

Source: DHIS Information Cell, Director General Health Services, KPK

3.4 Health Department

The Department of Health KPK is headed by the provincial minister for health. The secretary health heads the administration with overall decision-making authority and is the principal accounting officer. The Director General (DG) Health is the senior most technical officer in the department and his office is for implementing the programs.

3.5 PRIORITY (Vertical) HEALTH PROGRAMS

Prior to devolution of health to the provinces, disease specific and preventive health programs were financed and implemented vertically by the federal government. These programs integrated with local health authorities at the district level. With devolution of health to the provinces all these programs also stand devolved and the KPK government has now the responsibility of their financing and management.

3.5.1 NATIONAL PROGRAM FOR PRIMARY HEALTH CARE AND FAMILY PLANNING

The program was launched in 1994 as the Prime Minister's Program for Family Planning and Primary Health Care. Its name was changed to the National Program for Family Planning and Primary health Care (NP-FPPHC) in 2001 [9]. The focus is on delivering essential primary healthcare services to the communities at the doorstep through female community health workers and of bridging the gap between fixed health facilities and households. Through this program, locally selected young women with minimum education of class 8, are given 18 months training to deliver several basic health services. Their scope of work includes antenatal care, advice on natal and post-natal services, immunization against major infectious diseases, promotion of nutrition, basic sanitation, prevention and control of locally endemic diseases, treatment of common diseases and injuries, provision of essential drugs and other primary healthcare services. Pakistan has 103,000 Lady Health Workers (LHWs) who are deployed mostly in the rural areas. KPK has 12064 numbers of LHWs.

3.5.2 MALARIA CONTROL PROGRAM

A Malaria Eradication Program was initiated in Pakistan in 1950s in response to the high prevalence of malaria in the country. The effectiveness of the program was compromised by the emergence of insecticide resistance of the vector and the emergence of Chloroquine resistance among the parasites. The name of the program was changed to Malaria control program and in 1975, a malaria control strategy was adopted with provincial commitment towards its implementation. In 1998, Pakistan joined

the global Roll Back Malaria (RBM) initiative. This led to the development of a five year RBM project in 2001 as part of which efforts were intensified in the 28 high –risk districts of the country.

Recently the program has been changed into Integrated Vector Management (IVM). The aim is to control all the vector borne diseases. It has a provincial Program Implementing Unit (PIU) that has ten staff member supervised by Program manager. Directorate of Malaria Control at Federal Level and two partner NGO; Merlin and association for community development are supporting the program in the province [10].

3.5.3 TUBERCULOSIS CONTROL PROGRAM

The National TB Control Program (NTP) was also one of the early disease control initiative of Pakistan. Launched in the 1950s, the program objective is to reduce mortality, morbidity and disease transmission [11].

Attention was refocused on the program in the year 2000 when TB was declared a national emergency. The program was strategically revived and reconfigured to implement the WHO/IUATLD-recommended DOTS strategy through PSDP allocated resources. The National targets TB are set in line with the Millennium Development Goals (MDGs) i.e. to cure 85% of detected new cases of sputum smear positive pulmonary TB and to detect 70% of estimated cases once 85% cure rate is achieved. Before devolution, the national component of the program was responsible for overall TB control activities in the country i.e. policy guideline, technical support, coordination, monitoring, evaluation and research. The Provincial TB Control Programs, on the other hand, had the responsibility for the actual care delivery process.

3.5.4 HIV/AIDS CONTROL PROGRAM

Pakistan was signatory to the MDGs and Goal 6 stated that Pakistan will “Halt and begin to reverse the spread of HIV/AIDS” by the year 2015. The primary objective of National AIDS Control Program (NACP) program is to seek such a halt and reversal. The project seeks to contain the epidemic amongst the most at risk group where it has already established; and prevent it from establishing among the bridge groups and the general population [12]. The principal components of the NACP are the interventions for target groups; HIV prevention for general public; prevention of HIV transmission through blood and blood products and; capacity building and program management. In addition, the NACP with Canadian support has established HIV and AIDS Second Generation Surveillance System (SGS) to track HIV epidemic in Pakistan. Presently NACP and its provincial counterparts (Provincial AIDS Control Programs in Punjab,

Sindh, Balochistan, KPK and AJK) are implementing the interventions throughout the country. In KPK, the program is headed by a Program Director, who is supported by a Treatment Coordinator, BCC Coordinator, Research & Training Coordinator, NGO Coordinator and Blood Transfusion Service Coordinator.

3.5.5 THE EXPANDED PROGRAM ON IMMUNIZATION

The Expanded Program on Immunization (EPI) was pilot tested in 1978 and launched countrywide in 1984. It aims at protecting children by immunizing them against Childhood Tuberculosis, Poliomyelitis, Diphtheria, Pertussis, Hepatitis B, Measles and pregnant women to prevent Neonatal Tetanus. A major challenge to the achievement of the objectives of the program is reaching above 80% coverage. Pakistan has as a result not achieved a polio-free status despite the supplementation of the program by "National Immunization Days (NIDs)" observance since 1995 aimed at eradication of poliomyelitis.. The program has recently introduced Haemophilus Influenza Type B (Hib) vaccine. The Director Health Services EPI KPK reports to the DGHS and is supported by Additional Director. Medical Officers are appointed in the EPI Centers.

3.5.6 NATIONAL NUTRITION PROGRAM

In 2002, the Ministry of Health established the National Nutrition Program after finalizing its strategic plan and framework with national consensus. The scope of the program includes implementation of the National Food Fortification Program, enforcement of the Protection of Breast Feeding and Child Nutrition Ordinance, lactation management trainings, media interventions and research. The National Food Fortification Program includes fortification of wheat flour with iron and folic acid, universal salt iodization and addition of vitamin A to edible ghee. In addition, its collaborative scope of work includes micronutrient supplementation and training of LHWs on nutrition, which is now after devolution a provincial mandate. UNICEF is supporting the Universal Salt Iodization (USI) Program in 26 districts of KPK. Districts Focal Persons (DFPs) have been nominated and trained to facilitate the salt processors at district level. The Program Manager Food & Nutrition, reports to the DGHS and serves as the Provincial Focal Point for Nutrition.

3.5.7 THE PRIME MINISTER PROGRAM FOR PREVENTION AND CONTROL OF HEPATITIS A & B

The Programme for the prevention and control of Hepatitis B & C was an initiative of the federal government launched in 2005. The program was initiated as a response to the creeping up high

prevalence of hepatitis B and C (estimated at 3 % and 5% respectively in the general population and 5-22 % in the high risk groups). The program focused on mandatory vaccination of all children less than one year of age, vaccination of high-risk groups, promotes safe blood diffusion, disposal of syringes, sterilization of medical devices and availability of safe water and disposal of sewage.

3.6 Para Statal Healthcare Providers in Khyber Pakhtunkhwa

In addition the Department of Health, large public sector organizations like Population Welfare Department, KPK Emergency Service, Employees Social Security Institution and Social Welfare Department, Local Government, Water and Power Development Authority, Railways, Auqaf, KPK Home Department (Prisons), Police, and Armed Forces have also established health services for their employees and their families, as well as to some factions of the society.

3.6.1 POPULATION WELFARE DEPARTMENT (PWD)

PWD in KPK is integral component of socio-economic development program operating all over the province with specific goal of reducing the population growth rate and reducing infant mortality, maternal mortality and fertility rates.

3.6.2 KPK EMERGENCY SERVICE (RESCUE 1122)

The KPK Emergency Service (Rescue 1122) has been established, for professional management of emergencies by maintaining a state of preparedness to deal with emergencies, providing timely response, rescue and emergency medical treatment to the persons affected by emergencies. Emergency Council and District Emergency Boards have also been constituted to ensure effective management & prevention of emergencies and to recommend measures for mitigation of hazards endangering public safety. Three major health services rescue calls received by the emergency services according to the consolidated report of emergency call & rescue operations.

3.6.3 SOCIAL WELFARE DEPARTMENT (SWD)

SWD is playing a vital role in provision of welfare services to the disadvantaged and marginalized population of the province. The health division of the social welfare department is divided into two streams i.e. the Health Welfare Committee (HWC) and the Patient Welfare Society (PWS). SWD serves as a liaison between them and the health service providers. They provide a support mechanism in monitoring and evaluation, operations and financing.

3.6.4 WATER AND POWER DEVELOPMENT AUTHORITY (WAPDA)

WAPDA was created in 1958 as a Semi-Autonomous Body and is one of the largest employers of human resources in Pakistan. WAPDA's health system is based on an insurance plan, a re-imbursement plan and an endowment fund primarily for the WAPDA Employees working all over Pakistan. Medical services to the employees are provided by WAPDA through its network of 42 facilities all over Pakistan. These comprise of 12 hospitals in major cities. There are 12 fortified dispensaries located in big towns and 18 basic dispensaries in small towns/villages nationwide.

3.6.4 PAKISTAN RAILWAYS

Railways is a large public sector organization with about 200,000 employees and retired personal along with 600,000 dependents, whose medical treatment is the responsibility of the department.

3.6.5 ARMED FORCES HEALTH SERVICES

Army health network is especially large and besides serving the armed forces personnel and their families also provide services to the civilian population.

3.7 PRIVATE HEALTH SECTOR

Until the early eighties the role of the private sector in the health services system was confined to the provision of curative services by general practitioners and individual specialists in different fields of medicine. In the mid-eighties, two private medical universities were established in Karachi, with private teaching tertiary care hospitals. Since then many other medical and health professionals training institutions and private hospitals have been established in almost all the provinces of the country. The private sector has since emerged as a major provider of curative services to the population and trainer of HRH.

The private health sector in KPK, today, comprises of general medical practitioners, specialists medical practitioners in an array of fields, nurses, pharmacists, traditional and alternative medical practitioners, allied health professionals, paramedics and a diverse group of informally trained health workers. The health workers in KPK are commonly found doing dual jobs in the public and private sector. Private sector healthcare facilities range from outdoor clinics to state of the art private hospitals mostly situated in the urban area. The ownership in private health sector is either sole or in partnership.

The healthcare workers deputed in both public and private healthcare setting are regulated by the respective authorities. It is estimated that private sector caters for 80 percent of the outpatient services. According to another estimate the private healthcare expenditure constitutes approximately 65% of total health care expenditure in Pakistan. Ninety two percent of this expenditure is out of pocket expenditure made at the household level [13]. There is no defined organizational structure of the private sector, it is not well documented and is not regulated to date.

3.8 ALTERNATIVE MEDICAL SYSTEMS

Alternative system of medicines is considered to be the first line of treatment in rural areas where majority of the population resides. Despite providing healthcare to a large population, it has never been effectively integrated into main health care system especially at primary health care level and lacks a proper institutional infrastructure and research capacity to exploit its potential.

The alternative medical system in KKP is facing challenges similar to those existing at the national and global level i.e. recognition, quality and education standards, evidence based research, safety and efficacy, rational use, herbal and drug interactions, inadequate understanding of socio-cultural context of their practice and usage, protection of intellectual property rights of knowledge holders, assuring sustainable natural resource use, regulation and capacity building of non-formal practitioners, developing appropriate methodologies for evaluation, resolving conflicts with mainstream medicine.

3.8.1 TIBB-E-UNANI

With its origin in Greece, the Unani system of medicine is based on the concepts of the human body being made up of four essential elements, i.e. “earth”, “air”, “water” and “fire”, each with different “temperaments” i.e. cold, hot, wet and dry18. It adopts a holistic approach from health promotion to disease prevention and its cure. The medicines used are made from herbs, metals, minerals and animal products.

3.8.2 HOMOEOPATHY

Based on the natural law of healing i.e. likes are cured by likes, homeopathic medicines can produce symptoms similar to the disease in healthy people.

3.9 HEALTH CARE FINANCING

Pakistan's health care system including that of the KPK province has been chronically suffering from inadequate financing. Spending on the system has remained less than 2% of Gross Domestic Product (GDP) with government sector spending less than 1% of GDP and declining. Total public sector expenditure on health was Rs 17.5 billion in 2001-02 and increased to Rs 39.2 billion in 2005-06.

3.9.1 SOURCES OF HEALTHCARE FINANCING

Pakistan has yet to diversify its sources of financing health care. Tax revenues and out of pocket expenditures by individuals and families remain the major methods of financing health. Tax revenues finance 23.5 and out of pocket payments account for 77 percent of health expenditures. These sources are proving to be increasingly inadequate owing to the rising costs of the technology dependent modern health care. Other countries have successfully generated additional health care funding from social insurance; private insurance and community financing. Pakistan itself has experience of health care financing through social insurance provided b employees.

3.9.2 HEALTH EXPENDITURE:

Pakistan's health care expenditure is amongst the lowest regionally and globally. Pakistan's government spending on health is the lowest and private spending in the country is the highest. Also donor expenditure on health in Pakistan is the second highest after Bangladesh indicating Pakistan government's dependence on donor agencies in financing health24. Donor spending in Pakistan is mostly in support of the vertical health programs.

Although the public health expenditure seems to have more than doubled over the last decade when looked at in absolute terms but when calculated as percent of GDP, there has been actually a decline. This is because budgetary increases do not take into consideration inflation and population growth. Another area of concern is the ratio between developmental and non- development budgets for health.

3.10 HEALTH INFORMATION SYSTEM

Many institutions in Pakistan have primary or secondary mandate for generating evidence relevant to the development of the country's health system. Though both the Ministry of Health and the Provincial

Health Departments have been making efforts for the strengthening of Health Information Systems, an efficient and effective system is not yet in place. There is limited flow of information between health institutes and intra sectoral coordination among institutions like the Pakistan Medical Research Council (PMRC), National Institute of Health (NIH), Pakistan Institute of Medical Sciences (PIMS), College of Physician and Surgeons Pakistan, other academic institutions and tertiary care hospitals within and across the provinces is missing.

Under the pre-18th amendment arrangements, the Provincial Director General's office should have had the responsibility to organize the Health Information System. There is a need for generating comparable HRH information, for which a uniform HRIS needs to be put in place across all provinces. It is felt that after devolution this responsibility needs to be assigned to a relevant institution at the federal level with the ability to coordinate with HRH focal points in the provinces and at other federal institutions.
Health Information System includes the following sources of data;

3.10.1 Routinely collected data by health services delivery system and related institutions:

In Pakistan the Health Management Information System (HMIS**)** was established in the early 1990s with the support of the development partners mainly to collect, collate and disseminate information from the first level of health care delivery system with the purpose to support and facilitate management decision-making at the operational level and thereby improving services delivery. The System started from the first level care facilities and was to ultimately cover all the tiers of services delivery and the private sector. However it remains restricted to the first level facilities to date. The secondary and tertiary care hospitals provide their patient's disease and death's data on their own different formats. The private health sector which is reported to be providing 80% of curative services is completely excluded. The system was replaced with a more elaborate and efficient District Health Information System (DHIS) in 2007 which collected information from secondary level facilities as well.

WHO provided technical and institutional support to the Provincial Health Departments for strengthening of the Health Information Systems in KPK. Transition was being made from the old HMIS system towards the new DHIS system. WHO assistance included focused training on new tools for data collection, software maintenance, data compilation, GIS and data analysis, disease specific reporting and organization of capacity building workshops on Disease Early Warning System.

In KPK WHO is also supporting the strengthening of District Health Information System (DHIS). All information and statistics is collected by KPK Health Department from DHQ and THQ through the Districts DHIS coordinators. The data collected provides valuable evidence base for policy makers. WHO is also supporting training of relevant staff at the health department in KPK.

The DHIS in KPK is functional in all of the 26 districts. However, the overall HIS still remains considerably fragmented. There is an identified need for strengthening of a community based information system and its integration with facility-based information system. Standardized information system is required for all tertiary level hospitals in public sector along with linkage to all the private sector health facilities with provincial level information systems. The health department is presently working towards implementing an elaborated HRMIS system for collecting detailed HRH information from all cadres working for the KPK Public Health Department.

3.10.2. Disease Surveillance Systems:

Both communicable and non-communicable diseases surveillance systems are established to detect and abort epidemics and overall facilitate diseases control. In Pakistan the Disease Early Warning System (DEWS) was established with WHO support in the 1990s to detect onsets of epidemics on the basis of HMIS data. The vertical health programs have also established their individual, isolated diseases surveillance systems of varying quality and comprehensiveness. Among these Acute Flaccid Paralysis (AFP)/ Poliomyelitis surveillance system is recognized as being effective. However, this initiative is part of WHO's global drive to eradicate polio and has received significant support from it. Other pockets of good practice also exist in various aspects of surveillance. By and large, these systems have minimal coordination and they usually do not tap into all sectors.

Presently in KPK there is a lack of Integrated Disease Surveillance System both at the provincial as well as at the district level.

3.10.3. Population based surveys:

Such surveys are conducted from time to time to generate information on health indicators, diseases prevalence, utilization of health services, population control and household expenditure on health etc. In Pakistan the Federal Bureau of Statistics (FBS), PMRC, and the Population Welfare Program have been undertaking such surveys periodically. Regular survey's undertaken include the Pakistan Integrated Household Survey (PIHS), Pakistan Demographic and Health Survey (PDHS), Household Income and

Expenditure Survey (HI&ES), Multiple Indicators Cluster Surveys and Pakistan's Social and Living Standards Measurement Survey (PSLM). The National Health Survey of Pakistan (NHSP) undertaken by the PMRC in collaboration with the FBS in the early 1990s, was the first and only health examination survey which provided first time evidence on the prevalence and quality of management of chronic diseases like hypertension and diabetes, smoking, utilization of health services and dietary intakes and nutritional status of all age groups of the population. Unfortunately the survey has not been repeated.

3.11. Research

Research studies are needed to establish cause and effect relationships and association between factors related to health. Broadly categorized, health research includes basic, clinical, public health and epidemiological, behavioral and health systems and policy research. Pakistan recognized the need for institutionalizing health research within the health care system of the country and established a medical research fund soon after independence in 1954 and then went on to establish the Pakistan Medical Reseach Council (PMRC) in 1962, with the mandate to promote, coordinate and organize health research and link it to overall socio-economic development in the country. To achieve its objective, PMRC established health research centers in public sector medical institution to provide technical and other resources support to researchers in these institutions. The strategy has not been very effective as indicated by the poor research productivity of the country. No evaluation of the strategy has been undertaken to determine its sub-optimal effectiveness. There is however an emerging consensus that lack of research capacity may one of the major reasons for the ineffectiveness of this otherwise rational appearing approach to research promotion.

Khyber Medical University has established Institute of Public health & ORIC. KMU also sponsored two of its faculty members for PhD at UK in the field of Public Health and epidemiology. They have now returned to the province and playing their role in establishing a high quality research in the field of Public Health. They have also introduced the PhD in public health for the first time in the history of KPK. One of them is the principal investigator of this study.

SECTION 4: HEALTH WORKERS SITUATION

The Joint Learning Initiative (JLI) and WHO World Health Report 2006 listed Pakistan amongst the 57 world countries with critical shortages of health workers. The HRH challenges faced by the country were

further compounded by a rather hasty devolution of the functions and authority of the Federal Ministry of Health (MoH) to the provinces on 30th June 2011. As per the Constitution, the role of coordination between the provincial and federal governments in the economic, social and administrative fields now lies with IPC Ministry, which is now responsible for the inter-provincial coordination.

The draft 2009 Health Policy, which included HRH as a priority area of focus, has been shelved and the provinces, including KPK, are in the processes of developing their own province specific policies. The KPK Health and HRH policies have yet to be finalized.

Recognizing the need for data while drafting Health Policy 2009, the federal MoH with the assistance of the GHWA, USAID TACMIL Project and WHO undertook a study titled, "Pakistan Human Resources for Health Assessment 2009". The aim was to gather information from the four large provinces, on numbers and distribution of health providers by cadre, as well as on attrition, work environment and their job satisfaction. The study was a sample survey covering both the public and private sector. An 'extrapolation' analysis was undertaken, disaggregating data of health workers, by cadre, facility type and province.

Table 8 The HRH situation in KPK.

Category	Sanctioned posts	Filled posts	Vacant posts	Percent Filled Post
Doctors, GP+Specialists (in hospitals)	4679	2650	2143	56.6%
Nurses in Hospitals	4689	3492	1197	
Nursing tutor posts	65	44	21	
Paramedical Staff	27592	26321	1273	95.4%
Technical & Support Staff	12741	12410	331	97.4%

Table 9 The HRH situation in urban and rural areas of some districts of KPK.

Districts	Urban Filled	Rural Filled
Abbott Abad	256	10
Banu	94	7
Charsdda	42	14
D.I.Khan	91	34
Dir Lower	66	7
Haripur	46	5
Mardan	135	5
Peshawar	681	45
Swat	115	16
Mansehra	41	2

The availability of doctors in urban settings is more than rural, as above table representing the filled posts of doctors in rural and urban areas.

Specialist's plays an important role in health sector, the distribution of specialists on the basis of posts filled and vacant in following districts of KPK. Table 2 Filled & Vacant posts of Specialists

Table 10 Specialists filled posts in some districts of KPK

	Filled	Vacant	Total	Percent filled
Peshawar	106	55	161	65.8
Bannu	29	24	53	54.7
Charsadda	33	19	52	63.5
Chitral	23	15	38	60.5
Hangu	5	5	10	50.0
Karak	37	24	61	60.7
Nowshera	116	48	164	70.7
Swabi	43	30	73	58.9
Tank	9	6	15	60.0
Abbott Abad	45	31	76	59.2

Hangu district have 50% vacant posts of specialists while district Nowshera had more than 70% vacant posts of specialists.

The doctor availability for per thousand populations is described below district wise in KPK Province.

Table 11 Doctors per thousand populations in some districts of KPK.

Districts	Doctors per thousand Population	Population	Filled Doctors Posts
Laki Marwat	0.08	815,000	68
Malakand	0.24	567,000	135
Mansehra	0.064	1,700,000	104
Mardan	0.05	2,379,000	109
Nowshera	0.06	1,394,000	84
Peshawar	0.23	3,575,000	826
Shangla	0.07	733,000	49
swabi	0.06	1,654,000	103
Swat	0.06	2,161,000	125
Tank	0.05	393,000	21

Collectively one doctor posted for serving 9465 people, figure in some are worse than collective estimate. 1624 doctors are available for 15,371,000 persons.

Table 12 Collective district wise data of doctors in Hospitals, GP+ Specialists

S.No	District	Sanction post	Filled	Vacant	Percent filled
1	Abbott Abad	369	269	105	83.48
2	Bannu	224	101	123	52.08
3	Battagram	75	15	57	20.0
4	Buner	72	57	15	83.67
5	Charsadda	106	56	61	66.67
6	Chitral	82	30	52	36.73
7	D.I.Khan	229	125	92	56.14
8	Dir Lower	123	73	50	64.08
9	Dir Upper	127	30	87	17.77
10	Hangu	51	23	28	25.0
11	Haripur	156	84	72	56.39
12	Karak	150	62	88	39.25
13	Kohat	143	79	63	48.78
14	Kohistan	32	15	17	46.87
15	Laki Marwat	109	68	141	32.01
16	Malakand	165	135	60	58.19
17	Mansehra	139	104	35	62.18
18	Mardan	268	109	152	32.09
19	Nowshera	143	84	59	58.94
20	Peshawar	1276	826	450	64.73
21	Shangla	104	49	55	42.23
22	swabi	175	103	72	49.2
23	Swat	294	125	169	58.04
24	Tank	56	21	35	35.82
25	Tor Ghar	11	7	5	63.63

Above tables provides a brief description of district wise situation regarding availability of doctors, general physicians and specialists in KPK. Highest number of filled posts recorded in district Buner 83.6%, while highest vacant posts observed in district Battagram where only 20% of seats are filled.

4.1 HEALTH WORKERS STOCK AND TRENDS

The estimated total HRH numbers and district level densities in KPK are very low. Budgetary constraints, absence of a comprehensive HRH Plan, deployment and retention issues, large burden of IDPS and Afghan refugees, non-existent and inconsistent HRH data are some of the contributory factors.

In the absence of a centralized data source on HRH in the KPK, data on the current stock and trends for the different categories of health professionals working in the province was collected from diverse sources. The PMDC, medical academic institutions, PNC, nursing institutions and the DGHS office were the main sources of information on doctors, dentists and nurses.

The Allied Health Professionals do not have a regulatory authority or a council, unlike the doctors, dentists and nurses. The paramedics are registered with the KPK Medical Faculty and the LHW records are maintained at the NP-FPPHC. The Community Midwifery Program is accredited by the PNC.

SECTION 5: HRH PRODUCTION

Pakistan did not have a health policy until 1997 and has to date not developed any HRH policy. As a result, HRH production was not guided by any need estimates. Until recently the focus of HRH production has been on the medical profession. Nurses' training was confined to the level a diploma in nursing with no opportunities of acquiring graduate and postgraduate qualifications. Allied health professionals and paramedical trainings have so far not been recognized as attractive career options with the result that not only very few institutes are offering these programs but also their annual enrollment is very low. Over the last half decade however the need for enhancing HRH numbers, quality and diversity is increasingly being recognized and the number of graduate and postgraduate training program, are increasingly being offered, especially in the private sector.

5.1 ACCREDITATION AND REGULATORY BODIES

Following are the professional bodies and accreditation councils that manage and recognize the academic institutions, busy in training of healthcare professionals. These bodies function at the national level.

5.1.1 Pakistan Medical & Dental Council (PMDC)

It was recognized under PMDC Ordinance 1962, as a body corporate for regulating medical, dental and public health professionals' educational programs. PMDC offers recognition to medical and dental colleges and postgraduate programs. It is the registration authority for general and specialist Medical & Dental Practitioners and Public Health Professionals in Pakistan and holds their records.

5.1.2 Higher Education Commission (HEC)

HEC is the primary regulator of higher education in Pakistan. It is responsible for Higher Education, Policy, Quality Assurance, Degree Recognition, growth of new institutions and to make stronger the existing institutions in Pakistan.

5.1.3 National Council for Homeopathy

It is working under section 46 of the Unani, Ayurvedic and Homoeopathic Practitioners (UAH) act, 1965. It accredits Homoeopathy training institutions, registers qualified practitioners of the Homoeopathic System of Medicine and promotes homoeopathy in the country.

5.1.4 Pharmacy Council of Pakistan (PCP)

It is a professional body established under the Pharmacy Act, 1967. The council is responsible for the registration of pharmacists and promotion of pharmacy education in Pakistan.

5.1.5 Pakistan Nursing Council (PNC)

PNC is an autonomous, regulatory body constituted under the Pakistan Nursing Council Act (1952, 1973) empowered to examine and register (license) Nurses, Midwives, Lady Health Visitors (LHVs) and Nursing Auxiliaries to practice in Pakistan.

5.1.6 National Council for Tibb

It was also documented under the UAH Act 1965 as an investigative and registering body for the practitioners of the Unani and Ayurvedic system of medicine.

5.2 ACCREDITAION AND POSTGRADUATE TRAINING BODIES

5.2.1 College of Surgeons & Physicians (CPSP)

It was included through Ordinance XX of 1962, to promote specialist practice of medicine, surgery, gynaecology and obstetrics and such other specialties; and to arrange postgraduate medical, surgical and other specialist's training.

The college, while not a regulatory or mandated accreditation body, but accredits hospitals for the training of candidates enrolled in its fellowship and membership awarding programmes. In the absence of a system of accreditation of hospitals, the CPSP accreditation recognizes a certain level of quality and uniformity among the selected hospitals.

5.2.2 Khyber Medical University Peshawar (KMU)

Khyber Medical University is the only public sector medical university in KPK. It was recognized in January 2007 with jurisdiction on the entire province. Initially, KMU was awarding the degrees in MBBS (Bachelor of Medicine and Bachelor of Surgery) and BDS (Bachelor of Dental Surgery). However, now KMU has different number of constituent and affiliated institutions awarding degrees in multiple disciplines/modules.

5.2 .2 Constituent colleges/institutions

1. Institute of Public Health and Social Sciences
2. KMU Institute of Physical Medicine and Rehabilitation-IPM&R
3. KMU Institute of Nursing Sciences
4. Institute of Basic Medical Sciences
5. Institute of Health Professions Education and Research
6. Institute of Paramedical Sciences
7. KMU Institute of Medical Sciences, Kohat.
8. KMU Institute of Dental Sciences, Kohat

5.2.3 Affiliated institutions

1. Khyber Medical College Peshawar
2. Khyber Girls Medical College Peshawar
3. Gomal Medical College
4. Bacha Khan Medical College Mardan
5. Khyber College of Dentistry
6. Post Graduate Medical Institute(PGMI) LRH/HMC Peshawar
7. Jinnah Medical College Peshawar
8. Pak International Medical College Peshawar
9. Abbottabad International Medical College Abbottabad
10. Pakistan Institute of Community Ophthalmology Peshawar
11. Udhyana Institute of Medical Technologies Abbottabad
12. Rehman Medical College Peshawar
13. Ayub Medical College Abbottabad
14. Saidu Medical College Swat
15. Hafeez Institute of Medical Sciences (B.Sc MLT)(Fresh Intake Banned)
16. Pakistan Institute of Prosthetics & Orthotics Sciences Peshawar
17. Rehman College of Rehabilitation Science Peshawar (DPT)
18. NCS – University System Peshawar (DPT & BS MLT)
19. RMI-School of Nursing (SON) BS Nursing
20. Women Medical College Abbottabad
21. Bannu Medical College Bannu
22. Royal College of Nursing Swat
23. Frontier Homeopathic Medical College Peshawar
24. RMI-School of Allied Health Sciences Peshawar
25. Sarhad Institute of Health Sciences Peshawar (a constituent institute of Sarhad university Peshawar)

The number of Private Medical Colleges/Institutions are 76 (50% of Total) and Public Medical Colleges/Institutions are (18 % of Total) in Pakistan. The number of Public Medical Colleges/Institutions is much lower than private Public Medical Colleges/Institutions. There is significant difference in the numbers of Private and Public Medical Colleges/Institutions. In KPK there are 9 private medical colleges.

Every year more than 80% of the applicants who sit in for the entry test do not get admission into the medical and dental colleges. The huge demand could be gauged from the fact that only in 2015, 26000 students applied against the 1100 seats available in the medical and dental colleges of KPK.

For the allied health professionals the programs offered include training for acquiring diploma, bachelor and masters in Nursing, Diploma in Midwifery and Lady Health Visitors' training certificate. The institutions are mostly in the public sector. KPK has almost half of the total number of Nursing Schools in the country and contributes to half of the total production of nurses in the country. Twenty Two (22) institutions are training Pharmacists. The sector wise breakdown of the institutional ownership by Public, Private or Armed Forces categories is given in the table below:

Table 13 Type of training institution in KPK

Institute Type	Public	Private	Armed Forces	Total
Medical College	08	09	0	17
Dental College	04	05	0	09
Public Health	02	05	0	07
Post Graduate Medical Institutions	04	0	0	04
College of Nursing	02	0	0	2
School of Nursing & Midwifery	15	0	0	15
School of Midwifery/ CMW	---	---	---	26
Pharm-D Institutions	---	---	---	12
Pharmacy Technician Institutions	0	10	0	10
Physiotherapy	1	08		09
Allied Medical Institutions	04	54	02	60

5.3 PRE SERVICE HRH TRAINING PROGRAMS

5.3.1 BACHELOR PROGRAMS IN MEDICINE & DENTISTRY

The pre service academic degrees offered in the fields of medicine and dentistry are Bachelor of Medicine & Bachelor of Surgery (MBBS) and Bachelors in Dental Surgery (BDS), respectively. MBBS is 5 year program with 2 years of preclinical and 3 years of clinical training. BDS is a 4 years program with 2

years of preclinical and clinical training each. Students are required to pass written, clinical and oral examinations.

The total number of applicants sitting in the entrance test for admissions in these programs is significantly higher than the total number of seats available in the medical and dental college making it attractive for the private sector to open medical colleges. Over the last 3 years, the number of medical and dental colleges has almost doubled and so has the annual intake.

Table 14 Intake in Medical and Dental Colleges versus the number of applicants in KPK

Year	Number of Applicants	MBBS & BDS Seats	Applicants not securing admission	% applicants not gaining entry
2013	19,486	1,050	18,436	94.61
2014	22,000	1,050	20,950	95.22
2015	26,000	11,00	24,900	95.76

5.4 ALLIED HEALTH PROGRAMS

A range of Bachelor of Science (B.S) programs of 4 years duration are being offered in the different allied health disciplines in the province. The curricula of the 4 years B.S programs are designed to deliver 3 years of combined theoretical and practical courses and to focus on the practice of skills acquired in the fourth year.

Institite of Paramedical Sciences (IPMS-KMU) and some other private institution affiliated with KMU is offering BS (HONS) 4 years program in the following specialties. Which have recently been introduced in the province of KPK.

1. Anaesthesia
2. Cardiology
3. Dental
4. Radiology
5. Surgical
6. Medical Lab Technology
7. Dialysis

8. Emergency Care

9. Intensive Care

IPM&R-KMU is offering Doctor of physical therapy (DPT) of 5 years duration.

Majority of the programs are being offered by public sector institutions. Khyber Medical University Peshawar has established constituent institutions as well as affiliate institutions offering the programs and undertake the examination of candidates trained. Students are required to pass written, practical and oral examinations to qualify for the award of degree. Details of the institutions offering different types of allied health programs are tabulated in the section above.

5.5. NURSING & MIDWIFERY PROGRAMS

General Nursing & Midwifery Diploma is a four years program offered by tertiary care and teaching hospitals and accredited by the PNC. The curriculum is focused on the development of understanding of basics of human biology and management of different types of illnesses. Special attention is paid to develop competencies for undertaking the care of antenatal, terminally ill, old age patients and pregnant mothers. The fourth year is dedicated to midwifery training.

Other diploma courses offered include **Midwifery Diploma and Community Midwifery Diploma**. The eligibility for the diploma programs sets an age limit of 15-25 years. Married applicants are only considered if no eligible un-married applicant is available. The diploma courses are open for students who have completed 10 years of education, i.e. are at the Matriculation Level or equivalent, with minimum 45% marks.

Community Midwifery Diploma is being offered by nursing schools with the support of the Maternal, Neonatal Child Health (MNCH) Program to enhance the pool of skilled birth attendants in the rural area. The program is accredited by PNC. The duration of training is 18 months including a three-month community practice.

Lady Health Visitor (LHV) Diploma is a two year diploma training program is offered by public sector Public Health Nursing Schools and is regulated and accredited by the Pakistan Nursing Council. Eligible candidates must be females with 55 percent marks in aggregated science subjects in Matriculation. Preference is given to candidates with F.Sc. Pre Medical with minimum 50 percent marks. The age limit

for enrolment into the LHV Program is 30 years. It is a Program for which examination is conducted under the Nursing Examination Board.

Generic Bachelor of Science in Nursing (BSN) is a four years bachelor program accredited by PNC and affiliated by KMU. Eligibility for the Degree program sets an age Limit of 15-30 years. Unmarried applicants are given a preference. The Degree Program is open for students with F.Sc pre medical qualification with minimum 50% marks.

Nursing in KPK is open to both males and females. Pakistan Nursing Council in collaboration with Khyber Medical University Peshawar affiliate, examine and regulate the Nursing Degree Programs in KPK.

5.6 PHARMACY PROGRAMS

The program aims at developing competencies of enrolled students in basics of health sciences, mathematics, statistics, chemistry, computing, pharmacology, pharmaceuticals, pathology etc. Eligibility is defined at F.Sc. (Pre-medical) or B.Sc. (After F.Sc. Pre-medical) or equivalent examination holding minimum 60% marks. The graduates are registered with the KPK Pharmacy Council.

Pharmacy council is also responsible under the Pharmacy Act 1967 (XI of 1967) for Inspection of hospitals in which training for pharmacy programs is conducted and of Pharmacy Educational Institution.

5.7 LADY HEALTH WORKER PROGRAM

It was launched in 1994 as the Prime Minister's Programme for Family Planning and Primary Health Care was renamed in 2001 as the National Program for Family Planning and Primary health Care (NP-FPPHC). This flagship program aims at building the competencies for supporting the maternal and child health services with a focus on promotion of healthy behavior, health education, and family planning services. The LHWs make referral of expectant mothers to nearby community midwife or health facility and have an important role in improving vaccination status of women and children in the communities.

The entry requirement to the LHW Programme includes eight years of schooling , local residency, preferably married; with minimum age of 18 years; and a recommendation by the community to which she belongs. Duration of the course is 15 months; 3 months build the theoretical base; followed by 12 months of practical on-the-job training.

5.5. DIPLOMA AND BACHELORS PROGRAM IN ALTERNATIVE MEDICINE

The Unani and Ayurvedic Medicine teaching institutions are accredited by the National Council for Tibb, and the Homeopathy institutions by the National Council for Homeopathy. There are 31 Tibbia Colleges offering Fazil-Tibb-Wal-Jarhat (FTJ) diploma courses in traditional Unani and Ayurvedic medicine and two Universities offering five years Bachelors of Eastern Medicines and Surgery (BEMS) degree along with M. Phil and PhD degrees. A total of 135 institutions offer diploma programmes in homeopathy and three Universities offer Bachelors of Homoeopathic Medical Sciences (BHMS) degree along with M. Phil and PhD degrees.

The Diploma Program in Homeopathic Medical Sciences was awarded equivalence to a BSc by the Ministry of Education in 2010. Benchmarks for training in Unani and Ayurveda Medicine were developed by the Traditional Medicines, Department of Health System Governance and Service Delivery, World Health Organization (WHO), in 2010. Their compliance at the provincial level has not been evaluated. Table lists the Alternate Medicine training programmes offered in Pakistan.

Hikmat Courses in Pakistan includes;p DHMS (Diploma in Homeopathic Medical Sciences), Dilpoma course for Tibb-e-Unani [Fazil-Tibb-Wal-Jarhat (FTJ), BEMS (Bachelor of Eastern Medicine and Surgery), BEMS (Bachelor of Eastern Medicine and Surgery) – Fast Track, Fazil-Tibb-Wal-Jarhat (FTJ) Diploma, and BHSM (Bachelor in Homeopathic Medical Sciences).

5.6 In-service & Post Graduate Specialization Training Institutions in KPK

The post graduate programs for health professionals training being offered in the province range from diploma to Masters and Doctoral levels of training. Their duration varies from 1 year for diploma programs to over 5 years for doctoral programs offered by College of Physicians and Surgeon, PGMi and KMU.

There is a slight increase in the number of medical and dental graduates' enrolment into the post graduate dental and public health programs. Diploma is usually of 1-2 years duration and a Masters and M Phil Program is of 2 years duration. KMU offers two years MPH and MSc Epidmiology and Biostatistic Program. The College of Physicians & Surgeons (CPSP) has the mandate to promote specialization in the field of general medicine and dentistry and award Fellowship (FCPS) and Membership (MCPS) of the college degrees to candidates who successfully complete the college prescribed programme of training and pass the examinations conducted by the college. The College offers FCPS in 64 specialties and sub-

specialties and MCPS in 20 specialties. The eligibility criteria of fellowship PG courses include MBBS/equivalent qualification; registration with PMDC; and one year experience in relevant field as Medical Officer or House Officer.

5.6.1 PUBLIC HEALTH POST GRADUATE PROGRAMS

Post graduate institutions that offer courses for Public Health professionals are registered with the PMDC. A strong need is recognized for strengthening the management cadre in the KPK Health Sector in view of the gross deficiency.

5.6.2 ALLIED HEALTH POST GRADUATE PROGRAMS

KMU is offering MSc/MPhil/PhD Programs in Allied Health Disciplines. The eligibility criteria of these programs is first or high 2nd division in MBBS /B.Sc. in relevant allied health field, an Entry Test and Interview at host institution. The most popular specialty programs being offered are reflected are; M.Sc. in Nursing and Medical Technology and Master of physiotherapy,

5.7 NURSING & MIDWIFERY SPECIALIZATION PROGRAMS

B.Sc. Nursing is a fast track 02 years Bachelor Program, open to nurses with General Nursing Diploma. programme is basically aimed at improving the qualification of tutor nurses teaching the diploma courses for nurses in the nursing schools.

5.8 IN-SERVICE TRAINING AND CONTINOUS PROFESSIONAL DEVELOPMENT PROGRAMS

In service training programs are being offered for all categories of health workers in KPK but are neither institutionalized nor linked to career structures. No consolidated data is available in this context as there is no central authority regulating it.

The Provincial Health Development Centre (PHDC) and District Health Development Centres (DHDCs) were established in 1994 with the aim to provide technical assistance for development initiatives and health reforms. Requisite capacity building of the staff in view of the planned reforms was undertaken by these centres to some extent. However, they have not been successful in providing institutionalized induction programs specific to each category of healthcare workers. The role was gradually handed over to the Health Sector Reform Unit (HSRU) which was established in 1998 with the mandate to facilitate execution of health sector reforms. Together with the Health Management Information System (HMIS) it undertook a monitoring role for the reforms implemented.

6. HEALTH WORKFORCE FORECAST

In KPK, it is calculated approximately that there is 1 Doctor (Physician & Dentist) to 9,881 populations; One (Nurse + pharmacist+ Paramedics) to 995 populations; One (Technical Supporting Staff) to 2110 populations and 1 Community Health Worker to 2,170 Population.

Table 15 The Health Workers per population for KPK

S.No	Category/Cadre	Registered Numbers in KPK up to 2015	HW/1000 in KPK
1.	Doctor	2650	0.17 Doctors per 1000 population
3.	Nurses + Paramedics + Pharmacist	26,321	1.00 Paramedical Staff to 1000 population
4.	Technical & Supporting Staff	12,410	0.47 Technical & Supporting Staff to 1000 population
5.	Community Health Workers (CMW+LHW)	12,064	0.46 Community Health Workers to 1000 population

Source: Data Provided by DHIS Information Cell, Director General Health Services, KPK

Figure 4 Registered number of Health Workers in KPK up to 2015

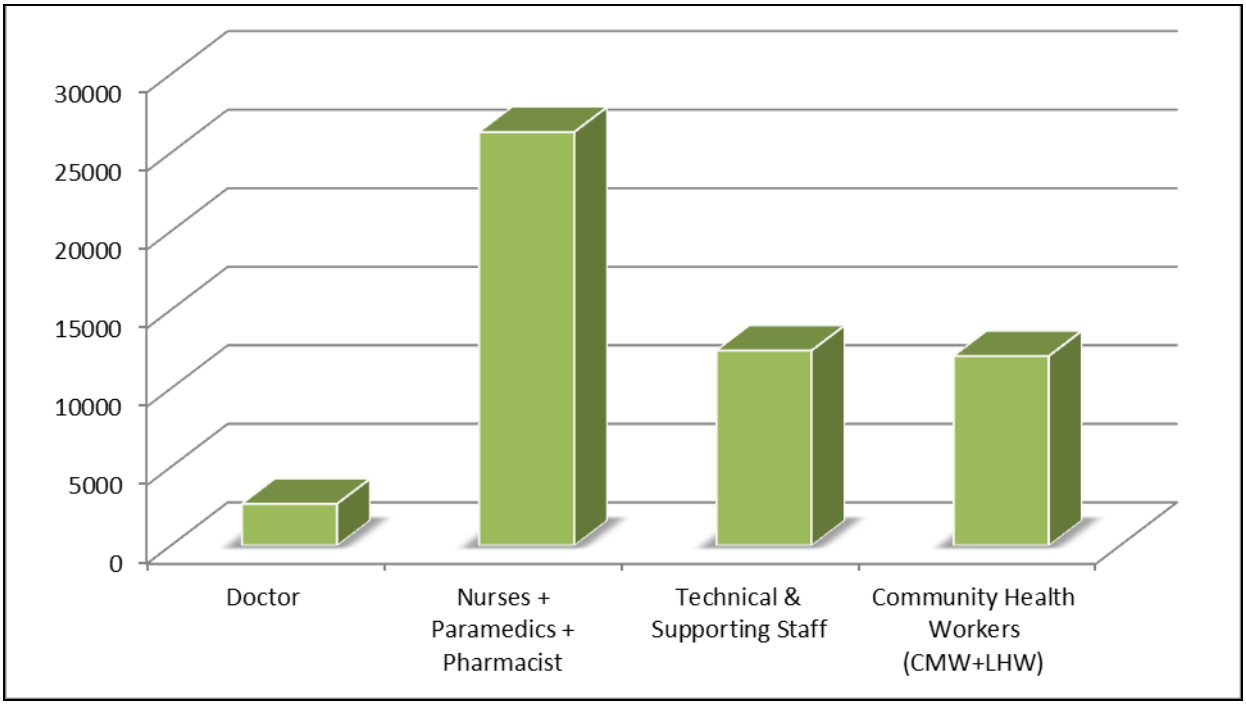


Table 16 One Doctor (in Public Sector) for population in each District of KPK

S#	District	1 Doctor for population in each District	S#	District	1 Doctor for population in each District
1	Abbott Abad	4164	13	Kohat	10911
2	Bannu	10009	14	Kohistan	31867
3	Battagram	28133	15	Laki Marwat	10912
4	Buneer	14702	16	Malakand	5207
5	Charsadda	26661	17	Mansehra	15212
6	Chitral	14800	18	Mardan	19890
7	D.I.Khan	10464	19	Nowshera	15238
8	Dir Lower	15397	20	Peshawar	3897
9	Dir Upper	27600	21	Shangla	13612
10	Hangu	20957	22	swabi	14709
11	Haripur	11000	23	Swat	15648
12	Karak	10661	24	Tank	17095

Source: Data Provided by DHIS Information Cell, Director General Health Services, Khyberpakhtunkhwa

Table 17 One Paramedical Staff for population in each District of KPK

S#	District	One Paramedical Staff for population in each District	S#	District	One Paramedical Staff population in each District
1	Abbott Abad	840	13	Kohat	1386
2	Bannu	927	14	Kohistan	1398
3	Battagram	1294	15	Laki Marwat	2157
4	Buneer	2739	16	Malakand	1056
5	Charsadda	1035	17	Mansehra	1134
6	Chitral	550	18	Mardan	1223
7	D.I.Khan	670	19	Nowshera	1251
8	Dir Lower	843	20	Peshawar	607
9	Dir Upper	1104	21	Shangla	1347
10	Hangu	1443	22	swabi	1841
11	Haripur	822	23	Swat	1519
12	Karak	581	24	Tank	1169

Source: Data Provided by DHIS Information Cell, Director General Health Services, KPK

Table 18 One Technical Staff for population in each District of Khyber Pakhtunkhwa

S.No	District	One Technical & Staff for population in each District	S.No	District	One Paramedical Staff population in each District
1	Abbott Abad	1772	13	Kohat	3394
2	Bannu	1191	14	Kohistan	3104
3	Battagram	2344	15	Laki Marwat	2378
4	Buneer	7906	16	Malakand	2502
5	Charsadda	4290	17	Mansehra	3282
6	Chitral	1741	18	Mardan	3871
7	D.I.Khan	2110	19	Nowshera	14066
8	Dir Lower	842	20	Peshawar	774
9	Dir Upper	3436	21	Shangla	5558
10	Hangu	2069	22	swabi	----
11	Haripur	1093	23	Swat	----
12	Karak	1878	24	Tank	----

Table 19 One LHW/CMW for population in each District of Khyber Pakhtunkhwa

S#	District	One LHW/CMW for population in each District	S#	District	One LHW/CMW population in each District
1	Abbott Abad	1251	13	Kohat	3900
2	Bannu	1978	14	Kohistan	22762
3	Battagram	4019	15	Laki Marwat	-----
4	Buneer	4901	16	Malakand	-----
5	Charsadda	1493	17	Mansehra	1913
6	Chitral	890	18	Mardan	1768
7	D.I.Khan	1732	19	Nowshera	1569
8	Dir Lower	2722	20	Peshawar	3302
9	Dir Upper	3680	21	Shangla	3102
10	Hangu	4969	22	swabi	2025
11	Haripur	1381	23	Swat	1826
12	Karak	1383	24	Tank	2849

SECTION - 7 HRH UTILIZATION

HRH production and utilization need to be guided by evidence based policies and plans and closely coordinated to ensure meeting demand and supply imperatives, fair distribution and adequate skill mix. This requires the establishment of HRH specific structures and mechanisms in the ministries and departments of health. In Pakistan unfortunately specific focus on HRH is missing and departments of health including that of the KPK do not have as yet HRH department, information systems and managers. The information given below is from scattered sources and not complete.

7.1 HRH RECRUITMENT AND RETENTION

Recruitment of the health workers into the KPK Public Health Sector is undertaken either through the KPK Public Service Commission, or on contract basis. The Civil Servants Act 1974 governs the recruitments for regular as well as contractual positions and specifies that all recruitments into the public sector be made on merit and after public advertisement. Service rules for each health human resource cadre further defines the manner of recruitment to different levels in the respective career ladder as some are through initial appointment while others are through promotion only. The contractual appointments can be made for 3 to 5 years and are governed by the contract employment policy (CEP), 2004. Terms of reference are usually developed at the departmental level and approval is sought from the Finance Department.

The authority for recruitment of Health Workers in public sector varies as per BPS Grades in the public health sector. For Grades 16 to 18 the District Selection Committee selects and forwards recommendation to the Secretary Health for final approval. For Grades 19 and 20 the Chief Minister is the final authority. For all categories of health workers appointments for Grade 18 and above are made by promotion only. The parastatal suppliers of health services apply the same rules and regulation or may modify them if authorized according to their needs.

Despite the above described clearly laid down rules and regulations, merit-based recruitment remains a big challenge in KPK. However, the recent Government has made significant changes by introducing the GAT general test as screening test for recruitment in various health sectors.

In the private sector, in large healthcare facilities, the HR Department is usually staffed with qualified and experienced HR Managers. Vacancies are advertised; the applicants shortlisted followed by an interview and sometimes even an entry test. Personality and aptitude assessment is often made. However since most of these facilities are owned by individuals and families final decisions for recruitment lies with them. Nevertheless, keeping their own business interests in mind, they are more likely to make merit-based recruitments.

Recently in KPK the private health sector has attracted mega investments from many national and international organizations/firms. Previously the retention of skilled staff for the public sector had to compete with foreign countries only but now the private sector is offerings huge salaries in comparisons to the public section e.g the private medical colleges is offering 500,000 per month salary to basic

science professor which is almost 4 to 5 times higher than that in public sector. Therefore, the retention of skilled health workers is now a big challenge for the Public sector.

7.2 WORK ENVIRONMENT AND JOB SATISFACTION

Job security, salaries compatible with qualification, opportunities for professional growth and availability of resources and management support for discharging their duties are some of the major determinants of a pleasant work environment and job satisfaction. A recent study on job satisfaction and work environment of health workers in Pakistan showed that the private sector scored better than the public sector on all indicators while the rural workers were worse off than the urban workers on almost all indicators

Public sector health workers are awarded salaries as per a system of Basic Pay Scales (BPS) ranging from BPS 1 to 22. In the absence of career structures for the different categories of health workers, career development and professional growth is slow and a source of dissatisfaction for HRH. A 'Career Structure for Health Personnel Scheme Ordinance 2011' (CSHP) was notified at the Federal Level in 2011, offering market competitive salary packages. Similarly, a tenure track system is offered by HEC, Pakistan.

7.3 HRH PERFORMANCE MANAGEMENT

In the public sector in Pakistan, health workers performance continues to be evaluated through the out dated subjective system of 'Annual Confidential Reports'. The reports are written by their respective supervising officers and countersigned by heads of departments and institutions. Three formats are used: UF-50 for Grade 16 and above; UF-45 for Grades 5-15 and a separate format for Grades 1-4. The concept of performance management is yet to be understood and introduced.

In comparison the private sector usually has institutional policies and protocols in place to regulate/manage the performance of its employees. Performance evaluation of health workers is based on their job performance or service record, discipline, qualifications and length of service. Baseline guaranteed salary is supplemented by performance based award of annual bonuses; compensations linked to productivity; or outstanding employees rewards etc.

7.4 HRH DEPLOYMENT AND DISTRIBUTION IN THE PUBLIC SECTOR

In the absence of HRH information system comprehensive and reliable data on HRH distribution and deployment in KPK is not available. Data collected and collated from different sources is incomplete and has many inconsistencies. Private Health Human Resource Data is largely unavailable.

SECTION 8: GOVERNANCE FOR HRH

8.1 CHANGING LANDSCAPE OF GOVERNANCE IN HEALTH

Under the 1973 constitution health was recognized as a provincial subject but there were certain constitutional provisions, i.e. federal concurrent list in the fourth schedule of the constitution that justified the role of the federal government to intervene in the health sector in policymaking, regulations, medical education research and delivery in some specific dimensions such as infectious disease control etc, of healthcare.

The financial arrangements for the provinces to undertake the additional responsibilities include the enhanced 7th National Finance Commission (NFC) and allocation of funds through federal PSDP for vertical health programs for the next four years till a new NFC Award is signed. The NFC Award transferred a much larger share of the divisible pool and other resources to the provinces from the federation.

The 18th Constitutional amendment changed the constitutional and fiscal relationship between the provinces and the federation of Pakistan with implications for health services delivery. Through these legislative changes the Department of Health acquired the policy-making function at the provincial level in addition to its administrative and oversight functions.

The Federal Legislative List II which falls in the purview of the Council of Common Interests (CCI) has been extended to include all regulatory authorities established under a Federal law, national planning and national economic coordination including planning and coordination of scientific and technological research and legal, medical and other professions.

The HRH Regulatory Institutions, i.e. the PMDC and the PNC also remain in the domain of the FLL. To retain national coordination and conformity, the federal government also retained certain functions,

including health information, disease security, trade in health and compliance with international agreements, treaties and conventions and health research. However the legal status of the rules of business relating to certain functions on the concurrent list like preventive programs, curative care and pharmaceutical regulation remains vague. Area of special concern is the regulation and standardization in the pharmaceutical sector.

8.3 CAPACITY OF FOR HRH PLANNING & POLICY MAKING

The KPK Department of Health has currently little capacity, technical resources and mechanisms for policy development and HRH planning. HRH Polices related to recruitment, transfers & deployment, performance management, working conditions, professional development and promotion cannot be sourced from any central point at the KPK Health Department. Where existing, the policies are generic and where updated, have been developed without involving the relevant stakeholders. This has an impact on their implementation. Moreover in the absence of an HRH Plan, there are no benchmarks available to evaluate the progress made.

There is no institutionalized arrangement in the health department to review and revise policy objectives in the light of emerging challenges, epidemiology, governance, financial constraints, and prioritization in funding process, human resource issues and gender mainstreaming. Planning capacity is also limited despite a full fledge Planning Cell/Development Wing in place. Major projects either are prepared by consultants or by end users (districts or institutions).

In the absence of a dedicated HRH department, the HRH functions are fragmented with minimum or no coordination between the relevant stakeholders.

The current actions under discussion for improving the HRH situation in the province include:

- Establishment of an HRH Observatory to generate data and evidence
- Establishment of a forum for provincial HRH coordination
- Scaling up of HRH production (pre-service education and training) to overcome the shortage
- Strengthening provincial capacity and expertise in human resources development
- Leadership and management capacity program
- Orientation of education towards Primary Health Care

8.4 Professional Regulations

Developing regulations for ensuring the optimum functioning of health systems and to safeguard the users is a key stewardship function of the KPK Health Department. Presently there are weak regulatory frameworks in place for the public sector and almost none for the private sector. The system of awarding of licensure has inherent weaknesses and many health categories do not have a registration and accreditation council. There is no specific licensing requirement in KPK for opening a healthcare facility.

Following are some of the Laws which have been enacted to regulate health professionals training and conduct. Owing the absence or lack of regulations they are however not being fully implemented:

1. Prevention of Misuse of Allopathic Medicine Ordinance 1962
2. Medical & Dental Council Ordinance 1962
3. The Pharmacy Act 1967
4. Prevention of Misuse of Allopathic Medicine Rules 1968
5. Medical & Dental Degree Ordinance 1982
6. Unani & Homeopathic Act 1995

The following regulatory bodies are currently functioning:

8.4.1 Pakistan Medical and Dental Council

The Pakistan Medical and Dental Council (PMDC) is the statutory regulatory authority with the responsibility to oversee the quality of medical education and individual practitioners. It includes representatives from the political, judiciary, teaching and health sectors and is charged with protecting the public interest in the realm of medical and dental care.

8.4.2. Pakistan Nursing Council

The Pakistan Nursing Council (PNC) is empowered to register (license) Nurses, Lady Health Visitor, Midwives and graduates of public health schools. The PNC inspects and approves schools of nursing, midwifery and public health; and maintains standards of education and practice, education and nursing services.

8.4.3. KPK Medical Faculty

It oversees the training of paramedics in the province.

8.4.4. National Council for Homeopathy and National Council for Tibb

Registers and oversees the qualifications of Homeopathy and Tibb practitioners.

8.4.5. National Pharmacy Council

For registering the Pharmacist and Pharmacy technicians

8.5. STAKEHOLDERS IN HRH

The GHWA and WHO in 2010 supported HRH stakeholders' analysis through extensive stakeholders' consultations in the four provinces of Pakistan. Details of the proposed CCF committee are mentioned in Section 1. This was a vital step towards mapping HRH stakeholders at the provincial level for strengthening the linkages and addressing the coordination challenges existing between them. These include inadequate dialogue, poor information sharing, weak coordination mechanisms and coordination capacity for stakeholders' engagement.

HRH Stakeholders in KPK belong to the related Provincial Health Departments and Programs; Ministry of Education, Labour and Finance; Medical Universities, Medical Colleges and Teaching Hospitals; CPSP, Nursing College, Allied Health Professionals Institutes, Paramedic Institutes; HRH regulatory and registration bodies (PMDC, PNC, Pharmacy Council, Homeopathic and Tibb Councils); HRH related professional associations (Pakistan Medical Association, Pakistan Physical Therapy Society, Society of family physicians); Civil society organizations and NGOs engaging HRH, Private sector, and HRH related partners including UN and international organizations.

8.6 HRH Stake Holders in KPK

Table 20 HRH Stake Holders in KPK

Stakeholder Constituencies	Identified stakeholders	Role in HRH
Lead Agency : Provincial Health leadership	Chief Minister/Health Minister	Stewardship of provincial policies and strategies for HRH
Office of the Director General Health Services	Director General Health Services/ Director General Nursing/	Health program coordination, implementation and monitoring; overseeing provision of primary and secondary health care services; Emergency response to disasters and disease outbreaks; and liaises on with district health offices
Other public ministries and departments related to HRH		
Public Service Commission		Recruitment of health workers
Finance Department		Funding of the health budget
Defense Department		Organization and management of health services for the armed forces
Education Department		Training of some categories of health workers
Labour Department		Ensuring health workers rights
Planning & Development		Planning and Approval bodies
Programmes and related departments in DOH related to HRH		
KP Health Sector Reform Program		Develop, implement and oversee institutional reforms in health; donor coordination for supporting health reforms
Health Management information System		Records Information on HR Utilization in the public health sector
Priority health programmes related to HRH	TB, AIDS, Malaria, EPI, etc.	Vertical health programs for TB, AIDS, Malaria, EPI etc
Private Sector	Private Hospitals, clinics, diagnostic laboratories, pharmacies, HRH Recruiting Firms	Major employer of health workers; Major share in health service delivery; Managers of health services
Civil Society Organizations	NGOs, FBOs, advocacy coalitions, activists etc.	Offer valuable experiences and lessons on implementation of HRH initiatives at the community and grass root level; Advocacy for HRH Initiatives

Academic institutions	Medical & Dental Colleges; Universities; Nursing Schools & Colleges, Midwifery Schools, Allied Health Institutes, Pharmacy Colleges	Pre service, in service training and CPD of HRH
Research institutions	Research infrastructure at universities; Nur Centre for Research & Policy	Generate evidence to inform HRH policies and reform HRH Practices
Regulatory & Accreditation Bodies	Pakistan Medical & Dental Council, Pakistan Nursing Council, Pharmacy Council for Pakistan, Council of Homeopathy and Council of Tibb,	Accredit the academic programs of health workers; recognize the training institutions; regulates the registration of qualifying health workers and issue a license for practice
Professional Associations	Pakistan Nursing Federation, Association for Family Physicians, Young Doctors Medical Associations etc.	Involved in welfare of members in areas of negotiating for improved salary structures, incentives, working conditions, including working environment and professional development
Bilateral agencies	USAID, JICA, Department for International Development of the United Kingdom (DFID), Canadian International Development Agency(CIDA), Australian Agency, for International Development (AusAID	Provide direct funding and technical support for HRH Projects
International cooperation	UN and other International agencies/ development partners	Provide technical assistance, promote, advocate and provide funding for HRH within provincial programs

8.7 HRH Challenges and Recommendations for HRH Plan

HRH Action Framework is used to analyze the HRH challenges facing KPK.

8.7.1 ACTION FIELD 1: HUMAN RESOURCE MANAGEMENT SYSTEMS

The HR Systems in KPK are fragmented with little or no coordination between the HRH Stakeholders. The absence of a central institutional mechanism for essential HR functions and lack of qualified and skilled HR Managers is the main reasons behind an ineffective HR Management System. HRIS that are primarily focused on collecting data from public sector and ignore the HR in the private sector results in inconsistent and unreliable HR Data for effective workforce planning. Absence of institutionalized staff development plans linked to career structures, weak performance frameworks with inflexible incentive systems, not linked to performance evaluation at any level and little or no focus on improvement in workforce environment are few of the reasons behind de motivated HR Staff and their high turnover.

Recommendations:

- Establish a special program in the health department like other regular programs such as EPI, TB Control program and Integrated Vector Management dedicated for HRH Information and Management
- The program should have a provincial Program Implementation Unit (PIU) under the supervision of Program Manager and all the required staff having relevant qualification
- Appoint a district HRH coordinator along with IT staffs in all district Health Offices
- Implement HRH information reporting system starting at community level through health facilities, DHO Offices up to the provincial PIU within a specified timeline.
- Ensure the availability of HR Systems that promotes the use of evidence to develop policies for reforming existing practices.
- Ensure that HR Managers have the requisite capacity and decision making authority for recruiting staff as per work plans, their deployment & development, performance management, motivation and retention.
- Strengthen HRIS to capture HR Trends and provide comprehensive, consistent and reliable HR Data for HRH Planning, recruitment, deployment, and training
- Develop of HR Performance Management Systems to promote retention
- Develop positive workforce environment that promotes team work, professional development and growth
- Undertake operational HRH Research to generate evidence for effective deployment of existing health work force, enhancing its efficiency and enhancing its productivity

- Develop provincial strategy for implementation of WHO code of practice on the international recruitment of health personnel

8.7.2 ACTION FIELD 2: LEADERSHIP

Limited management capacity, inadequate financial resources, deficiency of a comprehensive casted HRH Plan, and absence of a HRH Policy are the fundamental cause of HRH shortages and mal distribution in KPK. In the Post 18th amendment scenario, a mix of apprehensions and prohibitions for prioritization of HRH actions prevails at the provincial level. This is due to a strong contextual gap of HRH policies that originate in the absence of supporting evidence. HRH professional regulatory bodies remain a federal subject and there is little or no coordination between the key HRH Stakeholders.

Recommendations:

- Enhance the health sector leadership capacity for providing the vision and effectively advocating for HRH and the essential HR reforms;
- Develop the management skills for effective planning, budgeting, mobilizing resources, developing teams and aligning them for improved health outcomes.
- Develop institutionalized management and leadership development program after a comprehensive training need assessment for P Provincial Health Department
- Launch in service training programs to develop and enhance the management capacity of HR managers and leaders
- Develop local capacity to train leaders and managers
- Advocate for introduction of management and leadership module in the in service and post graduate training curricula of health professionals
- Linking management and leadership trainings to the career structure of health managers
- Strengthen decentralized district health human resource management and service delivery

8.7.3 ACTION FIELD 3: PARTNERSHIPS

Private Sector in KPK is estimated to provide 80% of the outpatient services. PPP Models in health although existing but in view of the limited public health resources, it is vital to further develop effective

partnerships for optimal utilization of existing resources. There is limited investment made on contracting out of health care services in KPK. After the 18th amendment, donor coordination is now being done primarily at the provincial level providing an opportunity for harmonization and alignment of future reforms and initiatives with Provincial HRH Priorities for improved health service delivery. In the absence of an HRH Provincial Coordination & Facilitation Mechanism there is inadequate stakeholder engagement and information sharing, inadequate dialogue with limited coordination capacity.

Recommendations:

- Promote formal and informal linkages between provincial and district health offices, donors, professional associations, community-based organizations, NGOs, public and private health sectors, vertical health programs, and HRH related constituencies
- Promote multi sectoral collaboration and linkages between HRH related constituencies for effective planning, and implementation of a coordinated provincial HRH strategy
- Encourage PPP between the public health sector, private health sector, NGOs, in the production, utilization and deployment of health workers; for exploiting existing resources; and improving capability for enhanced outreach and quality services for all.

8.7.4 ACTION FIELD 4: FINANCE

In an economically constrained environment, KPK has improved the salary structures and has introduced some incentives but the resources remain inadequate for developing, deploying, and retaining an adequate and skilled health workforce. Rural retention is a challenging issue. Limited HRH Funding is not supportive of incentive programs, such as rural packages for health workers, effective planning, essential recruitment, hiring and skill development.

Recommendations:

- Advocacy for enhanced focus for HRH financing in the provincial budgets
- Mapping financial flows for HRH, identifying development partners that support HRH initiatives
- Improved coordination and effective dialogue between provincial health department and the finance department for HRH financial planning to meet for projected interventions in HRH
- Seek technical assistance for developing HRH financing proposals to improve prospects for securing funding from regional and global health system strengthening initiatives

- Develop a comprehensive resource mobilization plan for securing funds for HRH that is in line with the expenditures needed to develop, deploy, and sustain health workforce in the right number with the right skills at the right places
- Establish special incentive packages for the health workforce deployed in rural or hard areas

8.7.5. ACTION FIELD 5: EDUCATION

KPK in the absence of a comprehensive, costed HRH Plan is unable to forecast its health worker needs, calculate HR Deficiency and outline strategy to meet the projected demand. This has also resulted in a mismatch between production and absorption. It appears that Punjab is continuing to spend its limited resources on production of health workers who have no jobs in the provincial health care system. This is resulting in growing number of health worker migrants.

Pre service curricula need revision and updating for effective health service delivery. In Service training programs are not institutionalized and not linked to career structures in majority of cases. The rising number of medical and dental colleges in Punjab hass led to shortage of faculty impacting the quality of education in these institutes. In-service training programs are not linked to organizational needs and are ineffective in improving organizational performance.

Recommendations:

- Tie the pre-service education to provincial health needs through effective dialogue and coordination between Ministry of Education, Regulatory Authorities and Health Managers
- Introduce institutionalized in-service training programs; explore both distance and blended models for building a skilled health workforce; establish regulations to standardize in service training needs
- Strengthen the capacity of training institutions in terms of qualified staff, quality of education and output capacity
- Organize need based trainings of community health workers and non-formal health care providers

8.7.6. ACTION FIELD 6: POLICY

In KPK there are no clear cut policies on career paths or promotion of health workers. Comprehensive HRH Policy is lacking and Managers do not have the requisite authority and funds to effectively undertake the HR functions. Due to fragmented HR Management Structure, there are delays in annual performance review and delays in promotion of health workers. Merit based hiring is a challenge.

Recommendations:

- A comprehensive HRH policy addressing all the three blocks; production, utilization and exit should be developed
- Regulatory and legislative structure to support career development
- Encourage decentralized HR management throughout the KPK health care system.
- Standards, accreditation and licensure renewals policies to be updated.
- HRH Policies contributing to health worker shortage and turnover to be reviewed

REFERENCES

1 World Health Organization. Working together for health. Available from http://www.who.int/whr/2006/en/

2 Dreesch N, Dolea C, Dal Poz MR, *et al* . An approach to estimating human resource requirements to achieve the Millennium Development Goals.2005 Sep;20 (5):267-76.

3 Country coordination and facilitation in Pakistan. Available from http://www.who.int/workforcealliance/countries/pak/en/

4 Report on constitutional 18th amend bill 2010. Available from http://www.na.gov.pk/uploads/documents/report_constitutional_18th_amend_bill2010_020410_.pdf

5 Climate of Khyber Pakhtunkhwa. Available from http://trulypakistan.com/climate-of-khyber-pakhtunkhwa/

6 Poverty Perspectives in Pakistan. Available from http://www.ppaf.org.pk/Poverty_Briefs/Issue_II_October_2013%20(1).pdf

7 Health Systems Strengthening Glossary. Available from http://www.who.int/healthsystems/hss_glossary/en/index5.html

8 Government of Pakistan. Ministry of Finance, Population, Labor Force and Employment, Chapter 12- (180),Page 180 Available from http://www.finance.gov.pk/survey/chapters_14/12_Population.pdf

9 National program for primary health care and family planning. Available from http://www.pc.gov.pk/downloads/pc1-forms_vertical-health-program/National%20Program%20for%20Family%20Planning.pdf

10 Malaria control program. Available from http://www.dmc.gov.pk/.

11 Provincial TB Control Program. Available from http://www.ntp.gov.pk/cmsPage.php?pageID=26

12 National AIDS Control Program. Available from http://www.nacp.gov.pk/provincial_programmes/

13 Private health care in Pakistan. Available from http://www.sanianishtar.info/pdfs/CP-PB.pdf

14 HEC tenure track system. Available from http://www.hec.gov.pk/insidehec/divisions/qali/qadivision/pages/tenuretrackstatutes.aspx

ANNEXURES

Annexure-1 TOTAL NUMBER OF DOCTORS / DENTAL SURGEONS (GP's with basic degree only)

REGISTERED UP TO 26TH OCTOBER 2015

Province	Doctors			Dental Surgeons			LSMF		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
K.P.K	12162	6069	18231	1020	1245	2265	52	2	54

SOURCE: Pakistan Medical & Dental Council Islamabad

ANNEXURE 2 Demography/ Health Indicators of KPK

S.No	Indicators	Units	KPK	Pakistan
1	Contraceptive Prevalence Rate (Any method)	Percent	28	35
2	Contraceptive Prevalence Rate (Any modern method)	Percent	20	26
3	Infant Mortality Rate	Per 1000 Live Birth	58	74
4	Under 5 Mortality Rate	Per 1000 Live Birth	70	89
5	Total Fertility Rate	Rate	39	38
6	Sex Ratio		105	108

Source: KPK Bureau of Statistics, (http://kpbos.gov.pk/). Pakistan economic Survey 2013-14 & Pakistan Demographic Health survey 2012-13

Annexure 3 Distribution of Doctors in Public Sector District wise

S#	District	Sanctioned Posts	Filled Posts	Vacant Posts
1	Abbott Abad	369	269	105
2	Bannu	224	101	123
3	Battagram	75	15	57
4	Buneer	72	57	15
5	Charsadda	106	56	61
6	Chitral	82	30	52
7	D.I.Khan	229	125	92
8	Dir Lower	123	73	50
9	Dir Upper	127	30	87
10	Hangu	51	23	28
11	Haripur	156	84	72
12	Karak	150	62	88
13	Kohat	143	79	63
14	Kohistan	32	15	17
15	Laki Marwat	109	68	141
16	Malakand	165	135	60
17	Mansehra	139	104	35
18	Mardan	268	109	152
19	Nowshera	143	84	59
20	Peshawar	1276	826	450
21	Shangla	104	49	55
22	swabi	175	103	72
23	Swat	294	125	169
24	Tank	56	21	35
25	Tor Ghar	11	7	5
Total		**4679**	**2650**	**2143**

Source: DHIS Information Cell, Director General Health Services, KPK

Annexure 4 Distribution of Paramedics in Public Sector of KPK District wise

S#	District	Sanctioned Posts	Filled Posts	Vacant Posts
1	Abbott Abad	1337	1334	3
2	Bannu	1247	1090	157
3	Battagram	400	326	74
4	Buneer	315	306	11
5	Charsadda	1505	1443	62
6	Chitral	836	808	28
7	D.I.Khan	1972	1951	21
8	Dir Lower	1334	1333	1
9	Dir Upper	850	750	100
10	Hangu	376	334	42
11	Haripur	1160	1124	36
12	Karak	1197	1138	59
13	Kohat	706	622	84
14	Kohistan	419	342	77
15	Laki Marwat	381	344	37
16	Malakand	671	666	5
17	Mansehra	1468	1395	73
18	Mardan	1805	1772	33
19	Nowshera	1099	1023	76
20	Peshawar	5419	5307	112
21	Shangla	504	495	9
22	swabi	831	823	8
23	Swat	1421	1288	132
24	Tank	339	307	33
25	Tor Ghar			
Total		27592	26321	1273

Source: DHIS Information Cell, Director General Health Services, KPK

Annexure 6 Population of KPK in Thousands

Item	Population 1998 Census		%age with Pakistan	2013-2014 (E) (1st Jan)
	Pakistan	KPK		
Total	132352	17736	13.4	27548
Urban	43036	2994	7.0	5170
Rural	89316	14742	16.5	22378
Male	68874	9085	13.2	14111
Female	63478	8651	13.7	13437
Annual Growth Rate %	2.69	2.81		2.81
Geographical Area (Sq Km)	796	74.5	9.4	74.5

Source: KPK Bureau of Statistics, (http://kpbos.gov.pk/)

Pakistan economic Survey 2013-14 & Pakistan Demographic Health survey 2012-13

Annexure 7 District wise Population of KPK

S.No	District	Population	S.No	District	Population
1	Abbott Abad	1120,000	14	Kohstan	478000
2	Bannu	1010861	15	Laki Marwat	742000
3	Buneer	838000	16	Mardan	2168000
4	Battagram	422000	17	Malakand	703000
5	Charsadda	1493000	18	Mansehra	1582000
6	Chitral	444000	19	Nowshera	1280000
7	Dir Upper	828000	20	Peshawar	3219000
8	Dir Lower	1124000	21	Swat	195600
9	Dera Ismail Khan	1308000	22	Swabi	1515000
10	Hangu	482000	23	Tank	359000
11	Haripur	924000	24	Toor Ghar	269623
12	Kohat	862000			
13	Karrak	661000			
TOTAL			**26186861**		

Source: DHIS Information Cell, Director General Health Services, KPK First Quarter Report 2015 *www.dhispk.gov.pk*

Annexure 8 District wise number of registered private medical practitioner in KPK

District	2010-11			2011-12			2012-13		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Khyber Pakhtunkhwa	**1606**	**1471**	**135**	**2001**	**1860**	**141**	**2758**	**2512**	**246**
Abbottabad	93	79	14	105	89	16	249	215	34
Bannu	37	36	1	93	88	5	99	90	9
Battagram	9	9	-	13	11	2	43	38	5
Buner	39	38	1	43	43	0	59	59	0
Charsadda	56	55	1	65	63	2	75	70	5
Chitral	8	8	-	5	5	0	9	9	0
D.I.Khan	28	24	4	54	52	2	57	50	7
Dir Lower	70	64	6	75	72	3	89	80	9
Dir Upper	20	20	-	43	42	1	33	33	0
Hangu	17	14	3	34	32	2	41	38	3
Haripur	51	48	3	85	80	5	127	120	7
Karak	8	8	-	12	12	0	27	25	2
Kohat	25	22	3	66	59	7	105	95	10
Kohistan	0	-	-	3	3	0	0	0	0
Lakki	18	18	-	21	21	0	34	33	1
Malakand	20	19	1	24	21	3	66	58	8
Mansehra	71	66	5	85	79	6	163	150	13
Mardan	114	106	8	131	120	11	171	150	21
Nowshera	67	63	4	70	63	7	104	95	9
Peshawar	636	561	75	628	572	56	813	731	82
Shangla	5	5	-	14	14	0	31	30	1
Swabi	126	123	3	156	149	7	166	158	8
Swat	81	78	3	168	162	6	192	180	12
Tank	7	7	-	8	8	0	5	5	0
Tor Ghar	0	0	0	0	0	0	0	0	0

Source:- Secretary Health Regulatary Authority Khyber Pakhtunkhwa Peshawar