2012

Human Resources for Health Profile
Punjab, Pakistan

global health workforce alliance

World Health Organization

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ACRONYMS

AFP	Acute Flaccid Paralysis
ADB	Asian Development Bank
AJK	Azad Jammu & Kashmir
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 Centres
DHIS	District Health Information System
DFPs	Districts Focal Persons
EPI	Expanded Programme on Immunization
FWC	Family Welfare Centers
FWWs	Family Welfare Workers
FMJC	Fatima Jinnah Medical College
FTJ	Fazil-Tibb-Wal-Jarhat
FBS	Federal Bureau of Statistics
FLL	Federal Legislative Lists
FATA	Federally Administered Tribal Areas
GHWA	Global Health Workforce Alliance
GOP	Government of Punjab
GDP	Gross Domestic Product
HMIS	Health Management Information System
HSRU	Health Sector Reform Unit

HAS	Health Services Academy
HWC	Health Welfare Committee
LHWs	Health Workers
HEC	Higher Education Commission of Pakistan
DHMS	Homoeopathic Medical Sciences
HI&ES	Household Income and Expenditure Survey
HDI	Human Development Index
HRH	Human Resources for Health
IMR	Infant Mortality Rate
UUATLD	International Union Against Tuberculosis and Lungs
JICA	Japan International Cooperation Agency
JPMC	Jinnah Postgraduate Medical Centre
JLI	Joint Learning Initiative
KPK	Khyber Pakhtunkhwa
KEMU	King Edward Medical University
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 Programme
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
NTP	National TB Control Programme
NGOs	Not-For-Profit 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
PWS	Patient Welfare Society
PCP	Pharmacy Council for Pakistan
PWD	Population Welfare Department
PRSP	Poverty Reduction Strategy Paper
PHC	Primary Health Care
PSDP	oject Supervisor Design Process
PFC	Provincial Finance Commission
PHDC	Provincial Health Development Centers
PESSI	Punjab Employees Social Security Institution
PHDC	Punjab Health Development Centre
PHSRP	Punjab Health Sector Reform Program
PHC	Punjab Healthcare Commission
PPSC	Punjab Public Service Commission
PPP	Purchasing Power Parity
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 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

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PREFACE

Human Resources for Health (HRH) lie at the core of any health care system. The quality and numbers of HRH determine the effectiveness of all the other inputs in the system, which include funds, drugs and diagnostics, equipment and infrastructure. Pakistan is the 6th most populous country of the world with an estimated current population of 177 million, which is 2.5% of the world's population. World Health Organization World Health Report (WHR) 2006 focused on the HRH crisis threatening the reversal of health gains in the second half of the 20th century. The WHR 2006 also asserts that developing capable, motivated and supported health workers is essential for overcoming bottlenecks to achieving national and global health goals. The report identifies a threshold in workforce density below which high coverage of essential interventions, including those necessary to meet the health-related Millennium Development Goals (MDGs), is very unlikely. Based on these estimates, 57 countries emerge with critical HRH shortages. Pakistan is among these 57 countries identified as having a health workforce crisis.

Keeping in view the numerous HRH problems that Pakistan is facing, there is a dire need to develop comprehensive HRH strategies to address these issues in a holistic way. After the 18th amendment to the constitution the health care mandate in Pakistan has been devolved to the provinces. The Departments of Health (DoH) have now the authority to formulate policies, develop legislation, regulate, govern and manage the health care system. However, absence of reliable and valid data has always been recognized as a critical constraint.

In 2010, a Country Coordination and Facilitation (CCF) process was initiated in Pakistan, with the support of the Global Health Workforce Alliance (GHWA). A CCF Core Group was constituted in each province, who after reviewing the relevant background documents, proposed the CCF process as an appropriate and useful multi stakeholder coordination mechanism to address HRH issues. Mapping of HRH is an essential first step towards tackling the issue of health workforce shortage. This information is needed to inform health workforce development plans & policies; facilitate comparisons; and help global efforts to improve the HRH situation. The WHO is endeavoring to guide and facilitate countries with critical HRH shortages to develop their HRH databases as an essential step towards responding to the issue. HRH Profile development in the provinces has been supported and facilitated by WHO and the GHWA.

The Punjab HRH profile was undertaken to map and profile HRH in the Punjab Province of Pakistan which is population wise the largest province. The data collected from secondary sources for Punjab is, therefore, representative of more than half of Pakistan. The results of this profile will form firm basis for development of HRH strategy for the province.

We are pleased to see the HRH profile and are hopeful that the data contained in this report will be used by variety of users for multiple purposes particularly the development of HRH strategy and plans for Punjab which is needed to improve the HRH situation to enable coverage of essential interventions, including those necessary to meet the health-related Millennium Development Goals (MDGs).

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FOREWORD

Human Resources for Health (HRH) are recognized as the glue of a health care system. The World Health Organization's World Health Report 2006 (WHR) reviewed the global health work force situation and put on record the current HRH crisis threatening the reversal of health gains of the second half of the 20th century. Pakistan with a density of 1.27 doctors, nurses and midwives per 1000 population is among the 57 countries that do not meet WHO recommended target of 2.3 doctors, nurses and midwives per 1,000 population. The country has not only inadequate HRH numbers and quality but also very inequitable distribution of available HRH. The HRH situation in the Punjab Province of Pakistan is a reflection of the overall situation in the country.

Mapping and profiling of HRH is an essential first step towards tackling the health workforce issue. This information is needed for the development of health workforce policies and plans and facilitates comparisons to gain insights into HRH issues. As asserted by WHO, without effectively addressing this issue the country is not likely to achieve national health and the Millennium Development Goals (MDGs).

With this background, HRH Profiling in the provinces is being facilitated by WHO and the Global Health Workforce Alliance (GHWA) and will contribute subsequently the development of HRH Strategic Plan in the provinces. The Province of Punjab had taken the first step towards this initiative.

The HRH Profiling was conceptualized in a meeting with WHO which was chaired by Secretary Health. Secretary Health approved the concept and asked the team to prepare and present study methodology, which was followed and approval of Secretary Health was solicited. The Profiling was undertaken in close coordination with the Offices of the Secretary Health, the Director General Health Services and the Punjab Health Sector Reform Program.

The study was undertaken with the objective to map and profile HRH in the Punjab Province on the basis of secondary data available. Punjab is home to 56% of Pakistan's total population and data collected from secondary sources in this province is representative of more than half of Pakistan.

It is hoped that the HRH Profiling for Punjab will provide a firm foundation to the subsequent development of the Human Resource for Health Strategic Plan for province.

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EXECUTIVE SUMMARY

Healthcare System Human Resources for Health (HRH) lie at the core of a health care system. The quality and numbers of HRH determine the effectiveness of all the other inputs in the system, which include funds, drugs and diagnostics, equipment and infrastructure. Pakistan is the 6th most populous country of the world with an estimated current population of 177 million, which is 2.5% of the world's population. The population of the Punjab province of Pakistan is estimated to be 96.6 million, which is 56% of the total country population. Punjab like the rest of the country is facing multiple challenges in the health sector including a health workforce crisis. As a result the health status indicators of the population remain poor and the Millennium Development Goals (MDGs) are not likely to be achieved.

Good quality precise information on the HRH situation in the country and Punjab province is deficient. There is no dedicated HRH department in the provincial department of health (DoH). The main sources of data incorporated in this report were the Punjab Health Sector Reform Program, regulatory authorities including Pakistan Medical Research Council (PMDC), Pakistan Nursing Council (PNC), Punjab Pharmacy Council (PPC), University of Health Sciences (UHS), Lahore, King Edward Medical University (KEMU), Lahore and some previously published reports. According to the records of PMDC there are 50,514 registered doctors and 4,356 registered dentists in the Punjab province with densities of 5.14 doctors and 0.44 dentists per 10,000 population. As per the PNC statistics there are 35,484 registered nurses in the province with a density of 3.61 nurses per 10,000 population. The total number of sanctioned posts for all categories of HRH in the public sector of the province is 26,528. Of these 22,817 are filled and 3,711 (13.9%) vacant. For nurses the total sanctioned posts are 7,770 with 6,901 filled and 869 (11%) vacant and for paramedics the total sanctioned posts are 14,359 with 11,849 filled and 2,465 (17%) vacant. There has been about 14 percent increase in number of doctors, 25 percent increase in number of dentists and 24 percent increase in number of nurses in the province since 2009. The proportion of females among doctors increased from 40.69% in 2008 to 44.99% in 2012 and among dentists from 47.35% to 56.20%. Majority of the non-specialist doctors are in the age range 31 – 50 year, and specialist doctors and dentists in the age range 31–40 years.

Punjab has a well structured three tier public sector health care system and a rapidly expanding private health care system. Under the recently enacted 18th amendment to the constitution the health care mandate which was centralized under the federal Ministry of Health (MoH) has been devolved to the provinces. The Punjab Department of Health (DoH) has now the authority to formulate policies, develop legislation, regulate, govern and manage the health care system. Prior to devolution under the leadership of the federal health ministry initiative had been started to address the HRH crisis. These included the formulation of HRH Strategy, countrywide HRH Assessment Study to inform the strategy development, establishment of a

country coordination and facilitation (CCF) process, CCF orientation meetings and capacity development and provincial consultative meeting to sensitise all relevant stakeholders to the CCF process. Post devolution the Punjab Health Department is taking the initiative forward and has aligned the Punjab Health Sector Support Program and Punjab Health Strategic Plan with the basic CCF framework and approach. The Punjab public health sector governance as regards HRH however needs strengthening on all three counts of DFID governance indicators: Capability, Accountability and Responsiveness. Establishment and strengthening of an HRH Department in the DoH is needed to serve as a focal point for addressing HRH development and responding to the HRH crisis.

SECTION-1: INTRODUCTION

Human Resources for Health (HRH) lie at the core of a health care system. The quality and numbers of HRH determine the effectiveness of all the other inputs in the system, which include funds, drugs and diagnostics, equipment and infrastructure. A 2004 Joint Learning Initiative (JLI) report and the World Health Organization (WHO)'s World Health Report (WHR) 2006 brought to attention the current HRH crisis threatening the reversal of health gains in the second half of the 20th century. The WHR 2006 asserts that developing capable, motivated and supported health workers is essential for overcoming bottlenecks to achieving national and global health goals. The report identifies a threshold in workforce density below which high coverage of essential interventions, including those necessary to meet the health-related Millennium Development Goals (MDGs), is very unlikely. Based on these estimates, 57 countries emerge with critical HRH shortages[1]. This adds up to a total global deficit of 2.4 million health workers; a very conservative estimate according to experts. The HRH crisis is further compounded by HRH migration and poor human resource management in developing countries. This together with demographic and epidemiological transition and high disease burden poses a formidable challenge towards the achievement of MDGs.

Pakistan is among the 57 countries identified as having a health workforce crisis. This report presents the HRH profile of the province of Punjab. According to estimates based on Pakistan's 1998 national census, Punjab is home to 56% of Pakistan's current population of over 180 million. While no claim can be made about the generalization of the data presented to the whole of Pakistan, however in many ways the terms Punjab and Punjabi are considered synonymous with Pakistan and Pakistani.

1.1 REVIEW OF INITIATIVES UNDERTAKEN TO IMPROVE PAKISTAN'S HRH PROFILE

Pakistan recognized the issue of HRH shortage before it was flagged by the JLI and WHO WHR 2006. A recommendation for the establishment of a Commission to review the problem was made at the National Health conference held at Islamabad in 2004. However it is over the last 4 years that some consistent initiatives have been taken as described below.

1.1.1 ESTABLISHMENT OF AN HRH COUNTRY COORDINATION AND FACILITATION PROCESS

In 2009, Director General (DG) Health at the Ministry of Health (MOH), Islamabad, convened a meeting of relevant stakeholders to formulate Pakistan's HRH Strategy. Absence of reliable and valid data was recognized as a critical constraint. With WHO's support a countrywide HRH Assessment Study was undertaken in 2009. The objective was to facilitate the HRH strategy

[1] Paula O'brien And Lawrence O. Gostin , Health Worker Shortages And Global Justice, Milkbank Memorial Fund Paper, October 2011

development and the subsequent formulation of a cost-effective work plan. The private sector was also included in the study.

In 2010, a Country Coordination and Facilitation (CCF) process was initiated in Pakistan, with the support of the Global Health Workforce Alliance (GHWA). The Health Services Academy (HAS), Islamabad was notified by the MOH as the CCF Focal Institute. A CCF Core Group was constituted, who after reviewing the relevant background documents, proposed the CCF process as an appropriate and useful multi stakeholder coordination mechanism for the country.

1.1.2 Stakeholders Orientation

On 31st May 2010, a CCF Orientation meeting was held in Islamabad. The objective was to bring together HRH Stakeholders on to a single forum for outlining HRH Strategies and to sensitize them to the CCF process. Members participated in a CCF capacity building workshop in Cairo in July 2010 and subsequently a CCF Action Plan for Pakistan was drafted. The GHWA and WHO supported extensive stakeholders' consultations in the four provinces of Pakistan. The Health Action Framework (HAF) and the CCF Guidelines of GHWA were used as the guiding documents during the consultative process. During these meetings a consensus was reached by the provincial health departments on the notification of an HRH focal person for the CCF Committees in order to facilitate the implementation of HRH activities in the provinces. The activities of 2010 culminated in high level meeting at Islamabad in November and at Bhurban in December 2010, which was attended by HRH stakeholders from all the provinces including line ministries, academia, international partners, and regulatory bodies. While uncertainty about the fallout of the 18th amendment had been expressed at the meeting, the CCF principles and process had been accepted and agreement was reached on the notification of provincial CCF Committees. However, the need for a province specific approach to the CCF was expressed.

The approval and enforcement of the 18th Amendment Bill in April 2010 and June 30, 2011 respectively, shifted the health mandate from the federal level to the provincial health departments. This had an overall negative impact on the CCF Process in the country.

1.1.3 Stakeholder Analysis

The stakeholders identified at the federal, provincial and district level in the consultative and consensus building meetings are listed in Figures 1, Figure 2 and Figure 3. Beside these members from the private sector, civil society organization, academic institutions and universities, regulatory bodies and other relevant departments and para-statal organizations were also recommended to be included as required in committees at the three levels of government.

After the 18th amendment, however, the proposed CCF structure at the federal level no longer existed, identifying the need for reviewing the CCF process in line with the changing landscape of health.

Figure 1-HRH Stakeholders at Federal Level

Director General Health	
ED HSA	•Secretary of CCF at Federal Level
Line Ministries, HRA	•Members
PMDC, PNC, Pharmacy Council and all relevant cadres	•Member
HEC	•Member
Development Partners	•Member
Chairman of all Provincial CCF Committees	•Member

Figure 2-HRH Stakeholders at Provincial Level

Chief Secretary	•Chairman of CCF at Provincial Level
Secretary Health	•Secretary of CCF at Provincial Levels
Secretary Finance	•Member
Secretary Education	•Member
Secretary P&D	•Member
Heads of Health HRD Institutions/VC Universities	•Member
Parliamentarians	•Member
Health Professional Associations	•Member
Director Provincial Health Development Centre (PHDC)	•Member
CEO PRSP	•Member
Chairman of all District CCF Committees	•Member

Figure 3-HRH Stakeholders at District Level

DCO	•Chairman of CCF at District Level
EDO Health	•Secretary of CCF at District Levels
EDO Finance	•Member
EDO Education	•Member
MS DHQ	•Member
Patient Welfare Society	•Member
Health Professional Associations	•Member
Director District Health Development Centre (DHDC)	•Member
District Manager PRSP	•Member

1.1.4 Alignment of Punjab Health Strategic Plan with CCF framework and approach

In 2011, the Punjab Health Department notified Steering Committees for designing the Punjab Health Sector Support Program and overseeing the development of Punjab Health Strategic Plan. Technical experts from all related areas including HRH have representation on these bodies. This provided an opportunity for all stakeholders to work together and get sensitized and oriented to the CCF principles and process. HRH guiding documents were shared with the consultants working on the Health Strategic Plan and assistance offered for aligning their report to the CCF framework and approach.

1.2 PUNJAB HRH PROFILE STUDY

1.2.1 The Need and the Process

The WHO defines health workers as all people engaged in actions whose primary intent is to enhance health. This definition includes non-formal health workers like mothers and care givers. Formally trained and paid health workers can be classified into two major groups: the health service providers and the health management and support workers. Currently, Pakistan has a density of 1.27 doctors, nurses and midwives per 1000 population and is among 57 countries that miss the minimalist recommended target of 2.28 doctors, nurses and midwives per 1,000 population[2]. The country has not only inadequate HRH numbers and quality but also an inequitable distribution of available HRH. The HRH situation in Punjab is a reflection of the overall situation in Pakistan. As asserted by WHO, without effectively addressing this issue the country is not likely to achieve national health and the Millennium Development Goals (MDGs).

Mapping of HRH is an essential first step towards tackling the issue of health workforce shortage. This information is needed to inform health workforce development plans & policies; facilitate comparisons; and help global efforts to improve the HRH situation that have mounted since the publication of the JLI Report 2004 and the WHR 2006. The WHO is endeavoring to guide and facilitate countries with critical HRH shortages to develop their HRH databases as an essential step towards responding to the issue. HRH Profile development in the provinces is supported and facilitated by WHO and the GHWA.

The study being reported was undertaken to map and profile HRH in the Punjab Province of Pakistan which is population wise the largest province. The data collected from secondary sources for Punjab is, therefore, representative of more than half of Pakistan.

[2] World health report 2006 – working together for health. Geneva, World Health Organization, 2006 [www.who.int/whr/2006/en/index.html]

1.2.2 PURPOSE

The ultimate purpose of the Punjab HRH Profile documentation is to improve the HRH situation in Punjab in order to help achieve the national health goals and MDGs in the province.

The data has several applications:

1. It can be the starting point for the provincial health department HRH database and the establishment of HRH information system, and feed into the HRH Observatory
2. It can be used to identify critical gaps in HRH production and distribution to strengthen policies, strategies and plans for filling the gaps
3. It will provide evidence for developing a comprehensive and costed HRH strategic and operational plan
4. It can serve as a bench mark for monitoring of the HRH stock and trends in the province;
5. It can be used to identify areas for research and further studies
6. The methodology used can be adopted by other provinces and can help guide similar HRH profile development

1.2.3 OBJECTIVES AND SCOPE OF THE HRH PROFILE

1 To collect and collate data on numbers, qualifications and distribution of different categories of health workers in the Punjab province;

2 To identify HRH training and continuing professional development programs and institutions in the province;

3 To determine HRH distribution and utilization in the province

4 To identify and assess HRH related policies, strategies and plans in the province

1.2.4 METHODOLOGY

The concept note for the HRH profile development in Punjab was shared with the Secretary Health and his team in Dec 2011. Detailed methodology was developed and approval was sought from the Punjab Health Department for the initiation of assignment. The data collection was undertaken in close coordination with the offices of the Secretary Health and the Director General Health Services (DGHS) as per a detailed work plan.

HRH focal persons were identified in different key constituencies and notified by the Punjab Health Sector Reform Program (PHSRP) on behalf of the Punjab Health Department, who provided the requisite information and facilitated secondary data collection.

1.2.5 CONCEPTUAL FRAMEWORK FOR THE PUNJAB HRH PROFILE

Based on the objectives and scope of the HRH Profile study, a comprehensive conceptual framework was developed keeping in view the local context of the Province of Punjab[3].

	Categorization/ Qualifications	Production & Training	Recruitment & stock	Utilization & Management			Attrition & migration	Governance	Implications
Formally trained	Doctors	Training Institutions	Age	Public Sector	Urban	Recruitment	Unemployed & Migrated	Policies & Strategies, Plans	Achievement of Health goals/MDGs
	Dentists								
	Nurses, CMWS, LHVs							Legislation & Regulations	
	Paramedics								
	Allied Hea Professionals							Research & Information	Health services & quality & Comprehensiveness
	Pharmacists			Private Sector	Peri-urban	Remuneration			
	Health Managers		Gender						
Informally trained	Lady Hea Workers	&Professional Education							
	Traditional & Faith Healers				Rural	Supervision & Accountability		Work Environment	Stakeholders Satisfaction & Retention
	Traditional Bir Attendants	Continuing Development							

Note: These attributes to be analysed pertaining to the related stakeholders

The HRH Profile Framework defines the data required for providing a comprehensive picture of the Health Workforce situation in Punjab within the context of the country. It was envisaged that HRH data will be accessed from departments/sectors dealing with/engaged in HRH, i.e. Punjab Health Department, Office of the DGHS Punjab, PHSRP, Home Department, Office of the Director General Nursing (DGN), Provincial MNCH Program Coordinator, National

[3] Nur Centre for Research & Policy, Dec 2011

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, Punjab Employees' Social Security and Private Institutions located in the province of Punjab.

1.2.6 Study Methods and Procedure

Quantitative data collection tools were used for collecting quantitative information on all categories of health workers from both the public and private sectors. Templates for data collection were formulated and were used for sourcing secondary data maintained by the regulatory authorities, various department working under the Punjab Health Department, large para-statal organizations as well as from the health training institutions in the province. Desk reviews, key informant interviews and secondary data analysis complemented the quantitative study.

1.2.7 Study Population

WHO categorization of health workers was adapted for the study with some modifications according to local nomenclature and designations (Attached as Annex 1). All categories of health workers in the public, private sector and in the Armed Forces were included.

1.2.8 Data Collection Procedures

The data collection for the study was undertaken from March to May 2012. The study management, organisation and supervision were done by a three member team comprising of a consultant, the principal investigator and the co-investigator of the study. A five member data collection team was constituted for accessing information sources and filling the performa. Focal persons were identified in all major data sources and their help was solicited to facilitate the data collection team members.

The data collection tools in previous WHO HRH Profile Studies were modified & adapted to the local context. The study was initiated with the assumption that secondary data for all categories of health workers both in 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 and extrapolation of data from a WHO study titled 'Pakistan HRH Assessment 2009' was used. Data was handed over to the Data Management Unit at the NCRP for data entry and analysis. Data entry and cleaning was done using Excel, and analysis was carried out using both Excel and SPSS.

1.2.9 Sources of Information

The main sources of data incorporated in this report are depicted in Table 1and included the PHSRP, Regulatory authorities, e.g. PMDC, PNC, Punjab Pharmacy Council, University of Health Sciences (UHS), King Edward Medical University (KEMU) and previously published reports.

Table 1-Sources of Information used to achieve the projects objectives

S No.	Objective	Sources of Information
1.	Collect and collate data on numbers, qualifications and gender distribution	PMDC, PNC, Paramedic Council, College of Medical Technology, College of Para Medical Technology, Punjab 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
2.	Distribution and Utilisation of HRH	Punjab Department of Health, 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
3.	Document HRH training and continuing professional development arrangements and institutions	Medical Universities, Medical Colleges and Teaching Hospitals, CPSP, Nursing College, Allied Health Professionals Institutes, Paramedic Institutes, Homeopathic and Tibb
4.	Determine HRH management and utilization systems	Health Department-Provincial and District, Health Programmes' provincial offices
5.	Record the policies, strategies and plans for HRH	Planning Commission, HSA, WHO, Punjab Health Department, World Wide Web

1.3 DATA VALIDATION & DISSEMINATION

HRH focal points at the source institutions and departments were fully involved in the process and were facilitated by the provision of structured formats for data collection. The final data to be presented in the report was sent to the respective focal persons and validation was requested. Necessary adjustments in the draft were made as per their feedback received. The draft HRH profile was presented before the CCF / HRH committee members and all key stakeholders. The report was finalized after incorporating their feedback.

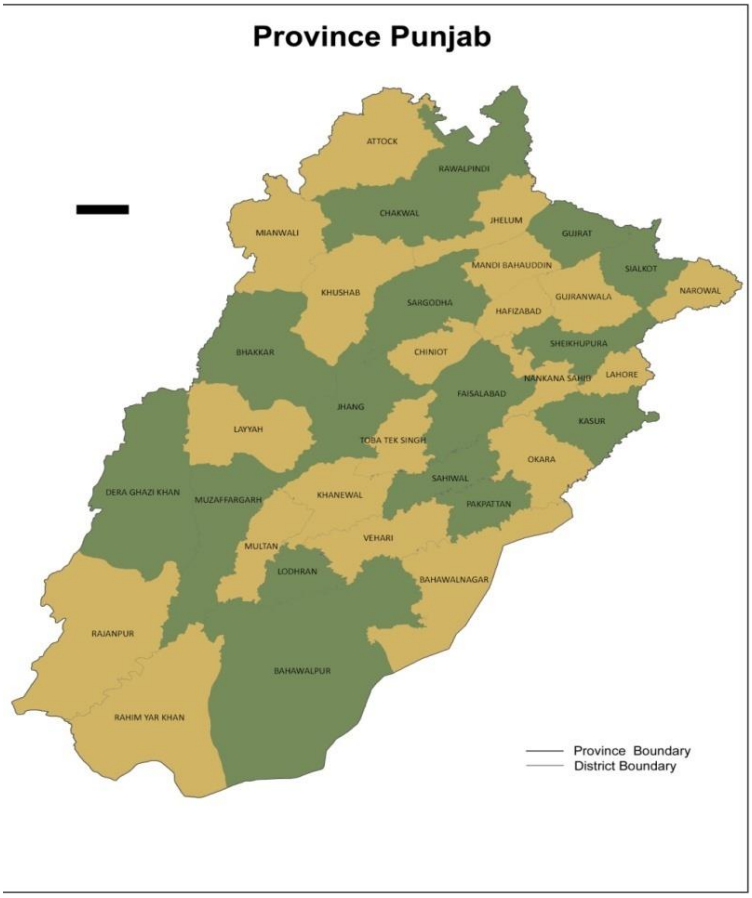
SECTION-2: NATIONAL & PROVINCIAL CONTEXT

For administrative purpose the country has been divided into provinces -Punjab, Sindh, Khyber Pakhtunkhwa (KPK), Balochistan, Gilgit Baltistan, the Capital Territory Area, Federally Administered Tribal Areas (FATA) and Azad Jammu & Kashmir (AJK). Punjab provincial context can better be understood if it is presented within the framework of the overall country context. With this in mind, the country data is being presented first followed by the Punjab data.

2.1 GEOGRAPHY

The land of five rivers Punjab covers an area of 205,344 square km (26.8%) out of the total 796,095 sq km area of Pakistan. The province is home to over 57.4% of Pakistan's population and has the highest population density among the federating units. Area wise it is the second largest province of the country[4].

Figure 4-Map of Punjab



[4] Assessing the Impact of Devolution on Healthcare and Education in Pakistan, Pakistan Devolution Support Project United States Agency for International Development http://www.urban.org/uploadedPDF/411318_pakistan_project.pdf

Lahore is the capital of the province. Punjab is the only province that is geographically connected with every other province of the country.

Table 2-Key Indicators of Pakistan's 4 Major Provinces

Provinces	Population Share (% of Total)	GDP/Capita (2004/5) (Rupees)	Area (% of Total)	Human Development Index (HDI)[a]
Balochistan	5.1%	N/A	45.2%	0.499
NWFP	13.8%	35,211	9.7%	0.51
Punjab	57.4%	47,131	26.8%	0.557
Sindh	23.7%	61,563	18.3%	0.549
Total/Average	**162.4 million**	-	**803.9 KM²**	**0.527**

Source: Pakistan Devolution Support Project, USAID

The population of Punjab is currently estimated at 96.6 Million. Administratively the province of Punjab is divided into 36 districts, 127 tehsils and 3,492 union councils. District wise population statistics are depicted in Annex 2 and population breakup as per age and sex in Annex 3.

2.2 POLITICAL CONTEXT

Pakistan is a federal republic with Parliamentary form of democracy. The current constitution was made by consensus in 1973 and to date has undergone 20 amendments. Parliament comprises of two houses; the Senate and the National Assembly at the federal level and provincial assemblies at the provincial level. Citizens become eligible to vote at 18 years of age. Suffrage is universal under joint electorates. There are reserved parliamentary seats for women and non-Muslims. In Punjab, the chief minister is the chief executive of the province and leader of the house in the Provincial Parliament. The Governor is head of the government and is appointed by the President of Pakistan.

18th Amendment has made fundamental changes to federal & provincial mandates through changes in the legislative lists. It has awarded provincial autonomy and resulted in devolution of legislative and executive authority in the health sector, resulting in devolution of the federal ministry of health (MOH) and its functions to the provincial health departments and other ministries at the federal level. 18 federal ministries in all were devolved including health, population welfare and drug regulatory functions. The key health regulatory bodies including the Pakistan Medical & Dental Council, Pakistan Nursing Council, Council of Homeopathy and Council of Tibb continue to function at the federal level.

As the provinces have been awarded greater autonomy and are constitutionally in a stronger position to develop their health and HRH strategies, they require technical assistance and support for developing provincial plans and policies. This was previously not their mandate

and they presently lack the requisite capacity to undertake it effectively. Health financing arrangements also need to be revisited in view of the new service delivery arrangements.

With the devolution of the vertical programs, managing inter provincial policy coordination and uniformity has become a challenge. For the restructured programs, now at the provincial level, there is a need for harmonization of quality, standards at the programmatic level in order to facilitate integration. It also requires defining of roles, responsibilities and HR requirements for the devolved vertical programs; revising the costs involved; and establishing essential linkages. Management of the National Nutrition Program in the absence of provincial counterpart arrangement is another challenging issue.

Human resource regulatory function requires establishment of linkages and coordination between their federal set up and the provinces for concurrence in terms of formulation and regulation of human resource policies[5].

The provinces are also confronted with the need for engaging with development partners and coordinating efforts for tapping donor support, a function which was previously dealt at the federal level. Mechanisms are required to be instituted for management of donor funded programs that require single country application e.g. the Global Fund and for tracking progress for such grants operational in more than one province.

The federal government, on the other hand, is required to establish institutional mechanisms for promoting inter-provincial harmony; develop quality standards & guidelines that need to be articulated to the provinces & are essential for achieving the desired inter-provincial conformity and avoidance of unnecessary duplication.

2.3 ECONOMIC CONTEXT

Pakistan has the world's 27th largest economy based on its purchasing power. In development terms Pakistan is ranked as a low middle income country. Pakistan's gross domestic product (GDP), if measured by purchasing power parity (PPP) is estimated to be USD 464.9 billion while its per capita income stands at $2,500. Agriculture contributes 21.2%, industry 25.45% and services 53% to the current national GDP. The poverty rate in Pakistan is estimated to be between 23% and 28%[6].

There is a high poverty enclave in the south and west regions of Punjab with one out of every two households being poor on average. This is in contrast with the relatively low poverty in the

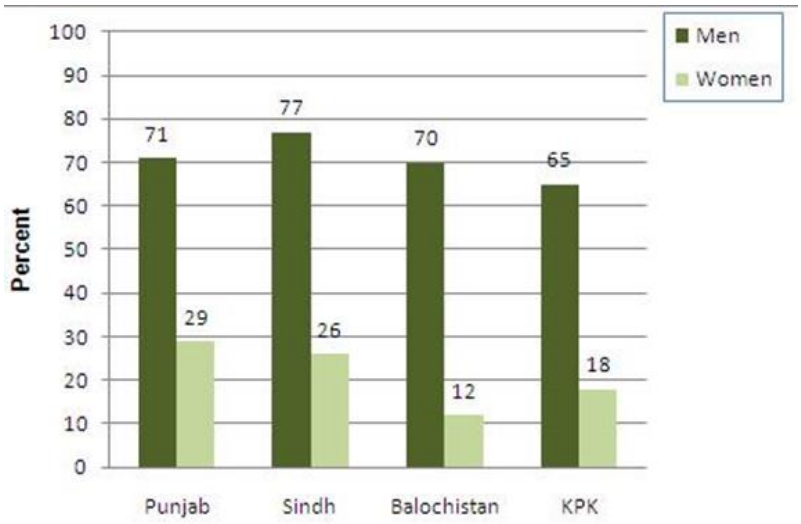
[5] Health and the 18th Amendment, Dr Sania Nishtar
[6] The Economy of Pakistan, 2011. www.articles.eezzi.com/.../76-the-economy-of-pakistan-2011.html

more urbanized north. Here the households are found to be well integrated within the national and international labour market[7].

Huge variations are also noted in the poverty experience of the districts in the centre of the province where poverty incidence in the more urbanized and industrialized northern districts contrast sharply with that of Kasur, Okara and Pakpattan, where both the incidence and severity of poverty is extremely high[15].

Human Development Index (HDI) that ranks an area as per its level of human development is the highest in Punjab at 0.67. 47 %of the population of the province is classifiable as dependent with women making 29% of the labour force[8], as depicted in Figure 5.

Figure 5-Pakistan's Labour Force Participation Rates by sex and province



Source: Pakistan Institute for Development Economics September, 2011

2.4 HEALTH INDICATORS

Pakistan's health status indicators are among the poorest both globally and regionally. This is despite of a structurally well laid out health services delivery system; succession of vertical programs to improve maternal, newborn and child health (MNCH) and reduce morbidity and mortality from high prevalence diseases. Punjab health status indicators and morbidity and mortality rates and ratios are somewhat better as compared to the other provinces of Pakistan. However they are still high and the province is not likely to meet the Millennium Development Goals (MDGs) as reflected in Table 3.

[7] Cheema A, Khalid L, Patnam M. The Geography of Poverty: Evidence from the Punjab. Lahore Journal of Economics, 2008; Special Edition: 163-188.
[8] Pakistan Institute for Development Economics September, 2011

Table 3-Punjab's Key Health Indicators versus Millennium Development Goals Target

Targets	2009-10	2010-11	2011-12	MDGs 2015
Infant Mortality Rate per 1,000 live births	73	70	67	40
Maternal Mortality Ratio per 100,000 live births	232	225	218	140
Children fully immunized 12-23 months (%)	84	88	92	>90
Delivery by Trained Birth Attendants (%)	52	57	62	>90

Source: Medium Term Development Framework, 2010-2013

The people of Pakistan suffer a double disease burden i.e. increase in non-communicable diseases on top of the continuing high prevalence of communicable diseases and malnutrition. The major contributors to the population's double burden of diseases are diarrhea, childhood infections, malaria, tuberculosis (TB), hepatitis B & C and life style diseases including diabetes, hypertension, ischemic heart disease, trauma and injuries. Mental health problems and disabilities further add to this burden.

Table 4- Top 10 causes of mortality and morbidity in Punjab

S.No	Main causes of morbidity	Main causes of mortality
1	Hypertension	Childhood Diarrhea
2	Injuries	Childhood Lower Respiratory Tract Infections
3	Eye diseases	Tuberculosis
4	Malnutrition	Rheumatic heart disease
5	Birth diseases	Chronic liver disease
6	Congenital malformations	Congenital malformations
7	Dental diseases	Birth diseases
8	Ischemic heart disease	Ischemic heart disease
9	Anemia (in females)	Child Septicemia
10	Mental retardation	Other respiratory diseases

Source: DHIS Quarterly Report, First Quarter 2012, Directorate General Health Services

The data in the table above indicates that newborn, infant and child diseases are the dominant causes of mortality. Family planning indicators for the province reflect a declining fertility rate of around 3.6%[9]. District-wise status of maternal & child health indicators is attached as Annex 4. Public sector accounts for only 27% of the overall antenatal care services being provided in Punjab, while the remaining 63% are being taken care of by the private sector[10]. However there has been a proportionate increase in the percentage of skilled birth attendance as well as ANC Coverage as indicated in the latest MICS Survey of 2011 and depicted in Table 5.

[9] Multiple Indicator Cluster Survey, Punjab, 2011
[10] Federal Bureau of Statistics. Pakistan Social and Living Standard Measurement Survey, 2010-11.

Table 5-MICS Indicators 2003 to 2012

Indicator	MICS 2003-04	MICS 2007-08	MICS 2011
Under 5 Mortality	112	111	104
Infant Mortality Rate	86	86	82
Total Fertility Rate	4.7	4.3	3.6
Skilled Birth Attendance	33	43	59
Ante Natal Coverage (one time)	44	53	74

Source: Punjab Health Sector Reform Program, June 2012

The Infant Mortality Rate (IMR) is measured at 77 deaths per 1,000 live births[11], while the under-five mortality rate (U5MR) is estimated as 111 deaths per 1,000 live births in Punjab. Overall life expectancy at birth in the province is 63 years with minimal gender variation[12]. 58% of births are still happening at home with Traditional Birth Attendants (TBA) conducting 14% of the home deliveries in Punjab.

Table 6-Punjab Province Key Health Indicators with Urban Rural Comparison

INDICATOR	Urban	Rural
Infant Mortality Rate*	55	82
Under 5 Mortality Rate*	105 – 107	119
Maternal Mortality Ratio**	-	-
Fully Immunized Children	89	81
Tetanus Toxoid Immunization of Pregnant Women	72	4
Skilled Birth Attendant Assisted Births	55-73	37
Antenatal Care	67	47
Post-natal care	32	17
Under nourished children	23 – 30	40
Contraceptive Use	43 – 52	32
Houses with Tap Water	49	16

Source: Gateway Paper II. Islamabad, Pakistan: Heartfile; 2007
**Multiple Indicator Cluster Survey, Punjab 2007-08*
*** Pakistan Demographic and Health Survey, 2006-07.*

[11] Multiple Indicator Cluster Survey, Punjab, 2007-2008
[12] WHO, EMRO Observatory, 2011.

SECTION 3: HEALTH SYSTEM

A health system as per WHO definition comprises of all the organizations, institutions and resources that are devoted to producing health actions. This encompasses personal healthcare, public health services and/or services/actions by other sectors whose primary purpose is to improve health.

Pakistan has a well-structured health care delivery system comprising of a dominant public health sector, a fast expanding private modern health care system and a well-entrenched traditional health care system. Before the promulgation of the 18th amendment, the federal MOH had the responsibility of stewardship of the health care system, which after the 18th amendment, has been passed on to the provincial health departments, which previously were only implementing the policies and programmes developed at the federal level.

Pakistan's first health policy was announced in 1990 but failed to be implemented. In 1997 the second health policy and in 2001 the country's third health policy were announced. The 2001 policy is based on the "Health for All" goal and is focused on PHC strengthening. The policy was developed in the macro-policy framework of the government as reflected in the Poverty Reduction Strategy Paper (PRSP) and the Mid Term Development Framework (MTDF) 2005 – 2010.

With the devolution of health to the provinces, the policy-making mandate has been passed on to the provincial health departments which are at the moment are engaged in drafting their provincial health policies.

While Pakistan' health care system is well structured, it faces huge governance, management and financing issues and due to certain critical gaps, the health status indicators of the country remain poor. Failure to establish a well-functioning referral system, inadequate information system, lack of intra and inter-sectoral collaboration, weak coordination mechanisms and little community participation are some of the critical gaps in the health system.

3.1 HEALTH CARE SYSTEM IN PUNJAB

Pakistan owns one of the largest public sector health service delivery infrastructures in the world. It was the first one at the regional level to introduce the Family Planning Program at national level.

The Punjab health care system is similarly developed as in the rest of the country comprising of the public, private and traditional/indigenous health care delivery systems. The public sector includes the services provided under provincial health department and by parastatal organizations. The private sector includes 'for profit' and 'not for profit' providers of modern health care services. The traditional/indigenous health care providers include homeopaths, hakeems and faith healers. Figure 6 depicts an overview of Punjab's Healthcare System.

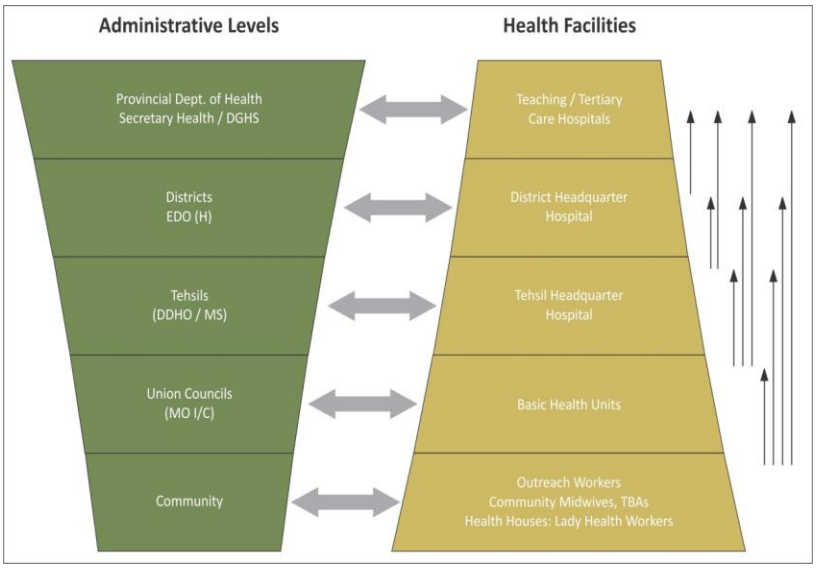
Figure 6-Healthcare Systems

Source: Health Systems Profile- Pakistan; Regional Health Systems Observatory- EMRO, 2007

3.2 PUBLIC HEALTH CARE SYSTEM

In the public health care system, services are delivered through a three tier system as depicted below.

Figure 7-Organization of Public Healthcare System



Source: Health Systems Profile- Pakistan;
Regional Health Systems Observatory- EMRO, 2007

The preventive and promotive services are being provided at the primary health care level through the Maternal and Child Health (MCH) Centers, Family Welfare Centers (FWC), Basic Health Units (BHU), Rural Health Centers (RHC) and health houses supported by community-based Lady Health Workers (LHWs). The curative and rehabilitative services are provided at the secondary and tertiary health care level. The secondary healthcare level comprises of the Tehsil (THQ) and District Head Quarters (DHQ) Hospitals; and the tertiary level comprises of specialty and tertiary care teaching hospitals. The Maternal and Child Health Centers provide basic antenatal care, conduct normal delivery, and offer post-natal and family planning services, to women and children. Community outreach workers include the LHWs, Family Welfare Workers (FWWs) and the Traditional Birth Attendants (TBAs). They are primarily responsible for the provision of MCH and family planning services at the doorstep in the rural and peri urban communities. In Punjab, there are a total of 33 DHQs, 84 THQs, 295 RHCs and 2467 BHUs as depicted in Table 7. Their district wise distribution is attached in Annex 5.

Table 7-Number of Health Facilities in Punjab

Type of Health Facilities	Total Number
BHU Class 1	2467
RHC Class 2	295
THQ Class 3	84
DHQ Class 4	33
Civil Hospital Class 1	12
Teaching Hospital Class 1	19
Dispensaries Class 1-5	808
TB Clinic/TB Hospitals Class 1-5	17
MCHC Class 1-5	237

Source: DHIS Quarterly Report, First Quarter 2012, Directorate General Health Services

In Punjab, it is estimated that there are a total of 50,335 beds in various health facilities in Punjab. Table 8 reflects the number of the number of hospital beds available in each category of health facility in Punjab.

Table 8-Number of indoor beds in health facilities in Punjab

Type of health facility	Number of beds
Hospitals	38,715
Dispensaries	387
RHCs	5,986
BHUs	4,866
TB Clinics	381

Source: *Department of Health, Home Department (I.G Prisons), Auqaf Department, Punjab Employee's Social Security Institutions, Pakistan Railways and Director General Medical Services of WAPDA, 2011*

3.2.1 DEPARTMENT OF HEALTH PUNJAB

The Department of Health Punjab 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 the implementing arm. Under the 2001 devolution of authority initiative of the federal government some administrative functions and authority of the provincial government were devolved to the district level. The organizational structure at the provincial and district levels are attached as Annex 6.

Post devolution and post 18th amendment, the Punjab Health Department has been busy instituting reforms and developing strategies to fulfil its stewardship function and improve the delivery of health services. A key area of reform in the province has been the contracting out of services delivery institutions at the primary level to the private sector to improve the efficiency of their services delivery. The department with donor assistance has recently developed a health sector strategy document which includes a situation analysis of the provincial health sector, identifies priorities for intervention and provides a direction and road map for the development of the sector in the province.

3.3 THREE TIERS OF HEALTH SERVICES DELIVERY

Pakistan has one of the largest networks of first level health care facilities and infrastructure for providing Primary Healthcare (PHC) at the doorstep. The three tier system of public health service delivery operational in Punjab was conceptualised to systematise referral from the community to the tertiary care level referral. While the infrastructure has been laid down the functioning of the system has yet to be optimised as envisaged. Underutilisation of services at the primary level and overcrowding at the tertiary care level is a confronting issue. Referral from one level to another, are not being made effectively. Management issues have been found to be the root cause of the poor utilisation of these facilities. Different management models have been experimented with the objective to enhance utilisation with mixed outcomes.

PRIMARY/FIRST LEVEL

- **Lady Health Workers (LHWs):** This cadre of community health workers has been developed under the National Programme for Family Planning and Primary Health Care (NP-FPPHC) which was launched in 1991-92. The main objective of the program is to take PHC to the household level and bridge the gap between the facility-based care provided at First Level Facilities and individuals and families. Currently 103,000 LHWs have been trained and deployed so far in the country, with approximately 50% being in Punjab.

- **Dispensaries:** These were established prior to the implementation of the PHC Program. They do not have any fixed location or population coverage.

- **Basic Health Units (BHUs):** There are 2,467 BHUs in Punjab which are located in rural areas, one in each Union Council covering a population of about 15,000–25,000. They are the

first level of referral from the household level and the first point of contact for facility-based health care. BHUs have a staff of 10 consisting of a male doctor, a Lady Health Visitor (LHV), a Male Medical Technician or/and a dispenser, a trained or unqualified midwife (dai), a sanitary inspector, a vaccinator, and 2-3 support staff (guard, sweeper, gardener, etc.). Services offered at BHUs include first level curative, MCH, family planning and preventive services.

- **Rural Health Centers (RHCs):** For every 4-5 BHU, one RHC is established as a second level referral facility. RHCs provide more extensive outpatient services and some inpatient services. There are 295 RHCs in Punjab that serve a catchment population of about 50,000 to 100,000 people, with about 30 staff including 2 male medical officers, 1 female medical officer, 1 dental surgeon and a number of paramedics. They have 10-20 beds for indoor medical care, x-ray, laboratory and minor surgery facilities. RHCs do not have delivery and emergency obstetric services. A Senior Medical Officer (SMO) is in-charge of a RHC, who reports to the EDO-Health.

Secondary Level

- **Tehsil Head Quarters (THQ) Hospital:** In each Tehsil of Punjab Tehsil Headquarters Hospitals have been established. There are a total of 84 THQ Hospitals in Punjab with a catchment population of about 100,000 to 300,000 each and 40-60 indoor beds. Each THQ is staffed with at least three specialists: an obstetrician & gynecologist, a pediatrician and a general surgeon. A Medical Superintendent of BPS 19 heads the hospital. Diagnostic facilities at a THQ include x-ray and laboratory.

- **District Head Quarters (DHQ) Hospital:** One DHQ hospital is working in each district located at the District Headquarters. They serve a catchment populations of 1 to 2 million and typically have about 100-150 beds. Staff include at least 8 specialist including obstetrician and anesthetist. A Medical Superintendent (MS) is head of management and reports to EDO-Health in the district government. However his/her transfers are controlled by the provincial government.

Tertiary Level

- **Teaching Hospitals:** Every medical college is required by rules to have an attached teaching hospital for the training of medical graduates. These hospitals offer a wide range of specialty and sub-specialty services in the different fields of medicine. They are the top level for referral in the health care system. A total of 19 teaching hospitals are operational in Punjab.

- **Specialist Institutions:** These include institutes of cardio-vascular diseases, child health, kidney diseases etc. They provide the highest level of care in their respective specialties and sub-specialties.

3.4 PRIORITY 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[13]. 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 Punjab government will now be shouldering the responsibility of their financing and management. This will create additional requirements for maintaining priority allocations to primary healthcare in the province.

3.4.1 NATIONAL PROGRAM FOR PRIMARY HEALTH CARE AND FAMILY PLANNING

The programme was launched in 1994 as the Prime Minister's Programme 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.Ths 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[14]. In Punjab the estimated number is 48,030.

3.4.2 MALARIA CONTROL PROGRAM

A Malaria Eradication Programme 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. More recently, a Strategic Plan for 2005-10 based on the RBM strategy has been developed and is being implemented. The Program Director reports to the Director General Health Services (DGHS).

3.4.3 TUBERCULOSIS CONTROL PROGRAM

The National TB Control Programme (NTP) was also one of the early disease control initiative of Pakistan. Launched alongside the Malaria Control (Eradication) Programme in the 1950s, the program objective is to reduce mortality, morbidity and disease transmission so that TB is no

[13] Nishtar S. The Gateway Paper; Health System in Pakistan – a Way Forward. Islamabad, Pakistan: Pakistan's Health Policy Forum and Heartfile; 2006.
[14] Economic Survey Of Pakistan 2011-2012

longer a public health problem. 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 including program planning, training of care provides, case detection, case management, monitoring and supervision. Along with other vertical programs, NTP has also now devolved completely to the provinces.

3.4.4 HIV/AIDS Control Program

Pakistan is a signatory to the MDGs and Goal 6 states 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. 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 Punjab, 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.

3.4.5 Maternal and Child Health Program

The Maternal, Neonatal and Child Health (MNCH) Program aims to improve the Maternal and Child Health indicators in the country in line with our International obligations regarding MDG's. The Goal of the Program is to reduce Maternal, Neonatal & Child deaths and illnesses by improving their health status, particularly of the poor and the marginalized. The key objectives are to improve the accessibility of high quality and effective RH services for all, particularly the poor and the marginalized, through development and implementation of a sustainable MNCH program at all levels of healthcare delivery system.

The areas of focus in this program are strengthening the Public Health facilities (DHQ's, THQ's RHC's and in BHU's residents of LHV,s) with regards to enhanced incentives for Human Resource, Provision of essential equipment, Capacity Building through trainings and availability of essential medicines with regards to providing comprehensive EmONC services.

3.4.6 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 coverage rate in the Punjab province is higher than the other provinces but still a polio-free status has not been achieved yet. The program has recently introduced Haemophilus Influenza Type B (Hib) vaccine. The Director Health Services EPI Punjab reports to the DGHS and is supported by Additional Director. Medical Officers are appointed in the EPI Centers.

3.4.7 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. A total of 152 World Food Program (WFP) outlets are operational in 7 districts of Punjab. UNICEF is supporting the Universal Salt Iodization (USI) Program in 35 districts of Punjab. 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. 1600 School Health & Nutrition Supervisors have been appointed at the primary health care level.

3.4.8 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.

3.4.9 THE NATIONAL PROGRAM FOR PREVENTION & CONTROL OF BLINDNESS

The National Program for Prevention & Control of Blindness (NP-PCB) was launched by the Federal Ministry of Health, in the year 2005. The Program is in line with "VISION 2020" the global initiative of WHO for elimination of preventable causes of blindness by the year 2020. The key targets of the program included establishment of seven Centers of Excellence in Ophthalmology; strengthening and up gradation of 20 Tertiary Teaching Hospital's Eye Departments; strengthening and up gradation of 63 District Eye Units at DHQ Hospitals; strengthening and up gradation of 147 Tehsil Eye Units at THQ Hospitals; and training of 50,000 primary health care workers in primary eye care.

3.5 PARA-STATAL HEALTH CARE PROVIDERS IN PUNJAB

In addition the Department of Health, large public sector organisations like Population Welfare Department, Punjab Emergency Service, Punjab Employees Social Security Institution and Social Welfare Department, Local Government, Water and Power Development Authority, Railways, Auqaf, Punjab 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. Details on parastatal organizations accessible to the research team are attached as Annex 7.

3.5.1 POPULATION WELFARE DEPARTMENT (PWD)

PWD in Punjab 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. Under the PWD in Punjab there are 1500 Family Welfare Centers (FWC) with 1500 Family Welfare Workers each. In addition there are 117 MS Units, each staffed with 1 Family Welfare Counsellor and 1 MO. The 121 Reproductive Health Service (RHS) Centres operational in Punjab have 1 Family Welfare Worker and 1 Family Welfare Counsellor each. In addition, there are 2 RHS Master Training Centres in Punjab and both are staffed with 1 MO and 1 SMO each.

3.5.2 PUNJAB EMERGENCY SERVICE (RESCUE 1122)

The Punjab Emergency Service (Rescue 1122) has been established under the Punjab Emergency Service Act, 2006, 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. The Punjab 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 in Punjab 2012, are medical emergencies, accidents and disasters. Accordingly, So far the department has responded towards 5,06,334 road accident and 6,76,667 medical emergencies calls since 2004.

The operational staff of Punjab Emergency services comprises of 16 different posts in BPS grade 4 to 18.

3.5.3 Punjab Employees Social Security Institution (PESSI)

PESSI was established under the West Pakistan Social Security Ordinance 1965 (Renamed as Provincial Employees' Social Security Ordinance in 1970) and is operational since March 1967. Medical Care occupies a significant place in the services being provided by PESSI as more than 70% of its budget is spent on provision of medical care facilities to the 544,800 workers and their 3,228,600 dependents. Functions of PESSI are the provision of medical care, disbursement of cash benefits to the registered workers and collection of social security contribution. PESSI has 11 hospitals with hundred or more beds each and 5 hospitals with less than 50 hospitals each in different districts of Punjab. In addition they have 41 Medical Centres, 136 Dispensaries and 88 Emergency Facilities.

3.5.4 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 & evaluation, operations and financing.

3.5.5 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. A 250 bedded hospital is located at Lahore; whereas 9 hospitals of 50 beds each and 2 hospitals of 20 beds each are located in other cities of Pakistan. There are 12 fortified dispensaries located in big towns and 18 basic dispensaries in small towns/villages nationwide. WAPDA has 6 hospitals (470 beds in total) and 12 dispensaries in Punjab.

3.5.6 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.

3.5.7 Auqaf Department

The Auqaf Department is providing services to public through managing 17 dispensaries and one hospital with 120 beds.

3.5.8 LOCAL GOVERNMENT

In Punjab 20 hospitals with a total of 307 beds are being managed by the local government.

3.5.9 PUNJAB HOME DEPARTMENT

The Punjab Home Department is providing curative services to its employees and prisoners all over the province through a network of 50 hospitals with a total of 1,136 beds.

3.5.10 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.

3.6 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 human resources for health (HRH).

The private health sector in Punjab, 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 Punjab 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 but until recently there was no legislation for accrediting private or public health care facilities in Punjab. Punjab Healthcare Commission Act 2010 was introduced to improve quality of healthcare services and ban quackery in the Punjab in all its forms[15]. It is applicable to all healthcare establishments, public or private hospitals, non-profit organizations, charitable hospitals, trust hospitals, semi-government and autonomous healthcare organizations. 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. 92% of this expenditure is out of pocket expenditure made at the household level[16].

[15] The Punjab Healthcare Commission Act 2010
[16] Statistics Division, National Health Accounts 2007-08. Islamabad: Federal Bureau of Statistics, Government of Pakistan; 2011

Table 9-Healthcare Facilities in Public and Private Sector of Pakistan

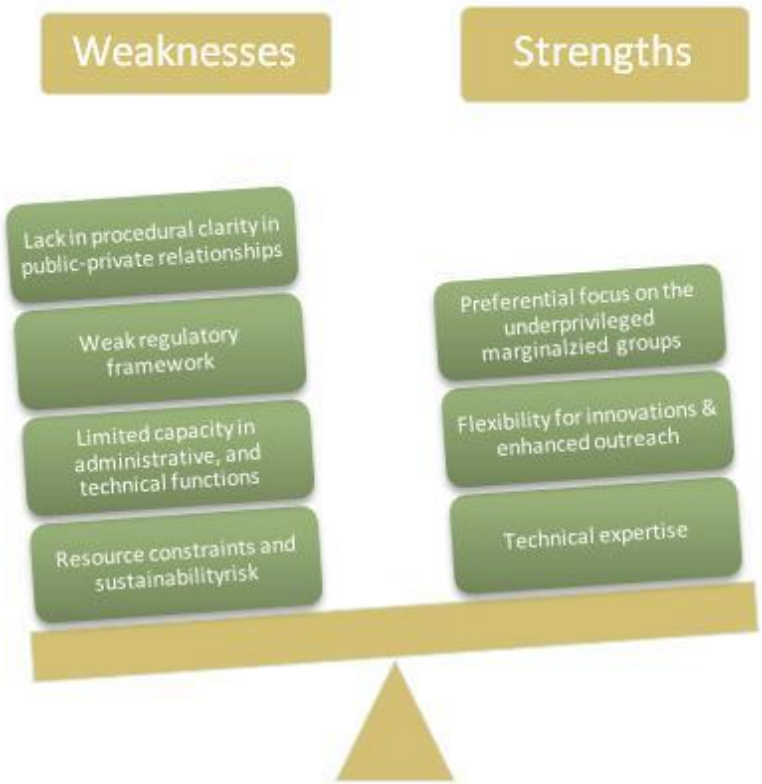
	Public Health Sector	Private Health Sector
Hospitals	947	106 Large and 120 Small
Dispensaries	4,800	340
MCH Centers	1,084	300 (Maternity Homes)
RHC	581	
BHU	5,798	
Number of beds	101,047	

Source: Health Systems Profile- Pakistan; Regional Health Systems Observatory- EMRO, 2007

In the non-profit private sector, more than 80,000 not-for-profit non-governmental organizations (NGOs) are registered under various Acts. They enhance the capacity of the health sector in terms of service delivery, outreach, research and advocacy. In Punjab, in the last few years, NGOs have played a vital role in disaster management and crisis situations.

There is no defined organisation structure of the private sector, it is not well documented and is not regulated to date.

Figure 8-Strengths & Weaknesses of the Private sector



3.7 ALTERNATIVE MEDICAL SYSTEMS

In Punjab, the alternative medical systems are part of its cultural heritage. 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. In Punjab, primarily the traditional Unani (Tibb), Ayurvedic and Homoeopathy are operational. Acupuncture and Traditional Chinese Medicine have also been recently introduced as alternative health care systems.

In Punjab the Pakistan Council of Scientific and Industrial Research (PCSIR) Laboratories, Lahore, Qarshi Industries, Hattar, University of Agriculture, Faisalabad, University of Veterinary and Animal Sciences, Lahore and the Botany, Pharmacology and Pharmacognosy departments of various universities are engaged in research on traditional/alternate medicine, the medicinal and aromatic plants. WHO's Global Atlas of Traditional Medicine/b Complimentary and Alternate Medicine is recognized as a tremendous information and reference resource.

The alternative medical system in Punjab 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[17].

3.7.1 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 dry[18]. 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.

The Oriental College, Lahore, was the first Unani Medicine Institution was established in 1872. The practitioners of Unani System of Medicine are regulated by the National Council for Tibb (NCT), which accredits the academic programs; offers recognition to the training institutions

[13] &[18] Shahzad Hussain, Farnaz Malik, Nadeem Khalid, Muhammad Abdul Qayyum and Humayun Riaz (2012). Alternative and Traditional Medicines Systems in Pakistan: History, Regulation, Trends, Usefulness, Challenges, Prospects and Limitations, A Compendium of Essays on Alternative Therapy, Dr. Arup Bhattacharya (Ed.), ISBN: 978-953-307-863-2,

and registers qualified practitioners of the Unani System of Medicine. It is estimated that there are approx. 52,600 Hakims / Tabibs registered with NCT[19] and 16,000 diploma holding Unani physicians have been involved in the National Population Welfare Programme in Pakistan.[20] A total of 457 Tibbi Dispensaries are providing alternative medicinal care in Pakistan. These are supplemented by growing number of private clinics and about 95 Dispensaries established under provincial Governments for the provision of free medication to the public[21].

3.7.2 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. The Central Homoeopathic Medical College in Lahore, Punjab was the first homoeopathic college established in 1920 and has produced several renowned homeopaths. Homeopathy is regulated by the National Council for Homeopathy (NCH) which develops its curriculum, education and examination. The Council registers homeopaths after passing their examinations. A total of about 118,000 homeopaths registered with NCH.

3.7.3 AYURVEDIC MEDICINE

It is one of the oldest forms of medicine that aims at rejuvenating life by using an individual approach that focuses on improving mental and emotional health through exercise, diet, detoxification and use of herbs. It is commonly used at health spas. It is also regulated by the National Council for Tibb.

3.8 HEALTH CARE FINANCING

Pakistan's health care system including that of the Punjab 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.

3.8.1 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[22]. 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

[19] Compendium of Medicinal & Aromatic Plants, Asia, 2006
[20] WHO, 2001
[21] www.medpk.com/**tib**_yunani.php
[22] Health care financing in Pakistan, The Network for Consumer Protection, Occasional Paper series available at URL: http://www.thenetwork.org.pk/Resources/Reports/PDF/15-8-2011-3-17-26-931-Health%20Care%20Financing.pdf

insurance provided by Employees Social Security organization to about one million population, but no extension of this decades old program has been attempted[23].

The Punjab province's primary source of funding is fiscal transfer from the federal government as per the periodic NFC Awards. Under the recent 7th Award a total of up to 57.5 percent of the net divisible pool would be transferred to the province.

The government of Punjab also collects its own tax and non-tax revenues. The local governments rely on provincial transfers as per the Provincial Finance Commission (PFC) Award. The current PFC Award came into existence on July 1, 2006 and ceased on June 30, 2009. The provincial share under that PFC was kept at 58.1 per cent. The district governments' share was 41.9 per cent of the net proceeds. As the system of local governments is in flux, new PFC has not been constituted yet.

3.8.2 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 health[24]. Donor spending in Pakistan is mostly in support of the vertical health programmes.

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 development and non-development budgets for health.

Punjab government's budgetary allocations to health increased from Rs.27.7 billion in 2007-2008 to Rs.68.4 billion in 2010-2011 a roughly 2½ times increase[25]. However, while the health service delivery is predominately at the districts' level, the increased allocations are largely seen at the provincial level. The districts have received stagnant allocations since 2007/08. Calculated on the basis of the total population of Punjab being 93 million this allocation amounts to about Rs. 74 per person in 2010/11.

The Punjab government has defined nine policy themes for budgetary allocations. The curative services at the tertiary care level remain a high priority area at the cost of primary and secondary health care (52.5% versus 28.2%). Training of doctors takes precedence over the training of allied and other health professionals (13.9% versus 0.4%)[26].

[23] Medium Term Development Framework, 2005
[24] http://healthsystems2020.healthsystemsdatabase.org/datasets/DataSets.aspx
[25] Planning and Development Division, Pakistan Economic Survey 2007-08
[26] Punjab Health Sector Reform Program

Table 10-Government of Punjab – Trend in Budget Allocations to Health

(Rs. in Billions)								
BUDGET	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Total Provincial		393.5	417.0	489.9	580.3	654.8		
Department of Health								
Current	6.0	8.9	13.4	22.5	22.8	26.4	27.7	29.0
Development	4.6	6.4	9.5	12.0	24.8	24.8	18.0	18.9
of which C&W allocations		2.7	4.2	5.1	10.3	6.0	10.2	11.4
New medical colleges					1.0	1.5	2.0	1.2
Sub Total	10.7	15.3	22.9	34.6	47.6	51.2	45.6	47.9
% change	15%	43%	50%	51%	38%	8%	-11%	5%
District Health	10.3	12.4	14.3	17.4	20.9			
% change		21%	15%	21%	20%			
Total Health	21.0	27.7	37.3	52.0	68.4			
% of Provincial		7.0%	8.9%	10.6%	11.8%			

3.8.3 Sub Sectors Budgetary Allocation Trends in Punjab

The sub sectors budgetary trends in Punjab from 2005 to 2010-11 indicate an overall allocation of 40.67% towards the tertiary; 24.67% towards the CM's Accelerated Health Program; 11.82% towards the preventive health programs; 10.19% towards Medical Education; and only 1.66% towards Research & Development initiatives in health. The allocation for tertiary care hospitals has increased from Rs 1,598 Million in 2005 to Rs 6,498 Million in 2010-11. Details are attached as Annex 8.

3.8.4 Donor Contributions in the Punjab Health Sector

The major development partner in the Punjab Health Sector over the last decade has been the ADB, CIDA, DFID, JICA, UKAID, UNICEF, USAID, World Bank and WHO. Table 11 reflects focus areas of work and the contribution made by some of the development partners. Information on support of other partners could not be accessed.

Table 11-Major Development Partners in Punjab Health Sector

Sectors and Themes	Development Partner	Project Name	Duration	Amount
Maternal and child health (jointly funded by the government and UKAID). Theme: maternal and child health	UKAID	Maternal and Neonatal Child Health Program	2006-2012	$191 million
Health, education, special education, water supply and sanitation. Themes: governance, financing, service delivery	ADB	Punjab Devolved Social Services Program	2004-2009	$200 million

Multi sector Themes: economic growth, governance, policy reform	ADB	Punjab Government Efficiency Improvement Program	2006-2011	Subprogram 1: $250 million Subprogram 2: $50 million Subprogram 3: TBD
Health Theme: improving health information systems	JICA	Improving District Health information System for Evidence-Based Decision Making	2009-2012	Not available
Health: Theme: improving health service delivery	USAID	Pakistan Initiative for Mothers and Newborns	2004-2010	$92.8 million
Health Theme: improving health service delivery	CIDA	Systems Oriented Health Investment Project	2008-2010	Can$7 million
Health Theme: maternal and child health	UNICEF	Safe Motherhood Project	2005-2010	Not available
Health Theme: HIV/AIDS	World Bank	Punjab HIV/AIDS Control Program	2009-2013	$34 million
Health Investment	UNICEF	Punjab Health Investment Case	2009-2012	Not available

Source: *Asian Development Bank-Punjab Millennium Development Goals Program*

3.9 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), Jinnah Postgraduate Medical Centre (JPMC), 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.

Broadly a Health Information System includes the following sources of data:

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 during 2010-2011 for strengthening of the Health Information Systems in Punjab. During this period, 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[27].

   In Punjab WHO is also supporting the strengthening of District Health Information System (DHIS). All information and statistics is collected by Punjab 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 Punjab.

   The District Health Information System (DHIS) in Punjab is functional in all of the 36 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 Punjab Public Health Department. The Punjab Healthcare Commission (PHC) is expected to play a key role in generating HRH information both for the public and private sector.

[27] http://www.whopak.org/

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

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.

4. **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 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.

The lack of research capacity in Pakistan is also reflected in the failure of the taking- off of the National Health Resource Information Center (NHIRC) established at a cost of Rs. 180.0 million in 2003/04. The centre has been unable to acquire qualified and competent manpower that can provide leadership with knowledge and skills for information collection, aggregation, analysis and use to influence decision making.

Recent Punjab Health Strategy draft recommends institutionalization of an information database for the province that contains all relevant documentation pertaining to the health sector of Punjab including research studies, technical assistance and other periodic progress reports. A regular system of tabulation and analysis of health human resource information is required for Punjab that facilitates evidence based HRH policy making.

SECTION 4: HEALTH WORKERS SITUATION

The Joint Learning Initiative 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 Punjab, are in the processes of developing their own province specific policies[28]. The Punjab 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. The total number of health workers estimated for Punjab was 91,696. This estimate comes out to be proportionately less when compared to the other provinces as presented in Table 12 below:

Table 12-Densities of Cadres per 1000 Population in Punjab, 2009

S.No	Health occupational categories/cadres	Number	HW/1000 Population	Min	Median	Max
1	*Doctors	12,601	0.14	0.03	0.13	0.19
2	*Dentists	1,339	0.014	0.009	0.014	0.018
3	**Nurses	17,773	0.19	0.08	0.19	0.22

Source: Pakistan Human Resources for Health Assessment2009; MOH, GHWA USAID, WHO

**Doctors and dentists include general & specialists*

***Nurses include Midwives, LHVs and LHWs*

4.1. HEALTH WORKERS STOCK AND TRENDS

The estimated total HRH numbers and district level densities in Punjab are lower than in other provinces. This is despite the fact that Punjab has almost half the number of health human resource production institutes. Budgetary constraints, absence of a comprehensive HRH Plan,

[28] Country Progress Report Pakistan, UNDP, March 2012

deployment and retention issues, large population share, non-existent and inconsistent HRH data are some of the contributory factors.

In the absence of a centralised data source on HRH in the Punjab, 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. Their numbers were sourced from the universities running the allied health programs. The paramedics are registered with the Punjab Medical Faculty and the LHW records are maintained at the NP-FPPHC. The Community Midwifery Program is accredited by the PNC but discrepancy was noted in their numbers when compared with the data received from the Provincial MNCH Program. The data related to Pharmacists and the Pharmaceutical Technicians was sourced from the Punjab Pharmacy Council.

4.1.1. Number and Densities of Different Categories of HRH in Punjab

The secondary data collected from the different sources is presented in Table 13.

Table 13-Registered Health Workers in Punjab 2009 – 2012

S.No	Health occupational categories/cadres	2009	2010	2011	2012
1.	*Generalist Medical Practitioners	43,374	45,774	47,677	50,514
2.	*Dental Surgeon	3,264	3,680	3,938	4,356
3.	*Specialists Medicine and Dentistry	10,982	12,036	12,936	14,075
4.	*Public Health Professionals	1,233	1,319	1,431	1,540
5.	**Allied Health Professionals	-	-	-	368
6.	***Nursing Professionals	26,999	30,327	35,192	35,484
7.	****Pharmacists & Pharmaceutical Technicians	477	698	1,141	1,306
8.	*****Paramedics	-	-	-	54,270
9.	******Community Midwives (CMWs)	-	-	-	4,200
10	*******Lady Health Workers				48,030

*Source: *Pakistan Medical & Dental Council, April 2012*
***University of Health Sciences, KEMU, March 2012*
****Pakistan Nursing Council, March 2012*
*****Punjab Pharmacy Council, April 2012*
******Punjab Medical Faculty, April 2012*
*******Provincial MNCH Program, March 2012*
********National Program for Family Planning & Primary Health Care, March 2012*

In Table 14 the trend in densities of doctors, dentists and nurses, i.e. number/10,000 population, in the province is presented. It is important to note that the healthcare professional regulatory authorities i.e. the data sources only have record of the total number of registered health professionals. Their record is not updated for health professionals who, after their initial registration, migrate, are unemployed or die. It is therefore not a true reflection of the HRH available to Punjab. The estimated 2012 densities are 5.14 for doctors; 0.44 for dentists; and 3.61 for nurses.

Table 14-Health workers/Population ratios at Punjab Provincial level

Year	Population (Million)	Registered Doctors	Doctor/ 10,000	Registered Dentists	Dentist/ 10,000	Nurses	Nurse/ 10,000
2009	**92.92**	**43374**	**4.67**	**3,264**	**0.35**	**26999**	**2.91**
2010	**94.73**	**45774**	**4.83**	**3,680**	**0.39**	**30327**	**3.20**
2011	**96.58**	**47677**	**4.94**	**3,938**	**0.41**	**35192**	**3.64**
2012	**98.34**	**50514**	**5.14**	**4,356**	**0.44**	**35484**	**3.61**

Source: *Pakistan Medical & Dental Council, April 2012 & Pakistan Nursing Council, March 2012*

4.2. AGE DISTRIBUTION OF HEALTH WORKERS

Age data was available only from the PMDC. The data shows that most generalist medical practitioners are in the age range of 31 – 50 years, and that the largest number of dentists is less than 30 years old. Specialist medical and dental practitioners and medical faculty members are mostly in the age group of 31- 40 years.

Table 15-Age distribution of different Cadres of Doctors in Punjab

S. No	Health occupational categories/cadres	Less than 30	31-40	41-50	51-60	61-70
1	**Generalist Medical Practitioners**	9,240	15,801	15,891	8,501	1,081
2	**Dental Surgeon**	969	927	891	783	786
3	**Specialist Medical & Dental Practitioners**	607	8,911	3,234	1,196	127
4	**Medical & Dental Faculty**	42	4,981	2,381	1,072	71

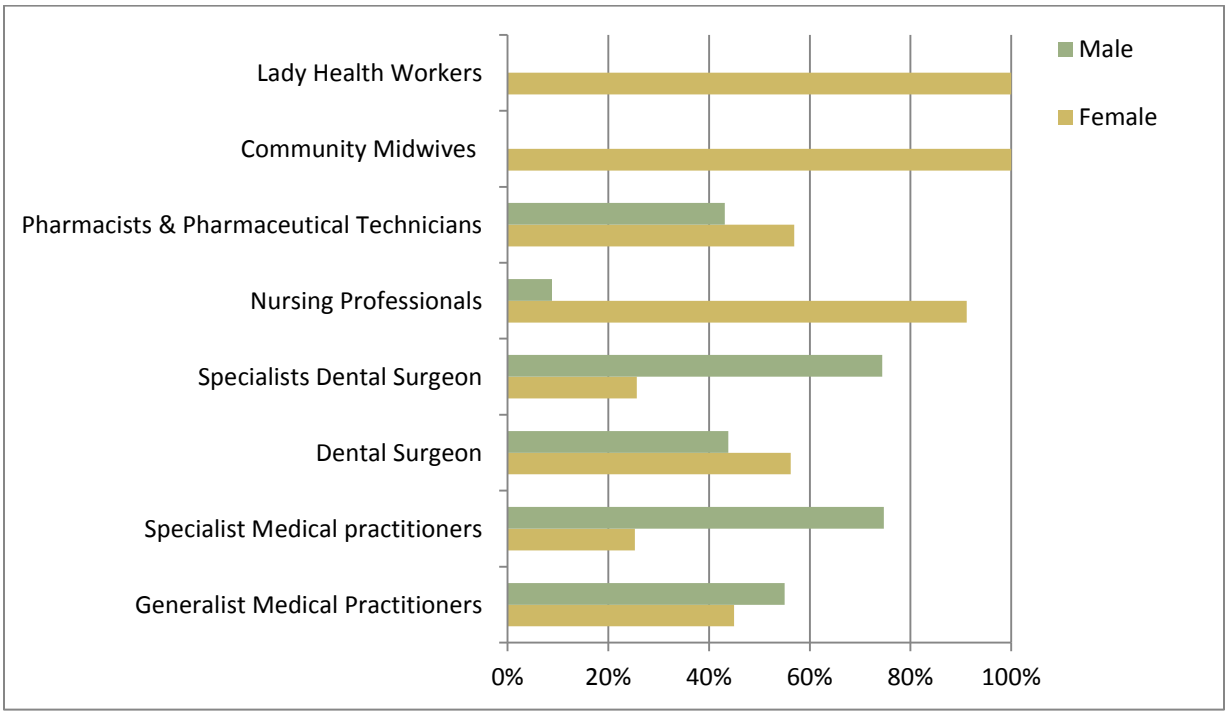
Source: PMDC March 2012

4.3. GENDER DISTRIBUTION OF HEALTH WORKERS

Data on gender distribution for registered doctors and dentists, nurses and pharmacists was available from their respective regulatory bodies PMDC, PNC and Punjab Pharmacy Council respectively. No data is available for the other categories of HRH.

Among doctors and dentists it is interesting to note that at the pre-service training level 65- 70% of the applicants are females. However among the registered practitioners only 45% are female and among specialists the proportion falls to 25%. This is indicative of the fact that a large proportion of female doctors are not able to work and advance their professional careers due to gender insensitive working environment and policies. The CMW and LHW Programs are open only to females. Amongst the nurse professionals registered with the PNC, 3,127 are males and 32,365 are females. Out of the total of 1,306 Pharmacists and pharmaceutical Technicians registered with the Punjab Pharmacy Council, 56.8 % are females. Fig. 9 presents the gender distribution of the different registered categories of HRH

Figure 9-Gender distributions of different Categories of Registered HRH

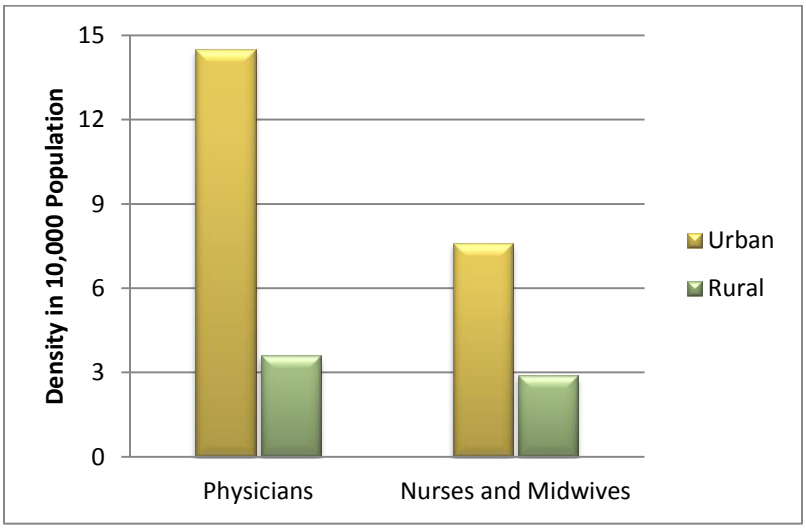


Source: PMDC, PNC, Punjab Pharmacy Council, Provincial MNCH Program, National Program for Primary Health Care, 2012

4.4. RURAL URBAN DISTRIBUTION OF HRH IN PUNJAB

Secondary data for the Rural & Urban divide of healthcare providers in Punjab was not specifically available but it is expected that it follows the same pattern as estimated for Pakistan and depicted in Fig 10 below:

Figure 10-Urban Rural Distribution of HRH in Pakistan



Source: Pakistan, Global Health Workforce Alliance available at URL: http://www.who.int/workforcealliance/countries/pak/en/index.html

Up to 65% of Pakistan's population is rural. The gross inequity in the distribution of HRH between the rural and urban population is a big challenge for the public health sector and if not addressed timely will prevent the achievement of the national health goals.

4.5. ABSORPTION AND UTILIZATION OF HRH

Table 4.5 presents the absorption status of health workers at the primary and secondary levels of the public sector health in Punjab. The table is an adaption of the data compiled by the Punjab Health Sector Reform Program to the WHO categorization of HRH. It is important to note that in Pakistan there is no nationally or provincially notified uniform categorization of health workers.

Table 16-Category wise utilization of health workers at the DHQ, THQ, RHC & BHU level

S.No	Health occupational categories/cadres	Public Sector Posts		
		Sanctioned	Filled	Vacant
1.	**Public Health Professionals/ Administrators/Health Managers** (*EDOH, DOH, DDOH, Medical Superintendent, Addl Medical Superintendent, Deputy Medical Superintendent, Secretary Quality Control Board, District Sanitary Inspector, Tehsil District Inspector, Health & Education Officer, Tehsil Sanitary Inspector , District Superintendent Vaccinator, Assistant Superintendent Vaccinator, PHN*	603	487	116

2.	**Generalist Medical Practitioners** (*Principal Medical Officer, Assistant Principal Medical Officer, Assistant Women Principal Medical Officer, Senior Medical Officer / SCMO, Senior Women Medical Officer, Medical Officer / CMOs, Women Medical Officer, Asst Women Medical Officer, Registrar*)	6349	4441	1908
3.	**Specialist Medical Practitioners** (*Senior Consultant, Surgeon, Physician, Pediatrician, Gyneacologist, Anaesthetist, Cardiologist, Orthopaedic Surgeon, Eye Specialist, ENT Specialist, Pathologist, Radiologist, Dermatologist, TB Chest Specialist, Urologist, Neuro Surgeon, Psychiatrist, Nephrologist, ICU Consultant*)	1333	731	602
4.	**Dental Surgeon** (*Senior Dental Surgeon, Dental Surgeon)*	414	351	63
5.	**Specialists Dental Surgeon** (*Principal Dental Surgeon, Addl. Principal Dental Surgeon)*	19	14	5
6.	**Allied Health Professionals**(*Blood Transfusion Officer, Refractionist, Physiotherapist, School Health and Nutrition Supervisors)*	2479	1849	630
7.	**Nursing Professionals** (*Principal Nursing School, Nursing Instructor/Tutor, Nursing Superintendent, Deputy Nursing Superintendent, Head Nurse, Staff Nurse, Charge Nurse, Male Nurse,*	7770	6901	869
8.	**Pharmacists & Pharmaceutical technicians** (*Pharmacists, Pharmaceutical Technicians, Deputy Drug Controller)*	123	110	13
9.	**Paramedics** (*X-Ray Technician, ECG Technician, Blood Technician, Electro medical Technician, C.T Technician, X-Ray Technician, Medical Technician, Eye Technician, Ophthalmic Technician, Dialysis Technician, Dental Technician, Lab Technician, Head Technician, Lab Assistant, X-Ray Assistant, Dental Assistant, Anaesthesia Assistant, OT Assistant, Head Dispenser, Dispenser/Dresser*)	14359	11894	2465
10.	**Community Health Workers** *(Community Midwife, Lady Health Worker, DAI)*	9335	7412	1923
11.	**Traditional and Alternative Medicine Practitioners** (*Hakeem / Tabeeb, Homeo Doctor, Homeo Dispenser, Dawasaz, Dawakoob)*	921	735	186
13.	**Other Health Support Staff** (*Nursing Ardly, Nursing Dai, Lecturer Assistant, Lab Attendant, X-Ray Attendant, Dark Room Attendant, OT Attendant, Dental Attendant, Physiotherapy Aid)*	223	197	26
13.	**Other Non Medical Support Staff**	26528	22817	3711

Source: Adapted fromPunjab Health Sector Reform Program Data, June 2012

SECTION 5: HRH PRODUCTION

Pakistan didn't 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 programmes, are increasingly being offered, especially in the private sector.

Secondary data related to HRH production in Punjab was collected through web search; review of available documents; from respective regulatory bodies; and universities like the University of Health Sciences (UHS), King Edward Medical University (KEMU) and Fatima Jinnah Medical College (FJMC). Reliable data on the production resources for allied health professionals and health managers could not be accessed owing to the absence of a centralized registration/ accreditation body maintaining their records.

5.1 ACCREDITATION AND REGULATORY BODIES

Following is the list of professional bodies and accreditation councils that regulate and accredit the academic institutions, engaged in training of healthcare professionals. These bodies function at the national level.

- **Higher Education Commission (HEC**) is the primary regulator of higher education in Pakistan[29]. It is responsible for higher education policy, quality assurance, degree recognition, development of new institutions and uplift of existing institutions in Pakistan.
- **Pakistan Medical & Dental Council (PMDC)** was established 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 programmes. It is the registration authority for general and specialist medical & dental Practitioners and public health professionals in Pakistan and holds their records.
- **Pakistan Nursing Council (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.

[29] en.wikipedia.org/wiki/Higher_Education_Commission_of_Pakistan

- **Pharmacy Council for Pakistan (PCP)** 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.
- **National Council for Homeopathy** 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.
- **National Council for Tibb** was also established under the UAH Act 1965 as an examining and registering body for the practitioners of the Unani and Ayurvedic system of medicine.

5.2. ACCREDITAION AND POSTGRADUATE TRAINING BODIES

- **University of Health Sciences (UHS) was** established under the UHS Ordinance in 2002. The university has been given the mandate to affiliate all health professionals' education institutions in the Punjab province for the purpose of monitoring their standards and evaluating their trainees for the award of degrees. The university is offering programmes of training for specialization in medical, dental, nursing, biomedical engineering and paramedical fields and undertaking research. In the field of undergraduate medical education the university in conjunction with PMDC is ensuring the standard and quality of programmes offered by its affiliate institutions. In the field of postgraduate education, the university is implementing the standards prescribed by HEC.
- **King Edward Medical University (KEMU):** King Edward Medical College (KEMC), founded in 1860 as Lahore Medical School, was awarded the university status under the King Edward Medical University Act, 2005. The university is offering undergraduate and postgraduate training programmes and awarding degrees to trainees from its own constituent institutions/departments. It has not been given the mandate to affiliate and award degrees to trainees of other institutions, the mandate for which lies with UHS.
- **College of Surgeons & Physicians (CPSP)** was incorporated 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, nevertheless 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.
- **University of Punjab (UoP)** was established at Lahore in 1882. Before the creation of UHS most health professionals' education institutions were affiliated with the UoP. Currently among the medical colleges, the Fatima Jinnah Medical College, the female only medical institution in Punjab**,** continues its affiliation with the university. A

number of allied health professionals' education institutions are either constituent or affiliate institutions of the university. The university implements the standards defined by HEC in its affiliate and constituent institutions.

- **University of Lahore** is a recently established private sector university offering a wide range of training programmes and awarding degrees in the field of allied health sciences. The university is accredited by the HEC and is required to implement the standards laid down by the Commission.

5.3. PRE SERVICE TRAINING INSTITUTIONS IN PUNJAB

The number of private medical colleges has increased from 16 in 2008 to 28 in 2011 and out of the 14 Dental Colleges, 12 are private. 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 2011, 33703 students applied against the 5800 seats available in the medical and dental colleges of Punjab.

For nurses 107 institutions are currently working in the province. Programmes 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. Punjab 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. Sixty four institutions in Punjab offer programs for allied health professionals and paramedics training and twelve institutions are training Pharmacists. The sector wise breakdown of the institutional ownership by Public, Private or Armed Forces categories is elaborated in Table 17.

Table 17-Training Institutions by type of ownership

Type of training institution	Type of ownership			Total
	Public	Private	Armed Forces	
Medical College	17	27	2	45
Dental College	2	11	1	14
Public Health	3	0	1	4
Post Graduate Medical Institutions	12	0	1	13
Allied Health Institutions	40	24	0	64
College of Nursing	1	3	0	4
School of Nursing & Midwifery	44	12	---	56
Public Health Nursing School	12	1	0	13
School of Midwifery	---	---	---	99
Pupil Midwife	---	---	---	20
CMW Training School	42	0	0	42
Pharm-D Institutions	6	6	0	12
Pharmacy Technician Institutions	0	10	0	10

5.4. PRE SERVICE HRH TRAINING PROGRAMS

5.4.1. 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 pre clinical and 3 years of clinical training. BDS is a 4 years program with 2 years of pre clinical 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 18-Intake in Medical and Dental Colleges versus the number of applicants in Punjab

Year	Number of Applicants	Male	Female	MBBS & BDS Seats	Applicants not securing admission	% applicants not gaining entry
2009	21,289	**6432**	**14,857**	3,228	18,061	84.84
2010	31,602	**10,816**	**20,786**	4,961	26,641	84.30
2011	33,703			5,800	27,903	82.79

The gender distribution reflects a higher number of female applicants and a subsequently higher number of female intakes in the medical and dental colleges. The consistent increase in the number of seats for basic medical and dental education is reflected in Table 19.

Table 19-Seats allotted as per Categories registered with PMDC

Cadre	Program	Duration	Year wise Entrants				
			2007	2008	2009	2010	2011
Medicine	MBBS	5 years	4,500	4,800	5,000	5,200	5,800
Dentistry	BDS	4 years	755	805	805	905	980

Source: Pakistan Medical & Dental Council May 2012

List of Medical & Dental Colleges along with their annual intake is attached as Annex 9. In 2011, a total of 5800 students were admitted in the medical colleges in Punjab, out of which 2950 were enrolled in the private and 200 in the armed forces medical colleges. In the same year 980 students got admissions into the Dental Colleges; 780 in private, 150 in public and 50 in the armed forces dental colleges. The medical and dental graduates from public and private

colleges have no bond to serve. However the graduates from the Armed Forces Medical and Dental Colleges are bonded to serve the Armed Forces for 7 years.

Table 20-Sector Wise break up of Intake in Medical and Dental Colleges in Punjab for 2011

Cadre	Sector	Total Number of Institutes	Intake 2011	% Intake 2011
Medicine	Public	17	2,650	46
	Private	27	2,950	51
	Armed Forces	1	200	3
	Total	**45**	**5,800**	**100**
Dentistry	Public	1	150	15
	Private	12	780	80
	Armed Forces	1	50	5
	Total	**14**	**980**	**100**

Source: PMDC Website Feb 2012

As per data received from the University of Health Sciences, a total of 20,226 students of medicine and 1,540 students of dentistry are enrolled in MBBS and BDS Programs being offered in Punjab.

Table 21-Enrolment & Expected Output of Medicine & Dentistry Undergraduate Programs

Cadre	Sector	Current Status of Enrolment in Punjab					Output
		Year 1	Year 2	Year 3	Year 4	Year 5	2011-2012
Medicine	Public	2,974	2,746	2,517	2,307	2,299	2,075
	Private	2,497	1,751	1,436	1,059	640	563
	Total	5,471	4,497	3,953	3,366	2,939	2,638
Dentistry	Public	106	105	108	87	_	176
	Private	382	348	192	212	_	143
	Total	488	453	300	299	_	319

Source: University of Health Sciences March 2012

A total of 7140 doctors and 1092 dentists were added to the province over the last 4 years as reflected in Table 22.

Table 22-Number of Registered Health Professionals from Punjab with PMDC (2009-2012)

Cadre	Registration In Punjab				Total Output from 2009-2012
	Year 2009	Year 2010	Year 2011	Year 2012	
Medicine	43,374	45,774	47,677	50,514	7,140
Dentistry	3,264	3,680	3,938	4,356	1,092

Source: Pakistan Medical & Dental Council May 2012

5.4.2. Allied Health Programs

A range of Bachelor of Science (B.Sc) programmes of 4 years duration are being offered in the different allied health disciplines in the province. Doctor of physical therapy (DPT) of 5 years duration has recently been introduced in the province and is an exception. The curricula of the 4 years B.Sc. programmes 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. Majority of the programs are being offered by public sector institutions. University of Health Sciences and the Punjab University have established constituent institutions as well as affiliate institutions offering the programmes and undertake the examination of candidates trained. King Edward Medical University and the University of Lahore are also offering programmes for the training of allied health professionals and awarding degrees to their trainees. 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 programmes, their annual intake and enrollment status are attached as Annex 10 & 11.

A total of 64 institutions are offering allied health programs in Punjab of which 24 have private and 40 have public ownership. B.Sc. (Hons) in Medical Lab Technology is being offered at 13 institutes, whereas Medical Imaging Technology and Doctor of Physical Therapy (DPT) are being offered at 8 institutions. The total annual intake of all the programmes offered is currently 1,178. As per data received from the UHS and the KEMU, a total of 2,259 students are currently enrolled in the programs offered by their constituent and affiliate institutions. Available data shows that the number of applicants for the available seats is low and for some programmes there are hardly any applicants. This is in contrast to the bachelor programmes in medicine and dentistry where every year over 80% of applicants cannot find a seat. No research is available to explain the low demand for these courses. Possible reasons could be the poor image and lack of awareness about the career prospects in these fields.

5.2.1 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 ***Pupil 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. Although students with both Arts and Science subjects are eligible, preference is given to the ones having studied Science

subjects. ***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 programme is accredited by PNC. The duration of training is 18 months including a three-month community practicum. A total of 1101 CMWS are presently under training in Punjab and 4200 have graduated so far. Details are attached as Annex 12.

Lady Health Visitor (LHV) Diploma is a two year diploma training programme 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 FSc 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 (BScN) is a four years bachelor program accredited by PNC and affiliated by UHS. 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 Punjab is open to primarily females only. Pakistan Nursing Council in collaboration with University of Health sciences affiliates, examines and regulates the Nursing Degree Programs in Punjab. Table 23 gives an overview of nursing institutions offering pre service educational programs. Details are attached in Annex 13 & 14.

Table 23-Categories of Nursing & Midwifery Training Institutions in Punjab

Sr. No	CATEGORY	Number
1	College of Nursing	4
2	School of Nursing	57
3	Public Health School	13
4	School of Midwifery	99
5	School of Pupil Midwifery	20
6	CWM Training School	42
Total Institutions in province		235

Source: Nursing Examination Board, Punjab Feb 2012

There are a total of 6 institutes in Punjab that offer the Bachelor in Nursing Program. The annual intake in pre service nursing programs increased substantially as the GoPb entered into PPP with the Saida Waheed FMH College of Nursing in 2007.

The details of annual entrants and outputs for various programs are depicted in tables 24. It must however be noted that there was significant discrepancy in the data sourced from the Nursing Examination Board and the Pakistan Nursing Council.

Table 24-Enrolment and output of Nursing & Midwifery Programs in Punjab 2007-2011

Nursing Programs	Year wise Entrants			Year wise Output		
	2009	2010	2011	2009	2010	2011
Bachelor of Nursing	150	284	308			
General Nursing Diploma Program	2611	2431	2611	2329	2048	2287
Community Midwifery Diploma Program	1227	847	1968	1020	609	1668
Lady Health Visitor Program	791	797	919	622	626	798

Source: Pakistan Nursing Council May 2012

5.4.3. PHARMACY PROGRAMS

A total of 12 institutes in Punjab are offering Pharmacy D Degree which is a 5 years program. 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 Punjab 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.

There are 10 institutes in Punjab offering a 2 years pharmacy technician course. Details are attached in Annex 15 & 16. Eligibility is for students with Matriculation or equivalent qualification with minimum 45% marks. Both Arts and Science students are eligible, but preference is given to Science Students. Currently, a total of 7693 students are enrolled in the doctor of pharmacy program and 900 in the pharmacy technician course.

Table 25-Enrolment in Pharm D and Pharmacy Technician Prorgam in Punjab (2012)

Program	Duration	Enrollment				
		Year 1	Year 2	Year 3	Year 4	Year 5
Doctor of Pharmacy	5 years	948	796	839	733	751
		681	603	771	718	853
		1,629	1,399	1,610	1,451	1,604
Pharmacy Technician Course	2 years	0	0	_	_	_
		700	200	_	_	_
		700	200	_	_	_

Source: Punjab Pharmacy Council, May 2012

Female are found to predominately enroll in the Pharmacy Programs as depicted in the Table 26.

Table 26-Gender distribution of Pharm-D Entrants in Punjab in 2012

Program	Sector	Year wise Entrants									
		Year 1		Year 2		Year 3		Year 4		Year 5	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Pham-D	Public	259	689	256	540	217	622	200	533	267	484
	Private	257	424	216	387	318	453	266	452	323	530
	Total	516	1,113	472	927	535	1,075	466	985	590	1,014

Source: Pharmacy Council of Pakistan, May 2012

5.4.4. Lady Health Worker Program

The Lady Health Worker programme 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.

Presently there are a total of 48,030 LHWs working in the 36 districts of Punjab. Each LHW has a catchment population of 1100-1300 in the rural areas and 1500 in the urban slums. One Lady Health Supervisor (LHS) is designated on each batch of 24 LHWs. There are a total of 1930 LHS working with the program in Punjab. Details are attached as Annex 12. The Program is not enrolling LHWs at the moment.

5.4.5. 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 27 lists the Alternate Medicine training programmes offered in Pakistan.

Table 27-Hikmat Courses in Pakistan

Title of Course	Elligibility	Duration	Approving Bosy
DHMS (Diploma in Homeopathic Medical Sciences)	Matriculation or O Levels (Science Subjects)	4 years	The National Council for Homeopathy
Dilpoma course for Tibb-e-Unani [Fazil-Tibb-Wal-Jarhat (FTJ)]	Matriculation or O Levels (Science Subjects)	4 years	The National Council for Tibb
BEMS (Bachelor of Eastern Medicine and Surgery)	F.Sc (Pre-Medical) or A Levels (Biology) or B.Sc (Biological Sciences)	5 years	The National Council for Tibb
BEMS (Bachelor of Eastern Medicine and Surgery) – *Fast Track*	Fazil-Tibb-Wal-Jarhat (FTJ) Diploma Holders	3 years	The National Council for Tibb
BHSM (Bachelor in Homeopathic Medical Sciences)	F.Sc (Pre-Medical) or A Levels (Biology) or B.Sc (Biological Sciences)	4 years	The National Council for Homeopathy

5.3 INSERVICE & POST GRADUATE SPECIALIZATION TRAINING INSTITUTIONS IN PUNJAB

The post graduate programmes for health professionals training being offered in Punjab 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 programmes. Table 28 enlists the programmes offered and the institutions offering the programmes.

Table 28-Post Graduate Specialization Programs in Punjab

Post Graduate Specialization Programs	Post Graduate Institutions
Fellowship Programs	College of Physicians and Surgeon
Membership Programs	College of Physicians and Surgeon
Diploma Programs	College of Physicians and Surgeon University of Health Sciences King Edward Medical University Post Graduate Medical Institute, Lahore General Hospital Armed Forces Post Graduate Medical Institute Post Graduate College of Nursing University of Punjab University of Lahore

Masters Programs (MPhil/MS/MSc/ MDS/)	University of Health Sciences King Edward Medical University Post Graduate Medical Institute, Lahore General Hospital Armed Forces Post Graduate Medical Institute Shaikh Zayed Post Graduate Medical Institute Punjab Institute of Radiology Institute of Public Health University of Punjab University of Lahore
Doctoral Programs	University of Health Sciences King Edward Medical University University of Punjab University of Lahore

5.4 INSERVICE & POST GRADUATE SPECIALIZATION PROGRAMS

5.4.1 MEDICAL & DENTAL POST GRADUATION PROGRAMS

The Medical and Dental Graduates are required to do house job/internship of 12 months before applying for post graduate programs. 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. PU and AFPGMI are the two institutes who are offering a one year MPH Program. Recently PMDC has made it mandatory for all public health professionals to undertake a 2 year MPH Program. PMDC record of entrants into the medical and dental speciality programs is reflected in Table 29:

Table 29-Entrants in the Post Graduation Programs in Medicine, Dentistry and Public Health

Cadre	Program	Year wise Entrants				
		2007	2008	2009	2010	2011
Medical Specialist	FCPS/Diploma/MD/MS	1,200	1,250	1,300	1,300	1,400
Dental Specialist	FCPS/Diploma/MS	50	50	60	60	70
Public Health	DPH/DCPS/MPH/FCPS	100	120	120	130	130

Source: Pakistan Medical & Dental Council May 2012

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. In Punjab CPSP is currently offering 57 medical and dental specialties for post graduation. Details are attached as Annex 17.

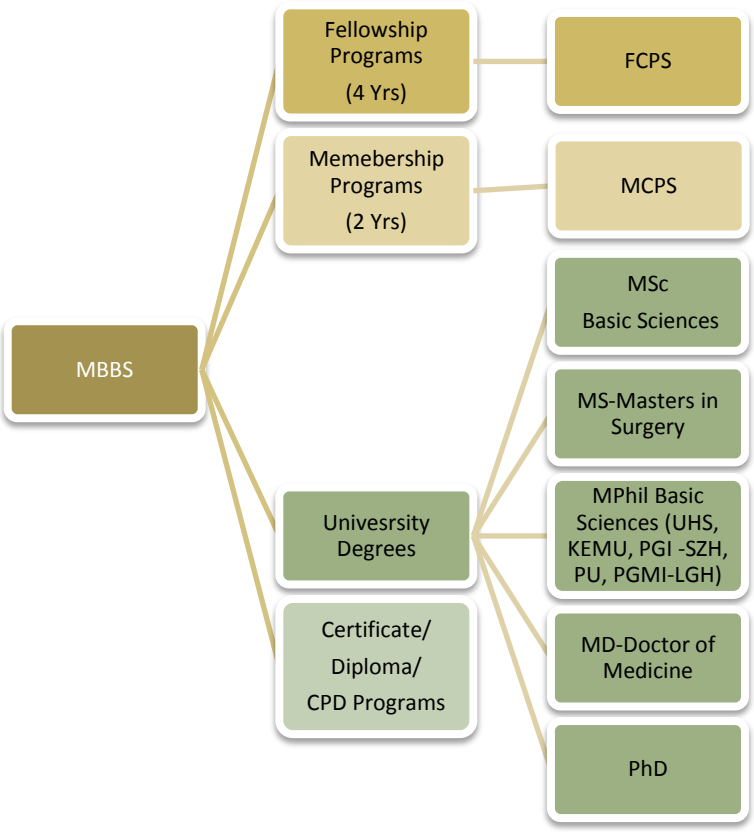
Table 30-Number of Registered Specialists in Punjab (2009-2012)

Cadre	Registration In Punjab				Total Output from 2009-2012
	Year 2009	Year 2010	Year 2011	Year 2012	
Medical Specialist	10,749	11,773	12,640	13,720	2,971
Dental Specialist	233	263	296	355	122
Public Health	1,233	1,319	1,431	1,540	307

Source: Pakistan Medical & Dental Council May 2012

In Figs. 11and 12 the specialization paths available for doctors and dentists are presented.

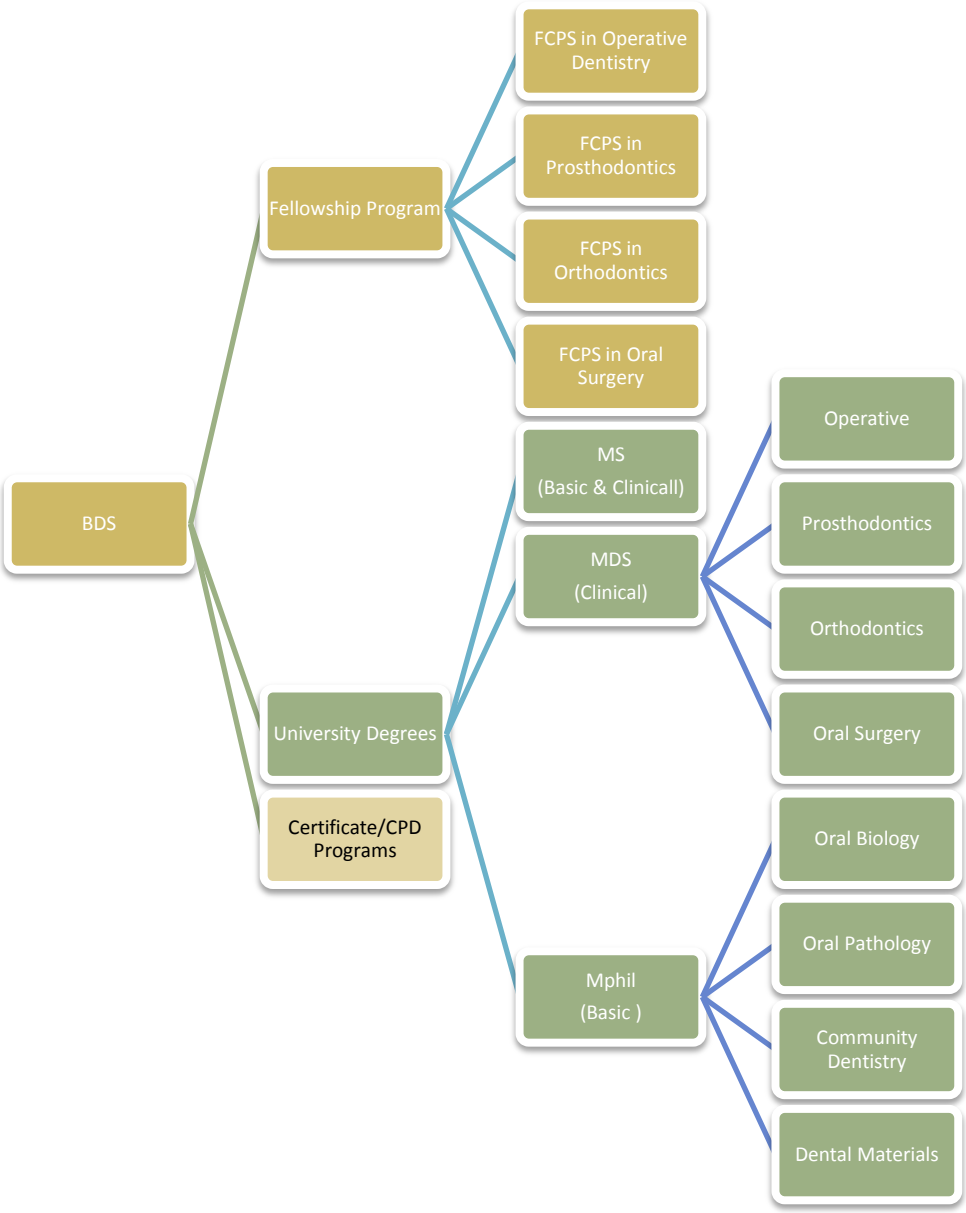
Figure 11 Post Graduate Specialization Programs in Medicine in Punjab



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.

According to CPSP Records presently there are 13,373 enrolled in FCPS and 2,558 in MCPS programmes. In Punjab, 7813 trainees are from the Public Sector, 956 from the private sector and 965 from the Armed Forces, making it a total of 9104 CPSP Trainees in Punjab. These are supervised by a total of 1358 CPSP Recognized Supervisors in Punjab. Since 2004, 78 trainees have successfully completed Diploma in Medical Education.

Figure 12 Post Graduate Specialization Programs in Dentistry in Punjab



In 2012, 409 medical and 54 dental specialties were added to the pool of specialists in Punjab.

Table 31-Medical & Dental fellows registered with CPSP for Pakistan

Cadre	Trainees in Specialty	Sector			Total
		Public	Private	Armed Forces	
Medical Specialist	FCPS	9,960	12,917	953	**12,917**
	MCPS	1,727	2,392	221	**2,392**
Dental Specialist	FCPS	291	456	52	**456**
	MCPS	103	166	26	**166**

Source: College of Physicians & Surgeons Pakistan April 2012

5.4.2 PUBLIC HEALTH POST GRADUATE PROGRAMS

There are 4 post graduate institutions in Punjab that offer courses for Public Health professionals with together an annual intake of 130. A total of 1540 public health specialists are registered with the PMDC. A strong need is recognized for strengthening the management cadre in the Punjab Health Sector in view of the gross deficiency.

The Institute of Public Health in Lahore is offering Masters in Public Health (MPH), Masters in Health Management (MHM), Masters in Maternal & Child Health (MMCH) and MPhil in Public Health.

Table 32-Public Health entrants and graduates 2007-2011

Session	Enrolled	MPH	MHM		MMCH		M.PHIL	
		Graduated	Enrolled	Graduated	Enrolled	Graduated	Enrolled	Graduated
2007	39	21	10	9	10	5	7	1
2008	44	21	12	10	9	2	_	_
2009	49	23	10	8	12	5	8	R.L
2010	44	17	10	7	15	5	4	R.L
2011	44	Result awaited	11	Result awaited	11	Result awaited	12	Result awaited

Source: Institute of Public Health, Lahore, March 2012

5.4.3 ALLIED HEALTH POST GRADUATE PROGRAMS

Few institutions in Punjab are offering MSc/MPhil/PhD Programs in Allied Health Disciplines. The eligibility criteria of these programs is defined by UHS as first or high 2nd division in MBBS /B.Sc. in relevant allied health field, an Entry Test and Interview at host institution.

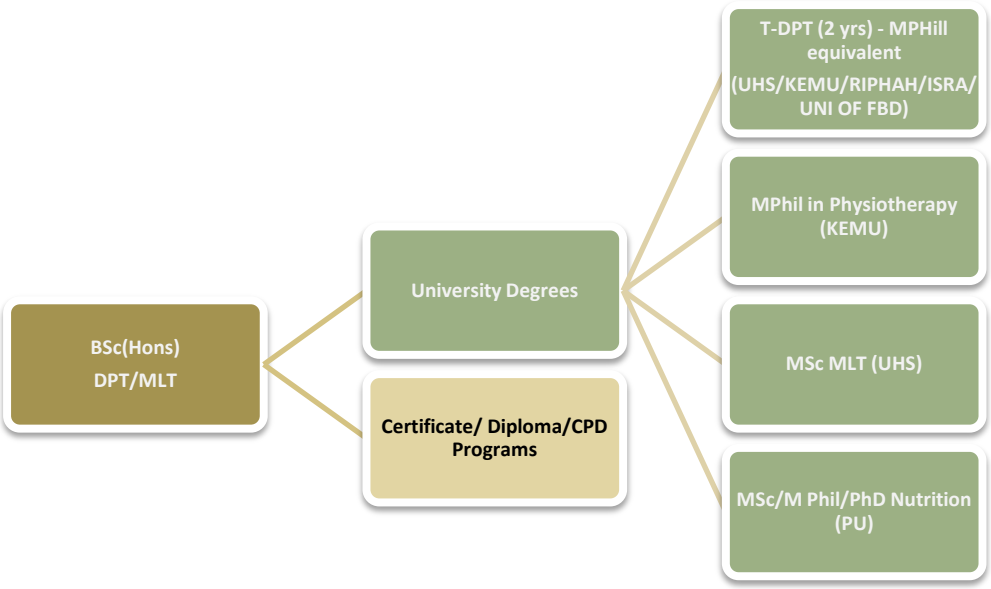
The most popular specialty programs being offered are reflected in table below.

Table 33-Allied Health annual PG intake of Punjab for 2012

Program	Program Duration	Annual Intake
M.Sc. Medical Technology	2 years	10
MSc Nutrition	2 years	52
MS/MPhil Nutrition	2 to 3 years	43
Phd Nutrition	3 to 5 years	6
Total		**111**

Source: University of Health Sciences March 2012 & FMH Department of Nutritional Sciences May 2012

Figure 13-Post Graduate Specialization Programs for Allied Health in Punjab



5.4.4 NURSING & MIDWIFERY SPECIALIZATION PROGRAMS

Punjab has currently 99 Schools of Midwifery but as yet no College of Midwifery. This is restricting the professional development of this important cadre of HRH. The same situation was prevailing for nurses until 2006-7 but since then many graduate programmes have been established. ***Post RN 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.

MSc Nursing (MScN) is a 2 year program being offered at the UHS. The 4 colleges of Nursing in Punjab are neither offering a MScN nor a PhD in Nursing at the moment. MSc Nursing is a 2 year program being offered at the UHS. Presently there are no doctoral programs for Nursing in Punjab.

Post Basic Specialty Diploma are being offered in the field of Critical Care, Pediatric Nursing, Nursing Education, Operating room nursing, Advanced Midwifery Nursing, Community Health Nursing, Accident & Emergency Nursing, Psychiatry Nursing, Anesthesia Nursing and Nursing Management.

Table 34-Entrants & Graduates of Post Graduate Nursing Programs in Punjab 2007-2011

Nursing Programs	Year wise Entrants					Year wise Output				
	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011
PhD N	0	0	0	0	0	0	0	0	0	0
MScN	9	10	_	10	13		5	2	1	8
Post RN BScN		124	124	165	56	165	56			_

Source: Nursing Examination Board, Punjab Feb 2012

5.5 IN-SERVICE TRAINING AND CONTINOUS PROFESSIONAL DEVELOPMENT PROGRAMS

In service training programs are being offered for all categories of health workers in Punjab 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.

In Punjab there are 31 DHDCs. They are playing an ineffective role towards the execution of training and developmental activities at the district level, due to lack of requisite technical support from the PHDC. There is a recognized need for revitalizing the mandate of the PHDC and DHDC with regards to offering of induction training for various cadres of health workers; mandatory training linked to promotion and career structures; Mandatory training for placements prior to taking up administrative positions; and Training of Master Trainers.

Development partners have been supporting the identified in-service training initiatives of HRH in Punjab. A pilot project was undertaken in Punjab by King Edward Medical University, Allama Iqbal Medical College, and Fatima Jinnah Medical College in collaboration with the Global Health Workforce Alliance for developing essential management and leadership skills amongst young physicians and final year medical students. The curriculum and training materials was later used by the Punjab Health Development Centre (PHDC) for training of health professionals in the province.

National CME policy although developed was never implemented and in Punjab so far mandatory CME credit hours are not defined or linked to promotion of health workers. As a consequence the Continued Medical Education (CME) and Continued Professional Development (CPD) Programmes for the health workforce are a missing link in the health workforce management and development in the province. Short courses and certificates are being offered especially in the private sector in response to the local training needs identified.

SECTION 6: HEALTH WORKFORCE FORECAST

In Punjab, it is estimated that there is 1 Physician to 1,946 populations; 1 Dentist to 22,567 populations; 1 Nurse to 2,770 population; 1 pharmacist to 302 populations and 1 Community Health Worker to 1,882 Population. The Health Workers per population statistics are summarized in the Table 36

Table 35-Health Workers per Population for Punjab

S.#	Category/Cadre	Registered HW in Punjab in 2012	HW/1000 in Punjab
1.	***Doctor**	50,514	0.51 Physicians per 1000 population
2.	***Dentist**	4,356	0.04 Dentist per 1000 population
3.	****Nurses**	35,484	0.36 Nurse to 1000 population
4.	*****Pharmacists**	1,306	0.01 Pharmacists to 1000 population
5.	******Community Health Workers (CMW+LHW)**	52,230	0.53 Community Health Workers to 1000 population

*Source: *Pakistan Medical & Dental Council, April 2012*
***Pakistan Nursing Council, March 2012*
****Punjab Pharmacy Council, April 2012*
*****Punjab MNCH & LHW Program, April 2012*

Using the international benchmarks for doctors, dentists and nurses[30], the health workforce requirement calculated in Table 6.2 present the critical shortage of health workers in Punjab. It is estimated that 146,086 doctors, 93,944 dentists and 750,916 nurses are needed to meet the required gap. It is suggested that one midwife is needed for every 175 women during pregnancy, childbirth and the post-natal period[31]. The vaguely defined international benchmarks for community health workers and pharmacists limited the gap analysis for these two important cadres.

Table 36-Gaps in Requirement of Health Care Workers in Punjab

S No.	Category/ Cadre	International Benchmarks for HW	HW Requirement for Punjab	HW Registered in Punjab in 2012	Gap	% Gap
1.	**Doctors**	2 Physicians per 1000 population	196,600	50,514	146,086	74
2.	**Dentist**	1 Dentist per 1000 population	98,300	4,356	93,944	96
3.	**Nurses**	8 Nurse to 1000 population/ 4 nurses to 1 doctor	786,400	35,484	750,916	95

[30] Source: http://www.unicef.org/devpro/46000_46782.html http://jpma.org.pk/full_article_text.php?article_id=573
WHO Health Systems Statistics http://www.who.int/healthinfo/statistics/indhealthworkers/en/index.html
[31] http://www.unicef.org/devpro/46000_46782.html

The HRH Production forecast depicted in table 6.3 is based on the annual enrolment status in each of the training programs enlisted. Attrition rates, drop outs and failures have not been taken into account and the calculation are based on the assumption that the annual passing out candidates for each academic year is 100%. The data for specialists cannot be projected as the secondary data retrieved does not have program wise breakup. The specialty programs' length varies from 1 to 5 years.

Table 38 depicts the health workforce requirement for Punjab over the next 5 years. This has been calculated keeping in view the estimated annual population growth rate for the province. The baseline figure for calculating the requirement of health workers has been taken from the health workforce number registered with the regulatory authorities for the year 2012.

The Health workforce requirement of doctors for Punjab when calculated by the internationally recommended standards is 196,600. Presently there are 64,234 doctors registered in the province and so there is a gap of 132,366 doctors in Punjab for the year 2012.

The future requirements are calculated by estimating the population for the respective year as well as the growth trend for the Registered HW in Punjab. The HW Requirement is the difference between the international bench mark figure and the existing/estimated registered HW.

Table 37-Projections for health workforce production for the coming years

Cadre	Available Program	Duration of Program	Year Wise Entrants					Forecasted Output in next 5 years				
			2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Doctor	MBBS	5 years	4,500	4,800	5,000	5,200	5,900	4,500	4,800	5,000	5,200	5,900
Dentist	BDS	4 years	755	805	805	905	905	805	805	905	905	
Medical Specialist	FCPS/MCPS	3 to 5 Years	1,200	1,250	1,300	1,300	1,400	*	*	*	*	*
Dental Specialist	FCPS/MCPS	3 to 5 Years	50	50	60	60	70	*	*	*	*	*
Public Health	DPH/DCPS/MPH/FCPS	2 years	100	120	120	130	130	130	130	*	*	*
Allied Health Professionals	DPT	5 years	129	150	130	105	100	129	150	130	105	100
	BSc.	4 Years	_	437	438	350	314	437	438	350	314	
Nursing & Midwifery Professionals	PhD	3 to 5 Years	Program not Offered									
	M.Sc. N	2 years	9	10	_	10	13	10	13	*	*	*
	Generic B.ScN	4 years	95	120	150	284	308	120	150	284	308	*
	Post RN B.Sc.N	2 years		124	124	165	56	165	56	*	*	*
	General Nursing Diploma	4 years	1,607	1,572	2,611	2,431	2,611	1,572	2,611	2,431	2,611	
	Pupil Midwife Diploma	1.5 years	_	_	640	434	367	434	367	*	*	*
	Lady Health Visitor Diploma	1.5 year	_	_	791	797	919	797	919	*	*	*
Community Workers	Community Midwifery Diploma	1.5 years	_	_	587	413	1,601	413	1,601	*	*	*
Pharmacists & Pharmaceutical technicians	Pharm D	5 years	1,629	1,399	1,610	1,451	1,604	1,629	1,399	1,610	1,451	1,604
	Pharmacy Technician	2 years	_	_	_	200	700	200	700	*	*	*

Source: Pakistan Medical & Dental Council, April 2012, Pakistan Nursing Council, March 2012, University of Health Sciences, March 2012, Punjab Pharmacy Council, April 2012, Punjab Provincial MNCH Program, April 2012, Nursing Examination Board, Mar 2012

Table 38-Projections for health workforce requirements 2012-2016

Cadre	2012			2013			2014			2015			2016		
	HW Requirement as per International benchmarks	HW Registered in Punjab	Estimated HW Deficiency in Punjab	HW Requirement as per International benchmarks	Estimated HW Registration in Punjab	Estimated HW Deficiency in Punjab	HW Requirement as per International benchmarks	Estimated HW Registration in Punjab	Estimated HW Deficiency in Punjab	HW Requirement as per International benchmarks	Estimated HW Registration in Punjab	Estimated HW Deficiency in Punjab	HW Requirement as per International benchmarks	Estimated HW Registration in Punjab	Estimated HW Deficiency in Punjab
Doctors plus Specialists	196,600	64,234	132,366	200,260	67,331	132,929	203,920	70,641	133,279	207,640	73,952	133,688	211,160	77,262	133,898
Dentist	98,300	4,356	93,589	100,130	5,080	95,051	101,960	5,473	96,487	103,820	5,866	97,954	105,580	6,259	99,321
Nurses	786,400	35,484	750,908	801,040	39,589	761,452	815,680	42,623	773,057	830,560	45,657	784,903	844,640	48,692	795,948

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 Punjab, do not have as yet HRH departments, 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 Punjab Public Health Sector is undertaken either through the Punjab Public Service Commission (PPSC) or through the Departmental Human Resource Divisions[32].

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 as well as the Services & General Administration Department (S&GAD).

The authority for recruitment of Health Workers in public sector varies as per BPS Grades in the public health sector. For district health staff up to Grade 4, DOH and for up to Grade 15 and Grade 16 for nurses EDOH has the requisite authority. 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 para-statal 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 not only in Punjab but also in the rest of the country. 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.

[32] Government of The Punjab; Punjab Public Service Commission-Business Process Review, Final Report, 26 August 2009

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.

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 as depicted in Table 40[33].

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, but owing to some weaknesses in the scheme has not been accepted by the Punjab province.

Table 39-Composite score on job satisfaction indices of health workers in Pakistan

Description of composite indices	Urban	Rural	Public	Private
Recruitment/career development/skills and abilities	2.5	2.4	2.5	2.5
Benefits and grievances	3	3.3	3.3	2.6
Salary	3.3	3.6	3.8	2.7
Motivation, recognition and respect	2.3	2.3	2.4	2
Professional facilitation	2.2	2.3	2.4	2
Workload	2.6	3	3	2.2
Retention	1.8	1.9	1.9	1.7
Infrastructure	2	2.9	2.8	1.6
Logistics and supplies	2.5	3.3	3	2.5
Machinery and equipment	1.8	2.5	2.5	1.4
Organizational culture	2.5	2.5	2.6	2.3
Administrative facilitation	3.1	3.6	3.5	2.9
Work environment (cumulative question, positive)	1.6	1.8	1.8	1.3
Lower Score is a better and more positive indication.				

Source: Pakistan Health Human Resource Assessment, Hafeez et Al, Eastern Mediterranean Health Journal

[33] Hafeez A. et Al, Pakistan Health Human Resource Assessment 2009, EMHJ Vol. 16, Supplement 2010

The security provided by recruitment on regular jobs in the public sector is no longer an advantage for the sector since retention of qualified health workers, and health workers rural areas is becoming challenge for the province and country. Under the Punjab Health Sector Reform Programme the province has taken some initiatives to improve rural health workers retention, which include incentives like rent-free accommodation, addition of 30 percent of basic pay to salaries, provision of daily travel allowances with rates according to BPS Grades etc.

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 the Punjab a recent project to strengthen performance management has been initiated under the supervision of the Deputy Secretary Performance Management[34]. In its phase 1, it intends to bring about internal automation of the Health Department and Human Resource Management Information Systems at all the DHQ hospitals.

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.

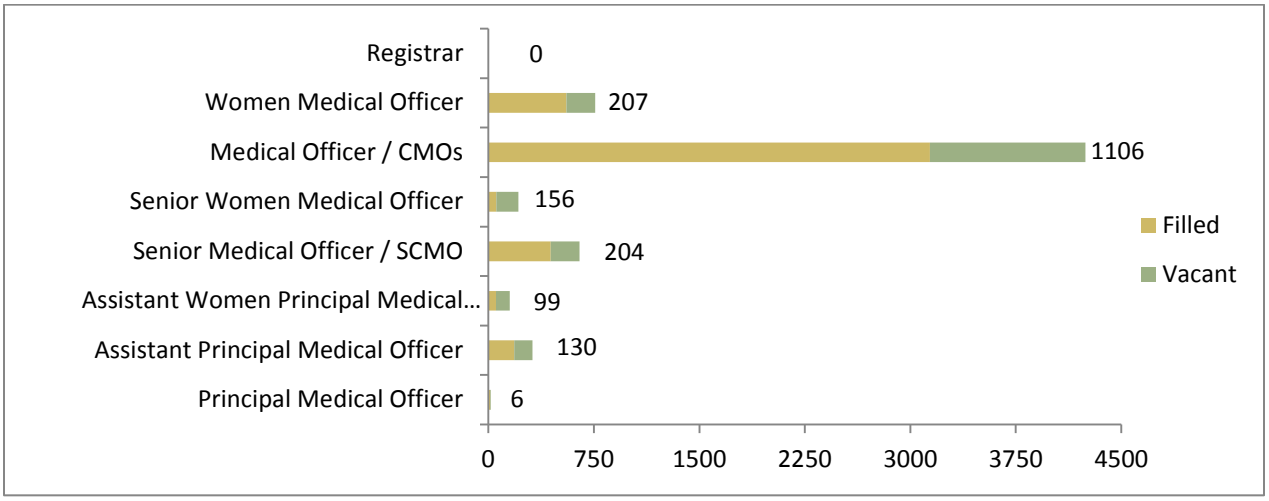
7.4 HRH DEPLOYMENT AND DISTRIBUTION IN THE PUBLIC SECTOR

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

According to the data sourced from the Punjab Health Sector Reform Program, 65% of the posts of Principal Women Medical Officers and 75% of the posts of Women Medical Officers are vacant. Out of the 1107 vacant posts of Medical Officers, 630 are at the BHU Level. There are 1505 posts of Community Midwifes vacant at the BHU Level. Details of HRH Deployment at the BHU, RHC, THQ and DHQ level are reflected in the Figure 14 – 19.

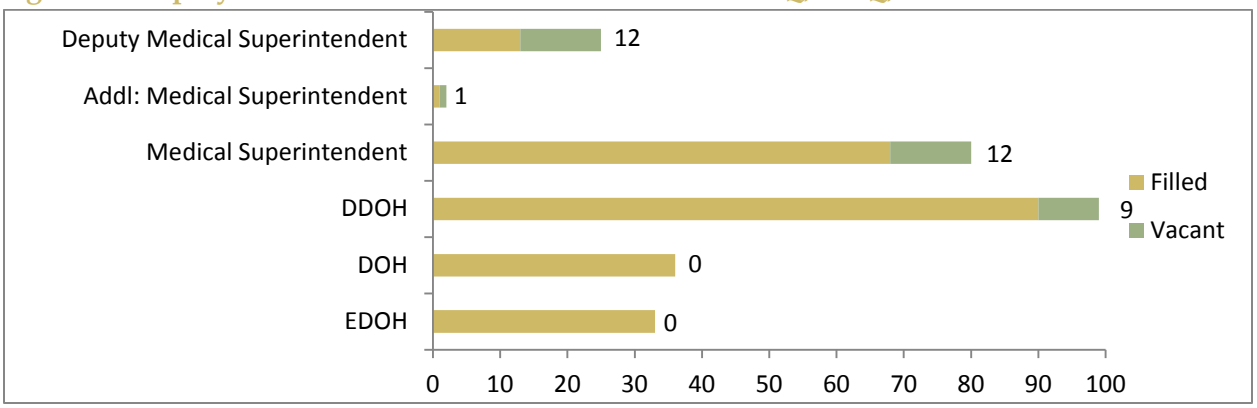
[34] Situational Analysis- Health Sector Strategy, Mar 2012

Figure 14-Deployment of General Medical Practitioners at DHQ, THQ, RHC & BHU Level



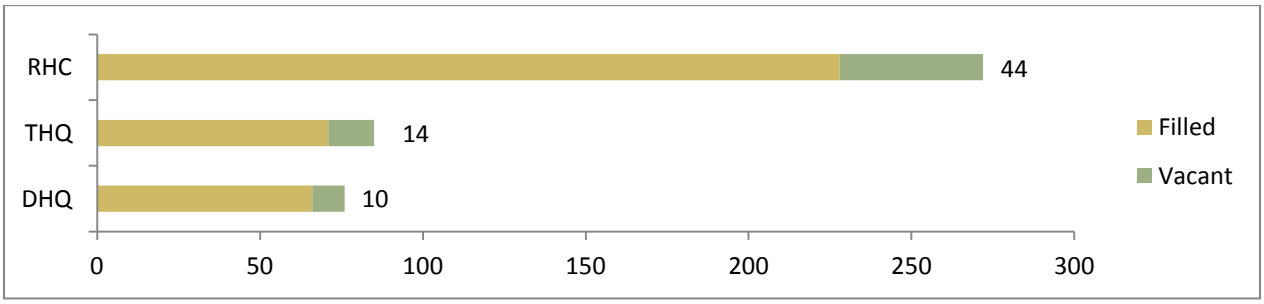
Source: Punjab Health Sector Reform Program, June 2012

Figure 15-Deployment of Senior Administrators at the DHQ, THQ, RHC & BHU Level



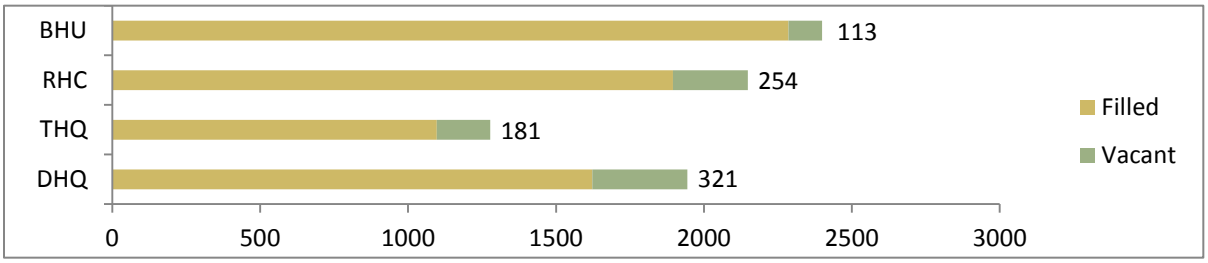
Source: Punjab Health Sector Reform Program, June 2012

Figure 16-Deployment of Dental Surgeons at the DHQ, THQ, RHC and BHU Level



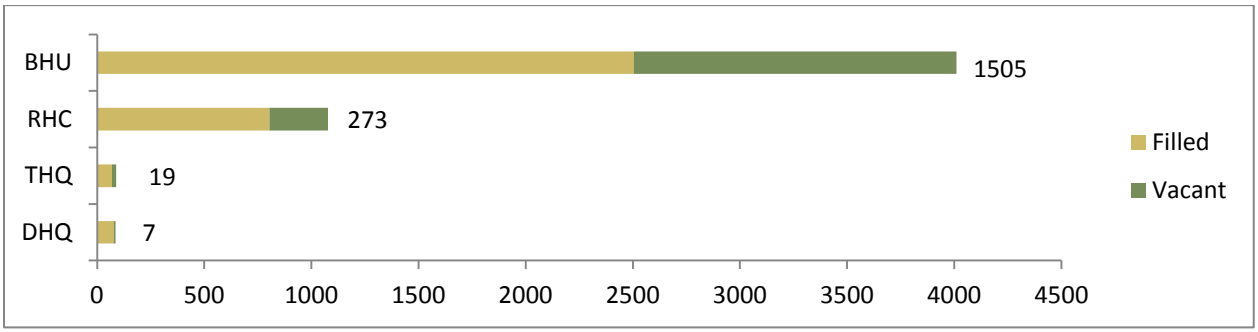
Source: Punjab Health Sector Reform Program, June 2012

Figure 17-Deployment of Nurses at the DHQ, THQ, RHC and BHU Level



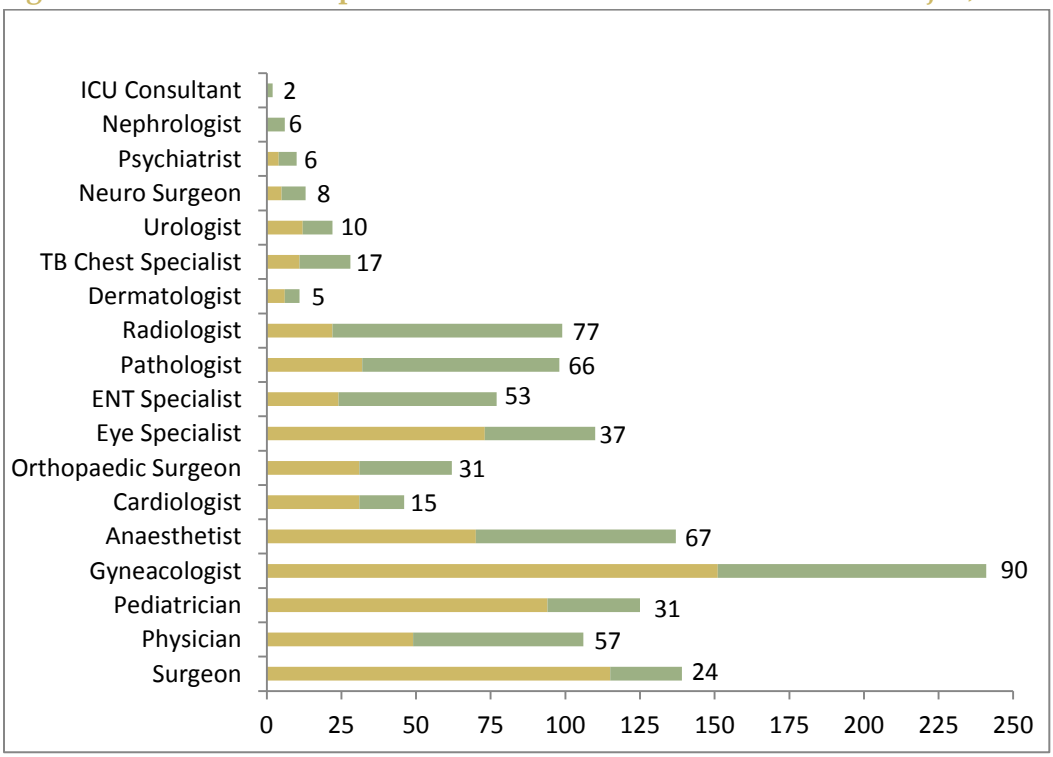
Source: Punjab Health Sector Reform Program, June 2012

Figure 18-Deployment of Community Health Workers at the DHQ, THQ, RHC & BHU Level



Source: Punjab Health Sector Reform Program, June 2012

Figure 19-Utilization of Specialists in the Public Health Sector in Punjab, 2012



Source: Punjab Health Sector Reform Program, June 2012

In the Punjab Public Health Sector, there are 574 posts for Specialists at the DHQ level and 759 posts for Specialists at the THQ Level. Fig 4.1 depicts the total number of sanctioned, filled and vacant posts of specialists at the secondary health care level. Out of the 57 vacant posts of Physicians, 48 are at the THQ level. Similarly out of the 90 vacant posts of Gynecologists, 71 are at the THQ level. 41 posts of ENT Specialist, 45 of Anesthetists, 53 of Pathologists and 59 of Radiologists are vacant at the THQ Level out of the total depicted in the Fig 4.1. At the DHQ Level, there are 22 vacant posts for Anesthetists, 19 for Gynecologists and 18 for Radiologists.

The distribution of sanctioned, filled and vacant posts of different categories of health workers at the primary and secondary tiers of the health care system of the province are given in Table 41.

Table 40-Category wise utilization of health workers at DHQ, THQ and RHC & BHU level

Category	Sanctioned	Filled	Vacant
Public Health Professionals/ Administrators/Health Managers	603	487	116
Generalist Medical Practitioners	6349	4441	1908
Specialist Medical Practitioners	1333	731	1908
Dental Surgeon	414	351	63
Specialists Dental Surgeon	19	14	5
Nursing Professionals	7770	6901	869
Allied Health Professionals	2479	1849	630
Pharmacists & Pharmaceutical technicians	123	110	13
Traditional & Alternative Medicine Practitioners	921	735	186
Paramedics	14359	11894	2465
Community Health Workers	9335	7412	1923
Other Health Support Staff	223	197	26
Non Medical Support Staff	26528	22817	3711

Source: Punjab Health Sector Reform Program, June 2012

More data on the distribution of HRH in Punjab is given in the Section 4 under HRH Stock and Trends.

7.5 HRH DEPLYMENT IN THE PARA STATAL ORGANIZATIONS

7.5.1 POPULATION WELFARE DEPARTMENT (PWD)

Population Welfare Department (PWD) in Punjab is holding a staff of 1,655 at the moment against the 2,107 sanctioned posts available to them for the 1500 Family Welfare Centers (FWC), 117 MS Units, 121 Reproductive Health Service (RHS) Centers and 2 RHS Master Training Centers in Punjab.

117 Women Medical Officers are working with the PWD and 132 posts of WMO are still lying vacant. Out of the 32 posts of Medical Officers, 23 are filled.

7.5.2 PUNJAB EMERGENCY SERVICE (RESCUE 1122)

The Punjab Emergency Service working in all districts of Punjab has a total operational staff of 6,406 as depicted in Table 7.3. Overall there are 28 District Emergency Officers and 39 Emergency Officers working with the Punjab Emergency Service (Rescue 1122). Amongst these 815 are deputed in Lahore, 403 in Rawalpindi, 391 in Faisalabad, 363 in Multan and 335 in Gujranwala.

A total of 200 staff is deputed at the Academy and another 147 at the Head Quarter in Lahore.

Table 41-Operational Staff of Punjab Emergency Service

	BPS	Working Strength
District Emergency Officer	18	28
Emergency Officer	17	39
Rescue Safety Officer	16	37
Station Coordinator	14	55
Rescue Technician	14	4
Transport Maintenance Inspector	14	34
Wireless Technician	12	34
Shift Incharge	12	160
Lead fire Rescuer	12	251
DERT Rescuer	11	487
Fire Rescuer	11	1,396
Computer Telephone Wireless Operator	11	971
Emergency Medical Technician	11	1,207
Special vehicle operator	11	30
Driver HTV	8	30
Driver LTV	4	1,643
Grand Total		**6406**

Source: Medical Officer, Punjab Emergency service (rescue 1122)

7.5.3 PUNJAB EMPLOYEES SOCIAL SECURITY INSTITUTION (PESSI)

PESSI is an autonomous body that works towards provision of medical care and cash benefits to registered workers in industrial or commercial establishments and their dependents. PESSI facilities its registered workers with access to medical services in 22 disciplines, as well as Bone Marrow Transplant Facility, Cochlear Implant Facility, Facility of treatment abroad, Availability of C.T Scan, Gastroscopy Surgery, Dialysis Centers, Hepatitis (B & C) clinics are also granted. 9 different types of cash benefit schemes are provided to employees and their dependents including medical financial assistance for sickness, maternity, injury, disability, etc.

The health worker force at PESSI comprises of 7675 employees out of which 4123 are working in the clinical domain and 3522 in the administration. The clinical employees are broken down to

918 grade 17 doctors, 2910 grade 16 nurses & paramedics and the remaining 295 are grade 18 and above.

7.5.4 Social Welfare Department (SWD)

The Social Welfare Department (SWD) 's health welfare committees comprises of a network of Medical Social Officers working in all district hospitals, their respective hospital administration and representatives from 7000 different NGOs.

The Committee facilitates the deserving in getting zakat financing for receiving proper health care services and other social welfare support that they may require. The PWS, on the other hand, is a volunteer network functioning in partnership with the medical social officers for the identification and evaluation of the deserving patients. SWD is providing medical care facilities to the employees and their dependents through the Punjab Government employee benefit scheme.

7.5.5 Water and Power Development Authority (WAPDA)

The health setup at WAPDA is headed by Director General Medical Services and is supported by a committee consisting of directors for drugs, medical services, administration and finance. WAPDA has over 1300 employees in the medical division providing predominantly curative coverage to the organization's staff and families.

Table 42-Deployment of Health Workers by category in WAPDA

Sr.#	Categories	Working Strength
1	General Medical Practitioner	247
2	Specialists Medical Practitioner	96
3	Dental Surgeon	16
4	Nurses & Paramedics	1,325

Source: Director Medical Services, Water & Power Development Authority Jun 2012

WAPDA has one 250 bed hospital which has 53 posts of General Medical Practitioner and 25 sanctioned posts of Specialist Medical Practitioner and 158 posts of Nurses and Paramedics They are supported by a total of 116 Non Medical Support Staff at the hospital

In each of the 9, 50 bed hospitals, there are 13 posts for General Medical Practitioner; 10 for Specialist Medical Practitioner; 91 for Nurses and Paramedics; and 30 for Non Medical Support Staff.

WAPDA has 2 hospitals with 20 beds each which have sanctioned posts for 10 General Medical Practitioner; 7 Specialist Medical Practitioner; 56 Nurses and Paramedics; and 31 Non Medical Support Staff.

There are two types of dispensaries working under WAPDA, fortified and basic. In each of the 12 fortified dispensaries, there are 3 posts for General Medical Practitioner; 18 for Nurses and

Paramedics; and 9 for Non Medical Support Staff. The basic dispensaries have sanctioned posts for 2 General Medical Practitioner; 4 Nurses and Paramedics; and 4 Non Medical Support Staff.

The burn unit at WAPDA Hospital has 3 posts of General Medical Practitioner; 1 sanctioned post of a Plastic Surgeon; 14 posts of Nurses and Paramedics; and 15 posts for Non Medical Support Staff.

7.5.6 PAKISTAN RAILWAYS

In Punjab, the Railways have a network of curative facilities consisting of 15 dispensaries and 19 hospitals (950 beds in total). Secondary data related to their sanctioned and filled posts of health workers was not available.

7.5.7 ARMED FORCES HEALTH SERVICES

Health Worker data for the Armed Forces was not accessible.

7.6 EMPLOYMENT OF HEALTH WORKERS IN THE PRIVATE SECTOR

Accreditation bodies like the PMDC and the PNC are providing license to practice to qualified health professionals for working in the public or private sector and in the para-statal organizations providing health services in Pakistan. There is however no framework in place to regulate their practice. Licensure is not required for establishing private clinics and hospitals and these institutions are currently not being accredited or regulated to ensure minimum standards of health care. Private for profit and not-for-profit health care facilities and Trust Hospitals register with Securities & Exchange Commission of Pakistan (SECP) and are regulated as business enterprises. Any HR policies or protocols practiced in the private sector are institutional and vary widely. With the establishment of the Punjab Healthcare Commission (PHC) some regulation of the private sector is expected.

The salaries in the private sector are generally 25-50% higher than the public sector. The additional benefits, perks and allowances are institution based. The clinical staff has the incentive of earning share from the private patients, the ratio varies from 30:70 to 20:80 with 70-80% going to the practitioner and 20-30% to the institute.

In the recent years a few public private partnerships (PPP) initiatives have been undertaken in Punjab aimed at improving the health service delivery and addressing the health workforce shortage. Notable among them is the Chief Minister's initiative on Primary Health Care in Rahim Yar Khan District, through which Punjab entailed contracting out of BHUs in the district to the Punjab Rural Support Program (PRSP). This resulted in improved utilization of BHU Services, Community Satisfaction, Staff availability and their enhanced motivational levels. The model was expanded to several districts in Punjab and has proved to be a pioneering initiative especially for improving health service delivery for the rural communities. Another example is the PPP between the GoPb and the Fatima Memorial Hospital for meeting the shortfall of nurses in the province through offering of Nursing Diploma and Bachelor Programs. Implementation

of the Global Fund HIV/AIDS & Malaria control program is also being undertaken through PPP with NGOs in the province.

7.7 REMUNERATION STRUCTURES OF HEALTH WORKERS IN PUBLIC SECTOR IN PUNJAB

There is a wide disparity in the pay structures of health workers, not only between different categories but also between the same cadre as they work in the public and private sector. The pay structures were revised in 2011 for doctors and nurses working in the public sector and are depicted in Table 44.

Table 43-Revised Pay Structures for Doctors and Nurses in Punjab, 2011

Name of Posts	Sanctioned Posts	Average Salary (PKR)	Increase in Pay (PKR)	New Pay (PKR)
House Officers	2,011	18,000	6,000	24,000
P G Trainees	3,333	22,500	20,000	42,500
Professors	454	108,000	10,000	118,000
Associate Professor	501	103,000	10,000	113,000
Assistant Professor	703	94,000	10,000	104,000
Senior Registrar	1,017	74,000	10,000	84,000
Medical Officer	13,190	45,000	12,000	57,000
	4,250	29,000	15,370	44,370
SMO	4,542	60,000	10,000	70,000
APMO	2,004	85,000	10,000	95,000
PMO	138	102,000	10,000	112,000
Consultant	951	52,000	10,000	62,000
Sr. Consultant	216	67,000	10,000	77,000
Chief Consultant	108	79,000	10,000	89,000
Charge Nurse	5,300	29,000	3,773	32,773

Source: Government of Punjab, Department of Health, 2011, Health Sector Strategy, 2012

7.8 HRH MIGRATION

From 1971 to Sep 2011, 10653 Pakistani doctors and 6499 Nurses migrated from Pakistan to different destinations around the world, on employment visas through Bureau of Emigration & Oversees Employment.

Table 44-Doctors and Nurses Migration Record (1971-2011)

Period	1971-2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
Doctors	5,085	506	402	431	534	509	463	516	589	819	1,184	11,028
Nurses	4,378	406	350	342	310	128	99	119	219	78	96	6,525

Source: Bureau of Emigration & Oversees Employment

The Bureau of Emigration and Overseas Employment estimates that annually about 1000 to 1500 physicians leave the country, of whom 10-15% return bringing the net migration of 900 to 1275 physicians[35]. Pakistani doctors and nurses are also proceeding abroad for the purpose of employment through Overseas Employment Corporation (OEC) and in the period from 2007 to July 2011, 1619 doctors and 426 nurses proceeded to different countries of the world with a large majority proceeding to Middle Eastern Countries, particularly the GCC countries.

As per record of MER-section of devolved MoH, 420 MBBS (including 16 MD), 27 BDS and 74 paramedics had applied for attestation of their documents for overseas jobs, from Jan to June 2011. This is only the tip of the ice berg as MER has record of only those who required their degree to be verified by the MOH. Data of those who are working in USA or Europe is not available. MER section also issued 208 Letter of need for J1 visa from January 2011 to June 2011. They were usually fresh graduates who go to USA for higher studies. Most of them never returned back to Pakistan after acquiring their qualifications as presently the health system is not lucrative enough to absorb them.

In Punjab, in the absence of strategic planning and effective absorption, of the trained health human resource, there have been an increasing number of health personnel migrating overseas, for better prospects. This is an indication of deteriorating health systems in the Province where wages are low, working conditions compromised and there are a few career development opportunities offered especially in the public health sector. Surplus production of health personnel viz a viz the present number of sanctioned posts in the province; the resultant unemployment due to the inadequate absorption; stagnation and limited opportunities for career advancement; and lack of essential infrastructure are acting as "push" factors for the health personnel in Punjab to migrate. This is especially true for the Specialist Doctors, Dentists and the degree holder nurse professionals.

An implementation strategy for the WHO Code on Migration of Health Personnel was formulated by the Health Services Academy in 2011. However at the moment no authority has been nominated as focal point for the WHO Code on Migration of Health Personnel neither in the country nor at provincial level. Minimum data sets are not available and no central office in Punjab holds records of migrating health workforce. The present bond enforced on qualifying public health nurses restricts migration, but that only for 6 months after qualifying. In the absence of effective health workforce deployment plans, majority is found to escape the limited period of bond and seek more lucrative opportunities in the private sector and in overseas countries. The health infrastructure in Punjab is primarily concentrated in the urban areas whereas the majority of the population living in rural communities. In general, the rural health facilities are inadequate in number as well as often inadequately staffed. The Punjab Health Department has introduced a number of initiatives in the recent years for encouraging rural retention.

[35] Bureau of Emigration and Overseas Employment, Government of Pakistan; Migration of Physicians; available at: http:// www. beoe.gov.pk date accessed: 31st March, 2008

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.

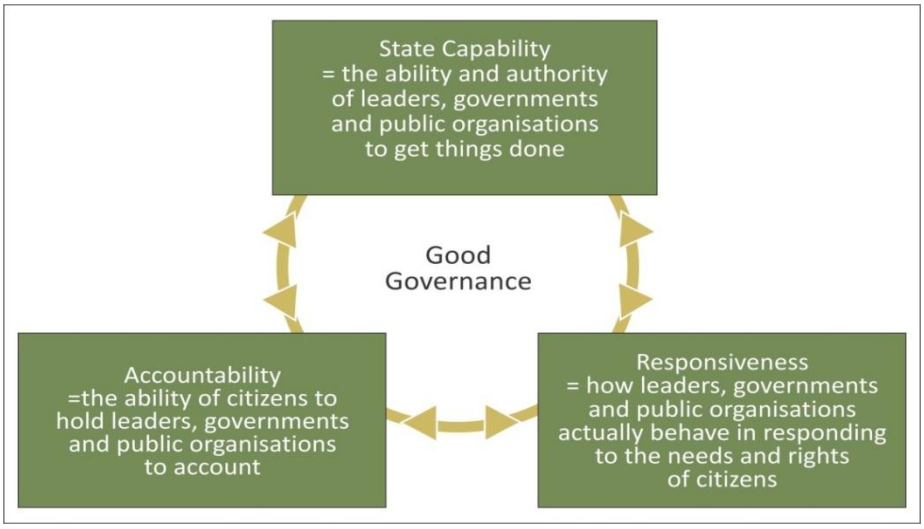
The Federal Legislative List II which falls in the purview of the Council of Common Interests (CCI) has been extended to include all regulatory authorities established under a Federal law, national planning and national economic coordination including planning and coordination of scientific and technological research and legal, medical and other professions[36].

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[37]. Area of special concern is the regulation and standardization in the pharmaceutical sector.

The UK Department of International Development (DFID)'s made an assessment of Punjab Health Sector governance for HRH, on a Capability, Accountability and Responsiveness (CAR) Framework for good governance as depicted in Fig 20. The sector was found deficient on all three counts of the framework i.e. Capability, Accountability and Responsiveness.

[36] Strategic appraisal of 18th amendment - Federal/ Provincial roles and impact on service delivery. Feb 2012
[37] 18th Constitutional Amendment and National Health Programs: Options & Way Forward-TRF

Figure 20-Capability, Accountability and Responsiveness (CAR) Framework



Source: The CAR Framework: Capability, Accountability, Responsiveness, DFID, 2006

The Punjab government's recent publication, "Situation Analysis - Punjab Health Sector Strategy" 2012 sums up governance and accountability in the health sector[38] as follows:

- Overstretched DGHS and DoH with limited capacity for their designated roles
- Centralized and incomplete autonomy
- Mismatch between the responsibility and authority of district health departments
- Lack of a transparent performance assessment system
- Limited efforts to harness the potential of private sector
- Weak regulation of healthcare delivery
- Little accountability for performance

8.2 HRH POLICIES AND PLANS

HRH focused well-defined, coherent, need based and demand driven human resource strategy, policy guidelines, standard protocols and costed work plans were neither existed at the federal level nor at the provincial level.

Post 18th amendment to the constitution and devolution of health to the provinces, the Punjab government and the provincial health department have now the responsibility of health policy development, legislation and monitoring; planning and development for all provincially managed institutions and macro level planning for the districts; policy dialogue/coordination with federal/district government and donors; and development and planning for achieving the minimum standards of service delivery.

[38] Situation Analysis - Punjab Health Sector Strategy, TRF, 2012

8.3 CAPACITY OF FOR HRH PLANNING & POLICY MAKING

The Punjab DoH 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 Punjab 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.

In a study conducted on Nursing Workforce Planning in 2009, it was found that the Punjab Health Department is not absorbing the nurses being produced annually and that there is a serious mismatch between the production, recruitment and retention of nurses[39].

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[40]. 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 Punjab Health Department was the first in the country to adopt the Medium Term Budgetary Framework (MTBF) approach to budgeting that integrates policy making, planning and budgeting within a medium term framework. No shift in thinking in the context of health priorities is however, indicated by the budget allocations for the year 2010-2011 where 60% of the budget allocation has been made for tertiary care level facilities (33%) and medical education (27%), at the cost of other priority areas identified under MTBF.

The current actions under discussion for improving the HRH situation in the province include: (a) establishment of an HRH Observatory to generate data and evidence; (b) establishment of a forum for provincial HRH coordination; (c) scaling up of HRH production (pre-service education and training) to overcome the shortage; (d) strengthening provincial capacity and expertise in human resources development; (e) leadership and management capacity programmes and (f) orientation of education towards Primary Health Care The focus of the Punjab Health Department as regards HRH issues is reflected in a recent informal assessment of

[40] Departmental Sector Review to work on MTBF related technical sector review of Health Department Punjab

senior health management's prioritization of HR issues. HR planning scored the least on the priority grid and production the highest is depicted Table 45.

Table 45-Current Priorities of Punjab Department of Health regarding HRH functions

HR Function	Secretary Health	Special Secretary Health	Additional Secretary (Technical)	Consolidated Scores
HRH Planning	1	1	1	3
HRH Coordination	3	4	3	10
HRH Databases	3	4	3	10
HRH Production	5	4	4	13
HRH Capacity Building	4	3	3	10
HRH (Education & Pre-service Training)	2	1	2	5

Note: This is a subjective assessment carried out on the scale of 1 to 5, while 1 describes the least important and 5 describes the most important.

Source: Situation Analysis-Punjab Health Sector Strategy, 2012

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 Punjab 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 Punjab 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:

1. **Punjab Healthcare Commission*:*** Recently established with wide ranging powers to monitor and regulate the quality and standards of health care services developed by the government. Health care service providers will be required to register with and be licensed by the Commission.

2. **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.
3. **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.
4. **Punjab Medical Faculty**: Oversees the training of paramedics in the province.
5. **National Council for Homeopathy and National Council for Tibb** registers and oversees the qualifications of Homeopathy and ayurvedic practitioners.
6. **National Pharmacy Council** for registering the Pharmacist and Pharmacy technicians

8.4. 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 Punjab 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.

Table 46-Role of HRH Stakeholders in Punjab

Stakeholder Constituencies	**Identified stakeholders**	**Role in Health** and Human Resource for Health
Lead Agency : Provincial Health leadership	*Chief Minister/ Health Minister*	Stewardship of provincial policies and strategies for HRH

HRH department at the secretariat	*Secretary Health /Special Secretary Health/Additional Secretary Health*	Overall responsibility of financial management and control; setting and implementing provincial health policy objectives, coordination with and technical guidance of the districts
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	*Ministry of Labour*	Ensuring health workers' rights
	Public Service Commission	Recruitment of health workers
	Ministry of Finance	Funding of the health budget
	Ministry of Defence	Organization and management of health services for the armed forces
	Ministry of Education	Training of some categories of health workers
	Ministry of Labour	Ensuring health workers rights
	Planning & Development	Planning and Approval bodies
Programmes and related departments in MOH related to HRH	*Punjab 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, Punjab Healthcare Commission*	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

HRH CHALLENGES AND RECOMMENDATIONS FOR HRH PLAN

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

ACTION FIELD 1: HUMAN RESOURCE MANAGEMENT SYSTEMS

The HR Systems in Punjab 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 of a Punjab Provincial HR Department with HR Units at district level*
- *Ensure the availability 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*

ACTION FIELD 2: LEADERSHIP

Limited management capacity, inadequate financial resources, deficiency of a comprehensive costed HRH Plan, and absence of a HRH Policy are the fundamental cause of HRH shortages and mal distribution in Punjab. 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. The 2012 Draft of the Health Strategic Plan[41], there is a recognized need for development of a comprehensive HRH Plan that outlines the requirement to meet the Minimum Service Delivery Standards over the next 5-10 years. The PHSRP is working towards constitution of an HRH Committee for broad HRH stakeholder consultations in HRH policy and decision-making processes.

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 Punjab 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*

ACTION FIELD 3: PARTNERSHIPS

Private Sector in Punjab 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 Punjab. 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. A CCF/HRH committee although agreed upon has not yet been notified. 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*

[41] Draft Strategy 2012-2020, Health Sector of Punjab, February 2012

- *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.*

ACTION FIELD 4: FINANCE

In an economically constrained environment, Punjab 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*

ACTION FIELD 5: EDUCATION

Punjab 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 has 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*
-

ACTION FIELD 6: POLICY

In Punjab 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 Punjab health care system.
- Standards, accreditation and licensure renewals policies to be updated.
- HRH Policies contributing to health worker shortage and turnover to be reviewed

ANNEXURE

Annex 1- Occupational Categories in Punjab's Local Context

Occupation	Notes Examples of occupations included here
Generalist Medical Practitioners	Medical Doctors, General Duty Medical Officers, General Practitioner, Family Medical Practitioner, Primary Health Care Physician, Resident Medical Officer specializing in General Practice, Principal Medical Officer, APMOs, APWMOs, Senior Medical Officer / SCMO, Senior Women Medical Officer, Medical Officer / CMOs, Women Medical Officer – *MBBS Degree Holders; Registered with the PMDC*
Specialist medical practitioners	Specialist Physician (internal medicine), Chief Consultant DHQ (any specialty), Senior Consultant THQ (any specialty), Surgeon, Anesthetist, Cardiologist, Emergency medicine specialist, Ophthalmologist, Obstetrician, Gynecologist, Pediatrician, Orthopedic Surgeon, TB Chest Specialist, Urologist, Neuro Surgeon Eye Specialist, ENT Specialist, Dermatologist, Nephrologists, Pathologist, Pharmacologist, Preventive medicine specialist, Psychiatrist, Radiologist, Resident Medical Officer in specialist training - *Clinical Degree Holders; include FCPS/MCPS/MD/MS ;Being offered by CPSP, other PGMI and Universities*
Dental Surgeon	Dentist, Dental Practitioner, Dental Surgeon, Principal Dental Surgeon DHQ, Addl. Principal Dental Surgeon DHQ, Senior Dental Surgeon (DHQ/THQ), Dental Surgeon (DHQ/THQ) – *BDS Degree Holders; Registered with the PMDC*
Specialists Dental Surgeon	Oral And Maxillo-Facial Surgeon, Community Dentist. & Epidemiology, Operative Dentist, Oral Surgeon, Orthodontist, Prosthodontist, Periodontist, Dental Surgeons in specialist training (MDS/FCPS/MCPS etc) - *Clinical Degree Holders; include FCPS/MCPS/MDS; Being offered by CPSP, other PGMI and universities*
Allied Health Professionals	Physiotherapist, Biotechnologist, Medical Imaging Technologist, Medical Laboratory Technologist, Optometrist, Orthoptics, Emergency & Intensive Care Scientist, Audiologist, Operation Theatre Technologist, Dental Technologist, Occupational Therapist, Speech & Language Pathologist, Respiratory Therapist, Nutritionists, Social Workers, Psychologist, Biologist, Biotechnologist, Biochemist, Cell Geneticist, Environmental Protection professional, Environmental Research Scientist, Medical Physicist, Bacteriologist - *Bachelors and Masters Degree Holders; Being offered by UHS, KEMU & other universities*
Nursing & Midwifery Professionals	Degree Holder Nurse (BSc/MSc/PhD), Nurse Specialist (Nursing Management, Nursing Education, Ophthalmology, Psychiatry, Neuro Sciences, ICU/CCU, Accident & Emergency, Pediatrics, Advance Midwifery, Community health nursing, Operation theatre), General Diploma Nurse-Midwife, Pupil Midwife, Lady Health Visitor - *Registered with the PNC*
Pharmacists & Pharmaceutical technicians	Hospital pharmacist, Industrial pharmacist, Retail pharmacist, Deputy Drug Controller - *Pharm D Holders ; Registered with the Pharmacy Council* Pharmaceutical technician, Pharmacology technician - *B Tech Holders; Registered with the Pharmacy Council*
Paramedics	Dispenser, Sanitary Inspector, Laboratory Technician, Laboratory Assistant, Dental Technician, Dental Hygienist, Operation Theatre (OT) Assistant, Radiographer, Ophthalmic/Eye Technician, Dental Nurse, CDC Supervisor, Vaccinator, Clinical Assistant, Dialysis Technician, Dietician, Refrectionist, ECG Technician, Electromedical Technician, C.T Technician, Health Technician, Medical Technician, Lab Assistant, X-Ray Assistant, Dark Room Assistant, Dental Assistant - *Registered with the Punjab Medical Faculty*

Community Health Workers	Community Midwife - *Working under the MNCH Program & Registered with the Pakistan Nursing Council* Lady Health Workers - *Working under the National Program for Family Planning & Primary Health Care* *Dai, TBAs*
Traditional and Alternative Medicine Practitioners	Homeo Doctor, Hakeem/Tabeeb, Homeo Dispenser, Dawasaz, Dawakoob - *Registered with National Council for Tibb*
Non Medical Support Staff	Medical Records Staff, Health Information Officer, Medical Records Analyst, Clinical Coder, Disease Registry Technician, Staff Training Officer, Medical Secretary, Computer Technician, Data Entry Clerk, Filing and Copying Clerk, Receptionist, Billing Officer, Cashier, R&M Staff, Building Caretaker, Cook, Ambulance Driver
Public Health Professionals/ Administrators/Health Managers	EDOH, DOH, DDOH, Medical Superintendent, Addl. Medical Superintendent, Deputy Medical Superintendent, Medical Director, Deputy Medical Director, Asst Medical Director, Health Facility Administrator, Clinical Manager, Director of Nursing, Hospital Matron, Assistant Entomologist, Secretary Quality Control Board, Tehsil District Inspector, Health & Education Officer
Other Health Support Staff	Lecturer Assistant, Lab Attendant, X-Ray Attendant, Dark Room Attendant, OT Attendant, Dental Attendant, Physiotherapy Aid, Nursing Ardly, Nursing Dai

Annex 2- District wise Population Projection

S.No	District	Area (in sq/km)	Population (1998 census)	Male 1998	Female 1998	Sex Ratio	Urban Percent
1.	**Attock**	6,857	1,274,935	636,338	638,597	100	21.3
2.	**Bahawalnagar**	8,878	2,061,447	1,067,411	994,036	107	19.1
3.	**Bahawalpur**	24,830	2,433,091	1,278,775	1,154,316	111	27.3
4.	**Bhakkar**	8,153	1,051,456	543,661	507,795	107	16
5.	**Chakwal**	6,524	1,083,725	518,249	565,476	92	12.2
6.	**Dera Ghazi Khan**	11,922	1,643,118	853,782	789,336	108	13.9
7.	**Faisalabad**	5,856	5,429,547	2,826,908	2,602,639	109	42.7
8.	**Gujranwala**	3,622	3,400,940	1,770,255	1,630,685	109	50.5
9.	**Gujrat**	3,192	2,048,008	1,026,256	1,021,752	100	27.7
10.	**Hafizabad**	2,367	832,980	433,320	399,660	108	27.3
11.	**Jhang**	8,809	2,834,545	1,474,099	1,360,446	108	23.4
12.	**Jhelum**	3,587	936,957	468,112	468,845	100	27.7
13.	**Kasur**	3,995	2,375,875	1,243,818	1,132,057	110	22.8
14.	**Khanewal**	4,349	2,068,490	1,072,492	995,998	108	17.6
15.	**Khushab**	6,511	905,711	451,439	454,272	99	25.3
16.	**Lahore**	1,772	6,318,745	3,328,502	2,990,243	111	82.4
17.	**Layyah**	6,291	1,120,951	579,009	541,942	107	12.9
18.	**Lodhran**	2,778	1,171,800	609,202	562,598	108	14.5
19.	**Mandi Bahauddin**	2,673	1,160,552	594,127	566,425	105	15.2
20.	**Mianwali**	5,840	1,056,620	530,311	526,309	101	20.8
21.	**Multan**	3,720	3,116,851	1,635,768	1,481,083	110	42.2
22.	**Muzaffargarh**	8,249	2,635,903	1,373,036	1,262,867	109	12.9
23.	**Narowal**	2,337	1,265,097	636,217	628,880	101	12.2
24.	**Okara**	4,377	2,232,992	1,167,481	1,065,511	110	23
25.	**Pakpattan**	2,724	1,286,680	668,164	618,516	108	14.2
26.	**Rahim Yar Khan**	11,880	3,141,053	1,636,864	1,504,189	109	19.6
27.	**Rajanpur**	12,319	1,103,618	580,822	522,796	111	14.5
28.	**Rawalpindi**	5,286	3,363,911	1,722,477	1,641,434	105	53.2
29.	**Sahiwal**	3,201	1,843,194	953,561	889,633	107	16.4
30.	**Sargodha**	5,854	2,665,979	1,372,883	1,293,096	106	28.1
31.	**Sheikhupura**	5,960	3,321,029	1,729,082	1,591,947	109	26.2
32.	**Sialkot**	3,016	2,723,481	1,396,532	1,326,949	105	26.2
33.	**Toba Tek Singh**	3,252	1,621,593	831,602	789,991	105	18.8
34.	**Vehari**	4,364	2,090,416	1,083,812	1,006,604	108	16

Source: Ministry of Population Welfare, 2010

Annex 3- Percent Population Distribution by Age, Sex and Year

Age Group	MID 2003				MID 2008			
	Both	%	Female	%	Both	%	Female	%
0 - 14	30.383	37.71	14.717	37.89	39.694	34.9	14.983	35.12
15 - 19	9.484	11.77	4.583	11.8	9.586	10.9	4.661	10.93
20 - 24	8.282	10.28	3.991	10.27	9.318	10.59	4.529	10.62
25 -29	6.905	8.57	3.32	8.55	8.13	9.24	3.941	9.24
30 -34	5.571	6.92	2.673	6.88	6.771	7.7	3.274	7.68
35 -39	4.484	5.57	2.147	5.53	5.453	6.2	2.633	6.17
40 -44	3.562	4.42	1.865	4.8	4.374	4.97	2.108	4.94
45 49	2.872	3.56	1.374	3.54	3.451	3.92	1.663	3.9
50 +	9.017	11.19	4.174	10.75	10.175	11.57	4.865	11.41
TOTAL:	**80.56**	**100**	**38.842**	**100**	**87.952**	**100**	**42.657**	**100**

Source: Based on projections by Monitoring & Statistics Wing of the MoPW, 2008

Annex 4- District-wise status of maternal & child health indicators

District	Antenatal care (percent)	TT immunization (percent)	SBA (percent)	Postnatal care (percent)	IMR	U5MR	Diarrhea in U5 Children (percent)	Pneumonia in U5 Children (percent)
Attock	57.9	77	46.7	44.1	45	60	5	18.4
Bahawalnag	38.4	53	28.8	28.2	84	123	8.6	5.8
Bahawalpur	43.3	68	27.3	25.9	110	170	12.3	11.4
Bhakkar	38.6	79	33.7	33.7	82	119	2.4	1.1
Chakwal	62.9	83	57.9	57.8	60	82	3.5	1.3
Chiniot	39.6	79	34.7	32.9	88	130	5.6	5
D G Khan	43.5	62	21.9	20.8	78	113	10.5	6.9
Faisalabad	61.4	69	56.4	51.9	75	108	6.9	6.4
Gujranwala	69.2	95	59.1	51.3	67	95	6.4	2.7
Gujrat	85	96	67.7	65.1	70	100	6	3.5
Hafizabad	55.9	95	41.5	39.4	67	94	2.1	3.7
Jhang	39.6	61	34.7	32.9	88	130	5.6	5
Jhelum	75.5	91	62	58.5	51	69	4.3	2.8
Kasur	36.4	75	28.9	28.1	77	112	6.8	6.4
Khanewal	44.3	71	36.1	35.9	92	138	4.5	3.6
Khushab	49.9	93	42.1	42.2	75	108	1.2	0.5
Lahore	73.4	86	66.1	65.8	53	72	13.9	12.6
Layyah	37.6	89	25.6	25.6	72	103	4.5	4.1
Lodhran	45.7	66	30.5	29	108	167	8.9	6.6
Mandi	59.3	96	34.8	34.4	78	113	2.6	3.3
Mianwali	43.6	90	31.2	29	78	113	5.8	3.3
Multan	43.6	72	38.8	38.7	54	73	4.9	3.3
Muzaffargar	44.4	72	19.9	18.6	86	128	13.8	11.9
Narowal	64.3	85	44.8	43.4	81	117	7.4	3.4
Nankana	50.4	74	53.4	51.6	82	120	3.9	3.8
Okara	34.2	75	34.6	34.4	83	121	7.4	6.9
Pakpattan	36.1	68	27.4	26.5	109	167	6.8	9.7
R Y Khan	40.4	57	11.7	26.8	98	148	10.9	11.2
Rajanpur	37.1	77	67.5	11.5	110	170	7.6	19.6
Rawalpindi	74.6	86	28.1	66.7	45	60	2.7	3.4
Sahiwal	52.5	64	49.8	48.7	89	132	8.9	18
Sargodha	54	90	44.8	43.9	51	69	12.2	10.6
Sheikhupura	63.5	80	53.4	51.6	79	116	9	5.7
Sialkot	67.9	94	58.7	54.9	52	70	3.1	1.8
Toba Tek	56.9	78	44.4	42	64	90	10.1	5.6
Vehari	39.3	79	32.9	32.2	82	119	4.6	2.4

Source: MICS Punjab, 2007-08, PSLM 2010-11

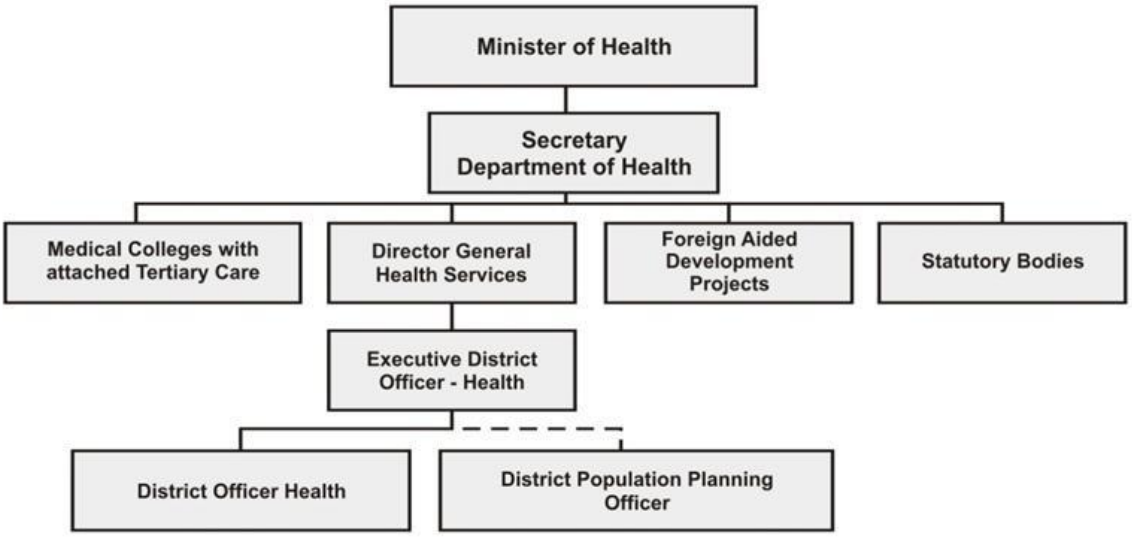
Annex 5- Number of Health Facilities by District / Type

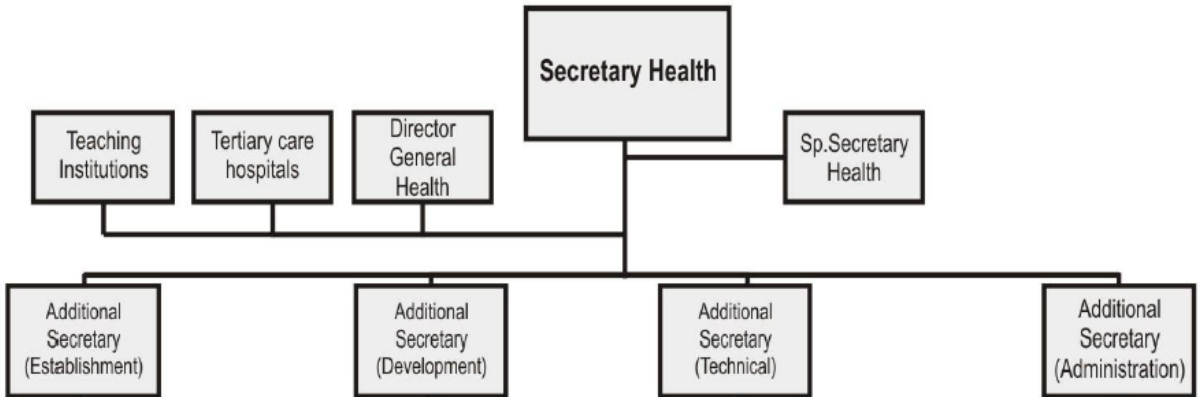
Districts	BHU	RHC	THQ	DHQ	Civil Hospital	Teaching Hospital	Dispensaries	TB Clinic/ TB Hospitals	MNCH Centers
Attock	60	5	5	1	0	0	3	0	9
Bahawalnagar	103	10	4	1	0	0	45	1	7
Bahawalpur	73	10	4	0	0	1	53	2	10
Bhakkar	40	3	3	1	0	0	25	0	2
Chakwal	65	9	3	1	0	0	5	0	1
Chinot	36	3	2	1	0	0	1	1	2
D. G Khan	52	9	1	1	2	0	30	0	5
Faisalabad	168	12	5	0	0	2	91	0	14
Gujranwala	88	9	3	1	0	0	37	1	9
Gujrat	90	10	1	1	0	0	16	0	8
Hafizabad	32	5	1	1	2	0	12	1	4
Jhang	58	9	2	1	1	0	8	1	6
Jhelum	45	5	2	1	1	0	25	0	5
Kasur	82	12	2	1	0	0	23	1	8
Khanewal	82	4	3	1	0	0	17	0	2
Khushab	41	5	3	1	2	0	29	0	7
Lahore	36	6	2	1	0	11	26	1	12
Layyah	40	4	3	1	0	0	28	0	2
Lodhran	48	4	2	1	0	0	10	0	1
M. B Din	49	9	1	1	1	0	9	0	5
Mianwali	40	9	1	1	0	0	15	0	5
Multan	77	7	2	0	1	1	40	0	24
Muzaffargarh	71	13	2	1	0	0	18	0	4
Nankana	48	7	0	1	1	0	18	0	4
Narowal	56	7	1	1	0	0	3	1	4
Okara	96	10	2	2	0	0	20	1	11
Pakpattan	53	4	1	1	0	0	6	1	2
R. Y Khan	104	19	3	0	0	1	56	2	7
Rajanpur	31	6	2	1	1	0	2	0	1
Rawalpindi	98	10	4	0	0	3	6	0	13
Sahiwal	76	10	2	1	0	0	22	0	6
Sargodha	122	14	4	1	0	0	51	1	7
Sheikhupura	79	9	1	1	0	0	5	0	4
Sialkot	88	7	3	2	0	0	17	1	15
T. Tek Singh	66	6	2	1	0	0	0	1	3
Vehari	74	14	2	1	0	0	36	0	8
Total	2467	295	84	33	12	19	808	17	237

Source: DHIS Quarterly Report, First Quarter 2012, DGHS, MIS Cell

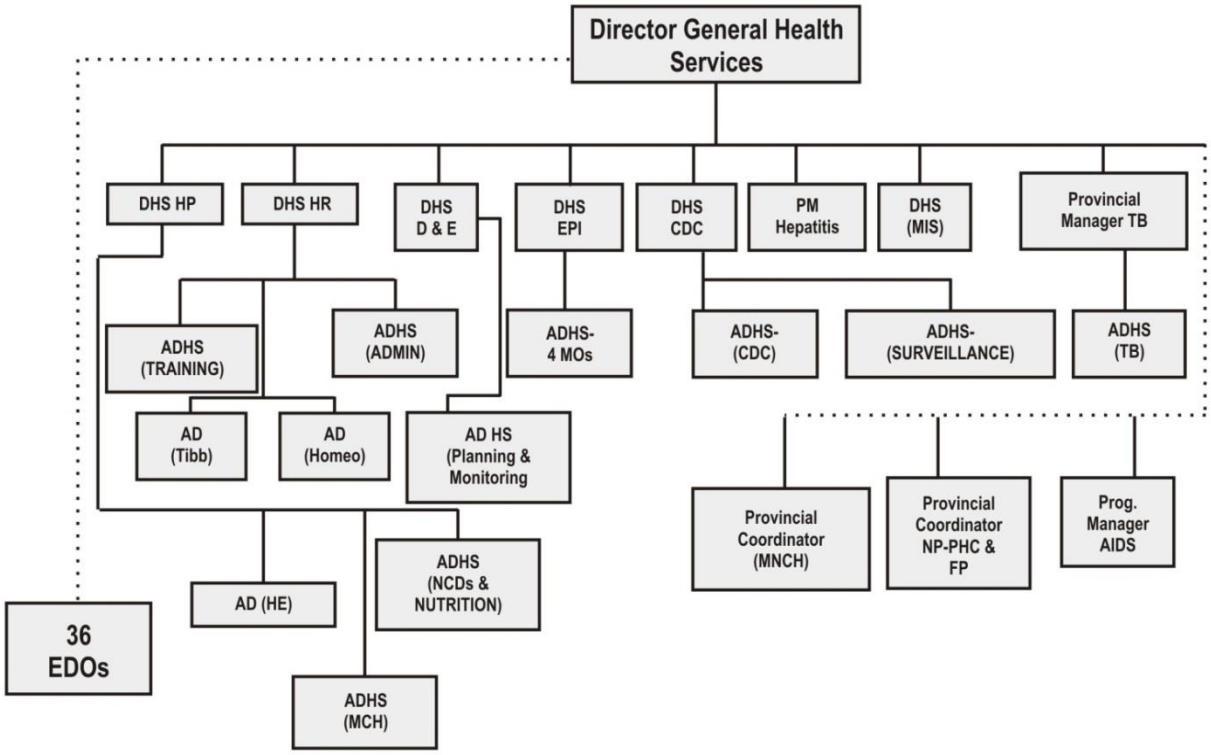
Annex 6 - Organogram of the Health Department

Provincial Health Department

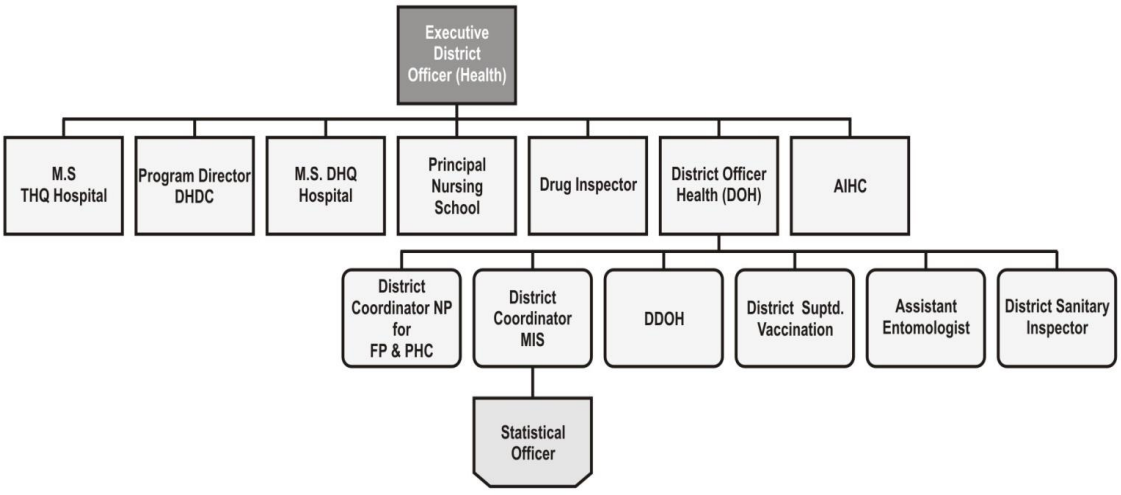




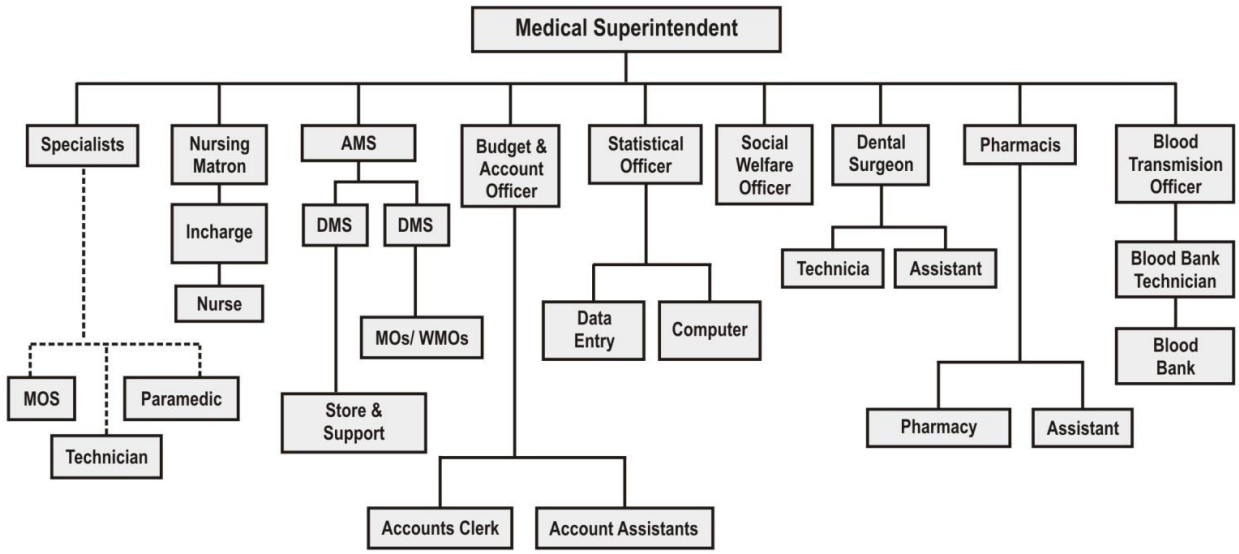
Directorate General Health Services



District Health Department



Secondary Healthcare Hospital



Annex 7- Health Human Resource in Parastatal Organizations

Operational Staff in Population Welfare Department

S.No	Title of Post	Designation	Sanctioned Posts	Filled	Vacant
1	DPWO	District Population Welfare Officer	34	33	1
2	TPWO	Tehsil Population Welfare Officer	117	71	46
3	CMO	Casualty Medical Officer	8	5	3
4	SMO	Senior Medical Officer	24	18	6
5	WMO	Women Medical Officer	249	117	132
6	FTO	Family Training Officer	117	14	103
7	FWC	Family Welfare Counselor	712	562	150
8	FWW	Family Welfare Worker	1,072	817	255
9	FWA(M)	Family Welfare Assistant Male	1,517	1,309	208
10	FWA(F)	Family Welfare Assistant Female	1,622	1,368	254
11	Male Mobilizers	Male Mobilizers	2,107	1,665	442

Source: Population Welfare Department, April 2012

Health Facility Wise Sanctioned HRH Posts in WAPDA

Category	250 Bed Hospital	50 Bed Hospitals	20 Bed Hospitals	Fortified Dispensaries	Basic Dispensaries	Burn Unit
General Practitioners	53	13	10	3	2	3
Specialists	25	10	7	-	-	1
Nurses & Paramedics	158	91	56	18	4	14
Non Medical Support Staff	116	30	31	9	4	15
	352	**144**	**104**	**30**	**10**	**33**

Source: Director Medical Services, Water & Power Development Authority Jun 2012

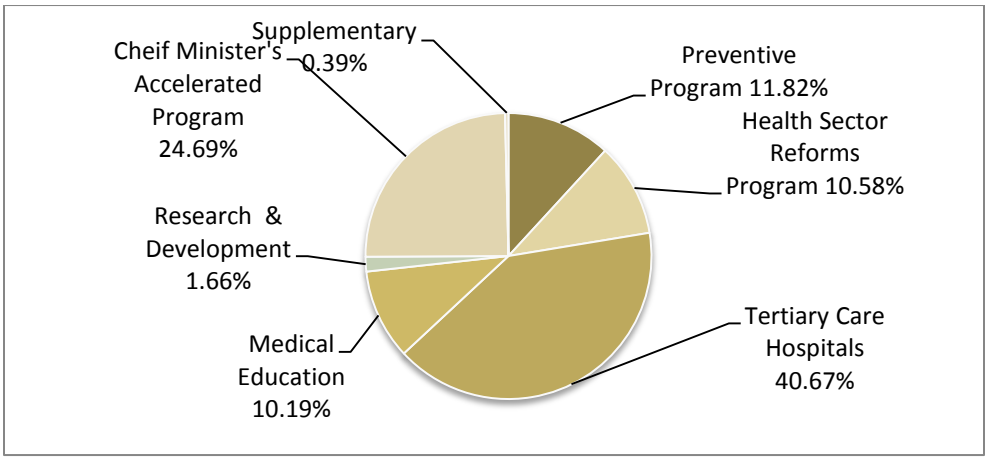
Annex 8- Allocation of budget according to policy themes in Punjab

Policy Themes / Outputs	% Allocation out of Total Budget * 2009-10	% Allocation out of Total Budget* 2010-11	% Allocation out of Total Budget * 2011-12
Reducing widespread prevalence of communicable diseases and strengthening preventive health care	2.5%	2.6%	1.5%
Addressing inadequacies in primary and secondary health care and increased pro-poor health expenditure	13.3%	21.6%	28.2%
Improving patient care facilities at tertiary care level	37.2%	41.8%	52.5%
Creation of Health Care Commission quality management, standardization and accreditation	0.0%	0.1%	0.1%
Provision of quality medical education	11.0%	11.9%	13.9%
Providing and strengthening of allied health services	0.4%	0.5%	0.4%
Strengthening of restructured Director General Health Services	0.3%	0.4%	0.4%
Private sector involvement and mainstreaming	2.7%	3.4%	2.8%
Improving governance at all levels and addressing systemic issues at macro level	0.0%	0.2%	0.1%

* Total health budget includes current and development budget of Department of Health but excludes allocations to communications and works department and includes building of new medical colleges.

Source: Punjab Health Sector Reform Program

Sub Sector Wise Allocation 2005-2011



Source: Departmental Sector Review, Health

Annex 9- Seats allotted as per Institution registered with PMDC

Sr. #	Name of institution	Sector (Public/Private)	Program offered	Annual intake	Annual seat Allocation			
					MBBS	BDS	PG	MPH
1	Allama Iqbal Medical College, Lahore	Public	MBBS	200	200			
2	Army Medical College, Rawalpindi.	Armed Forces	MBBS & BDS	200	200	50		
3	Fatima Jinnah Medical College for Women, Lahore	Public	MBBS	300	300			
4	King Edward Medical College, Lahore	Public	MBBS	200	200			
5	Nishtar Medical College, Multan.	Public	MBBS , BDS & PG	250+ 50	250	50	50	
6	Punjab Medical College, Faisalabad	Public	MBBS	250	250			
7	Quaid-e-Azam Medical College, Bahawalpur	Public	MBBS & PG	200	200	100		
8	Rawalpindi Medical College, Rawalpindi	Public	MBBS	350	350			
9	Services Institute of Medical Sciences, Lahore	Public	MBBS	150	150			
10	Sargodha Medical College, Sargodha	Public	MBBS	100	100			
11	Shaikh Zayed Medical College, Rahim Yar Khan	Public	MBBS	100	100			
12	Nawaz Shairf Medical College, Gujrat	Public	MBBS	100	100			
13	Sheikh Khalifa Bin Zayed Al-Nahyan Medical College, Lahore	Public	MBBS	100	100			
14	Federal Medical & Dental College, Islamabad	Public	MBBS	50	50			
15	Khawaja Muhammad Safdar Medical College, Sialkot.	Public	MBBS	100	100			
16	Gujranwala Medical College, Gujranwala	Public	MBBS	100	100			
17	Sahiwal Medical College, Sahiwal	Public	MBBS	100	100			
18	FMH College of Medicine & Dentistry, Lahore	Private	MBBS and BDS	100 + 50	100	50		
19	Foundation University Medical College, Rawalpindi	Private	MBBS	150	150			
20	Islamic International Medical College, Rawalpindi	Private	MBBS & BDS	100+ 75	100	75		
21	Lahore Medical & Dental College, Lahore.	Private	MBBS & BDS	150+ 75	150	75		
22	Shifa College of Medicine, Islamabad	Private	MBBS	100	100			
23	Wah Medical College, Wah Cantt	Public	MBBS	100	100			
24	University Medical & Dental College, Faisalabad	Private	MBBS & BDS	150+ 75	150	75		
25	University College of Medicine & Dentistry, Lahore	Private	MBBS & BDS	150+ 75	150	75		

26	CMH Lahore Medical College, Lahore.	Private	MBBS & BDS	150 + 50	150	50		
27	Islamabad Medical & Dental College, Islamabad.	Private	MBBS	100	100			
28	Independent Medical College, Faisalabad	Private	MBBS	100	100			
29	Sharif Medical & Dental College, Lahore.	Private	MBBS & BDS	100+ 50	100	50		
30	Continental Medical College, Lahore	Private	MBBS	100	100			
31	Akhtar Saeed Medical & Dental College, Lahore	Private	MBBS	100	100			
32	Central Parks Medical College, Lahore.	Private	MBBS	100	100			
33	Multan Medical & Dental College, Multan	Private	MBBS & BDS	100+ 50	100	50		
34	Shalamar Medical & Dental College, Lahore	Private	MBBS	100	100			
35	Avicenna Medical College,Lahore	Private	MBBS	100	100			
36	Yusra Medical & Dental College,Islamabad	Private	MBBS	100	100			
37	Rashid Latif Medical College, Lahore.	Private	MBBS	100	100			
38	Islam Medical College, Sialkot	Private	MBBS & BDS	100+ 50	100	50		
39	Amna Inayat Medical College, Sheikhupura	Private	MBBS	100	100			
40	Rawal Institute of Health Sciences, Islamabad	Private	MBBS & BDS	100 +50	100	50		
41	Azra Naheed Medical College, Lahore	Private	MBBS	100	100			
42	Pak Red Crescent Medical & Dental College, Lahore	Private	MBBS	100	100			
43	Al-Nafees Medical College, Islamabad	Private	MBBS	100	100			
44	Hashmat Medical & Dental College, Gujrat.	Private	MBBS	100	100			
45	Aziz Fatima Medical & Dental College, Faisalabad	Private	MBBS	100	100			
46	de'Montmorency College of Dentistry, Lahore	Private	BDS	100		100		
47	Margalla College of Dentistry, Rawalpindi	Private	BDS	80		80		
48	Gulab Devi Postgraduate Medical Institute, Ferozepur Road, Lahore.	Public	PG	30			30	
49	Punjab Institute of Cardiology, Gulberg Road, Lahore.	Public	PG	150			150	
50	Armed Forces Postgraduate Medical Institute, Rawalpindi.	Armed Forces	PG MPH	30			30	30

51	Institute of Public Health, (3-D Income Tax Colony, Lahore.	Public	PG MPH	30			30	30
52	Shaikh Zayed Postgraduate Medical Institute,Lahore.	Public	PG	450			450	
53	Quaid-e-Azam Postgraduate Medical College, PIMS, Islamabad	Public	PG	200			200	
54	Health Sevices Academy Islamabad	Public	PG MSPH	60			60	60
55	Institute of Child Health/ Children"s Hospital, Ferozepur Road, Lahore	Public	PG	50			50	
56	Pakistan Institute of Ophthalmology, Al-Shifa Trust Eye Hospital, Jehlum Road, Rawalpindi.	Public	PG	20			20	
57	Pakistan Institute of Engineering & Applied Sciences, (PIEAS), Nilor, Islamabad	Public	PG	20			20	
Total Annual Intake					**5,900**	**980**	**1,090**	**120**

Source: Pakistan Medical & Dental Council May 2012

Annex 10- Allied Health Programs by Institute in Punjab

S. No	Name of the Institute	Sector	Training Programs																		
			B. Sc. (Hons.) Biotechnology	Doctor of Physical Therapy (DPT)	B. Sc. (Hons.) Medical Imaging Technology	B. Sc. (Hons.) Medical Laboratory Technology	B. Sc. Optometry & Orthoptics	. Sc. (Hons.) Emergency & Intensive Care Scie	B. Sc. (Hons.) Orthotics & Prosthetic	B. Sc. (Hons.) Audiology	B. Sc. (Hons.) Operation Theatre Tech	B. Sc. (Hons.) Dental Technol	B. Sc. (Hons.) Dental Hygiene	B. Sc. (Hons.) Cardiac Perfusion	B. Sc. (Hons.) Occupational Therapy	B. Sc. (Hons.) Speech & Language Therapy	B. Sc. (Hons.) Respiratory Therapy	M.Sc. Medical Technology	B.Sc(Hons.)Vision Sci.	B.Sc. Physiotherapy	B. Sc. MLT Condensed Course
1	Allama Iqbal Medical College, Lahore	Public		√		√															
2	Nishtar Medical College, Multan	Public			√		√	√				√									
3	Punjab Medical College, Faisalabad	Public			√																
4	Rawalpindi Medical College, Rawalpindi	Public		√	√	√	√		√												
5	Quaid-e-Azam Medical College, Bahawalpur	Public		√		√	√			√											
6	Services Institute of Medical Sciences, Lahore	Public			√	√					√										
7	Sheikh Zayed Medical College, Rahim Yar Khan	Public		√	√	√					√										
8	de' Montmorency College of Dentistry, Lahore	Public										√	√								
9	Punjab Institute of Cardiology, Lahore	Public				√															
10	Institute of Public Health, Lahore	Public																			
11	School of Allied Health Sciences, The Children's Hospital & Institute of Child Health, Lahore	Public		√	√	√					√	√			√	√					
12	Ace Institute of Health Sciences, Lahore	Pvt		√		√															
13	FMH College of Medicine & Dentistry, Lahore	Private		√	√	√	√			√		√	√			√					√

14	Gulab Devi Postgraduate Medical Institute, Lahore	Private				√		√			√			√			√				
15	Lahore Medical & Dental College, Lahore	Private		√	√	√		√				√									
16	Pakistan Institute of Ophthalmology, Al-Shifa Eye Trust Hospital, Rawalpindi	Private					√														
17	Faisalabad Institute of Research Sciences & Technology, Faisalabad	Private	√																		
18	Armed Forces Postgraduate Medical Institute, Rawalpindi	Public				√								√							
19	Sughra Shafi Medical Complex, Narowal	Private				√															
20	Munawar Memorial Hospital, Chakwal (Institute of Optometry)	Private					√														
21	Department of Allied Health Sciences, UHS	Public															√				
22	King Edward Medical University	Public																√	√		
23	University of Lahore	Private		√																	
24	Superior University	Private		√																	
25	University of Faisalabad	Private		√																	
		Total	1	11	8	13	6	3	1	2	4	5	2	2	1	2	1	1	1	1	1

Source: University of Health Sciences March 2012, King Edward Medical University April 2012 & FMH Department of Nutritional Sciences May 2012

Annex 11- Enrolments Status for Allied Health Programs for Punjab

S.#	Enrollment status as on January 2012							
	Institute	**Courses (Allied Health Programs)**	**Annual**	**Year1**	**Year2**	**Year3**	**Year4**	**Year 5**
1	**King Edward Medical University, Lahore**	BS.(HONS) Medical Lab Technology	15	17	4	3	12	15
		BS.(HONS) Cardiac Perfusion Technology	15	4	5	3	5	5
		BS.(HONS) Anesthesia Technology	15	10	1	5	8	12
		BS.(HONS) Hearing Sciences	15	4	0	1	4	10
		BS.(HONS) Orthotics and Prosthetics Technology	15	5	0	1	4	10
		BS.(HONS) Radiotherapy Technology	15	10	1	3	4	5
		BS.(HONS) Renal Dialysis Technology	15	5	1	4	5	5
		BS.(HONS) Psychological Technology	15	5	0	4	5	5
		BS.(HONS) Speech Therapy	15	4	1	2	5	5
		BS.(HONS) Medical Imaging Technology	15	10	5	5	11	10
2	**Allama Iqbal Medical College, Lahore**	Doctor of Physical Therapy (DPT)	20	20	29	19	11	
		B.Sc. Medical Laboratory Technology	20	20	20	17	14	
3	**Nishtar Medical College, Multan**	B.Sc. Emergency & Intensive Care Sciences	20	0	0	0	0	
		B.Sc. Medical Imaging Technology	20	0	0	0	0	
		B.Sc. Optometry	20	17	17	16	15	
		B.Sc. Dental Technology	20	0	0	0	0	
4	**Punjab Medical College, Faisalabad**	B.Sc. Medical Imaging Technology						
5	**Rawalpindi Medical College, Rawalpindi**	B.Sc. Medical Imaging Technology	20	19	18	15	10	
		B.Sc. Medical Laboratory Technology	20	19	18	16	12	
		B.Sc. Optometry	20	20	22	18	13	
		B.Sc. Orthotics & Prosthetics	20	20	19	15	7	
		Doctor of Physical Therapy (DPT)	20	20	22	20	15	
6	**Quaid-e-Azam Medical College, Bahawalpur**	B.Sc. Audiology	20	18	14	10	7	
		B.Sc. Medical Laboratory Technology	20	17	18	13	9	
		B.Sc. Optometry	20	20	15	11	7	
		Doctor of Physical Therapy (DPT)	20	20	15	12	10	
7	**Services Institute of**	B.Sc. Medical Imaging Technology	20	0	0	1	11	

	Medical Sciences, Lahore	B.Sc. Medical Laboratory Technology	20	0	0	0	15	
		B.Sc. Operation Theatre Technology	20	0	0	5	6	
8	**Sheikh Zayed Medical College, Rahim Yar Khan**	B.Sc. Medical Imaging Technology	20	0	3	13	10	
		B.Sc. Medical Laboratory Technology	20	0	2	12	8	
		B.Sc. Operation Theatre Technology	20	0	3	10	5	
9	**De' Montmorency College of Dentistry,**	B.Sc. Dental Technology	20	0	0	0	0	
		B.Sc. Dental Hygiene	20	0	0	0	0	
10	**Punjab Institute of Cardiology, Lahore**	B.Sc. Cardiac Perfusion	20	0	0	0	0	
		B.Sc. Medical Laboratory Technology	20	0	0	0	0	
11	**Institute of Public Health, Lahore**	B.Sc. Medical Laboratory Technology	20	17	24	11	9	
12	**School of Allied Health Sciences, The Children's Hospital & Institute of Child Health, Lahore**	B.Sc Medical Lab Technology	30	18	17	16	15	
		B.Sc Medical Imaging Technology	25	17	16	16	15	
		Doctor of Physical Therapy (DPT)	20	18	17	16	14	
		B.Sc. Occupational Therapy	12	0	0	0	0	
		B.Sc. Speech & Language Therapy	12	0	0	0	0	
		B.Sc. Dental Technology	12	16	15	14	14	
		B.Sc. Operation Theatre Technology	12	17	16	15	14	
13	**Ace Institute of Health Sciences, Lahore (***De affiliated in 2012)*	B.Sc. Medical Lab Technology	60	0	11	2	5	
		Doctor of Physical Therapy (DPT)	40	22	35	29	26	
14	**FMH College of Medicine & Dentistry, Lahore**	B.Sc. Medical Lab Technology	20	20	20	5	7	
		B.Sc. Medical Imaging Technology	20	20	20	11	9	
		Doctor of Physical Therapy (DPT)	20	20	20	17	19	
		B.Sc. Speech & Language Therapy	10	0	0	0	0	
		B.Sc. Audiology	10	10	9	0	0	
		B.Sc. Dental Hygiene	10	10	9	1	0	
		B.Sc. Dental Technology	10	10	6	0	0	
		B.Sc. Optometry	10	10	10	5	3	
15	**Gulab Devi Postgraduate**	B.Sc. Emergency & Intensive Care Sciences	10	10	10	8	6	

	Medical Institute, Lahore	B.Sc. Cardiac Perfusion	10	10	10	11	8	
		B.Sc. Operation Theater Technology	10	10	11	3	0	
		B.Sc. Respiratory Therapy	10	10	10	9	8	
		B.Sc. Medical Laboratory Technology	10	10	11	8	8	
16	**Lahore Medical & Dental College, Lahore**	B.Sc. Emergency & Intensive Care Sciences						
		Doctor of Physical Therapy (DPT)	10	10	12	4	4	
		B.Sc. Dental Technology	10	0	0	1	0	
		B.Sc. Medical Imaging Technology						
		B.Sc. Medical Laboratory Technology						
17	**Pakistan Institute of Ophthalmology, Al-Shifa Eye Trust Hospital, Rawalpindi**	B.Sc. Optometry	20	14	22	1	8	
18	**Faisalabad Institute of Research Sciences & Technology, Faisalabad**	B.Sc. Biotechnology	25	28	11	12	18	
19	**Armed Forces Postgraduate Medical Institute, Rawalpindi**	Doctor of Physical Therapy (DPT)	20	0	0	0	0	
		B.Sc. Medical Laboratory Technology	20	0	0	0	0	
		B.Sc. Cardiac Perfusion	10	0	0	0	0	
20	**Sughra Shafi Medical Complex, Narowal**	B.Sc. Medical Laboratory Technology						
21	**Munawar Memorial Hospital, Chakwal (Institute of Optometry)**	B.Sc. Optometry & Orthoptics	10	10	7	7	0	
22	**University of Lahore**	Doctor of Physical Therapy (DPT)	50					
23	**Superior University**	Doctor of Physical Therapy (DPT)	75					
24	**University of Faisalabad**	Doctor of Physical Therapy (DPT)	100					
	Total	All Allied Health Programs	1403	641	602	476	458	82

Source: University of Health Sciences March 2012, King Edward Medical University April 2012 & FMH Institute of Allied Health Sciences May 2012

Annex 12 - District Wise CMW & LHWs by the Year 2011

S. No.	District	Total CMWs Recruited till Nov-11	Total CMWs Under Training	Total CMWs Passed out	LHW	LHS
1	**Attock**	138	30	47	924	47
2	**Bahawalnagar**	227	31	94	1526	58
3	**Bahawalpur**	194	20	55	1660	66
4	**Bhakkar**	210	39	68	1030	44
5	**Chakwal**	176	32	58	1100	48
6	**Chiniot**	-	18	19	466	28
7	**D.G.Khan**	442	27	200	1202	56
8	**Faisalabad**	349	54	125	2507	105
9	**Gujranwala**	207	38	77	1743	75
10	**Gujrat**	142	21	63	1602	66
11	**Hafizabad**	144	17	52	626	27
12	**Jhang**	238	33	96	1371	48
13	**Jhelum**	233	21	99	965	28
14	**Kasur**	256	35	88	1374	40
15	**Khanewal**	422	0	217	1843	84
16	**Khushab**	149	20	66	900	30
17	**Lahore**	235	19	102	1622	77
18	**Layyah**	196	21	110	886	35
19	**Lodhran**	210	14	86	991	38
20	**Muzaffergarh**	336	55	108	1279	48
21	**M.B.Din**	156	21	74	1054	41
22	**Mianwali**	158	21	28	2066	68
23	**Multan**	372	70	129	2052	71
24	**Narowal**	239	26	90	786	34
25	**Nankana Sahib**	187	26	78	1154	43
26	**Okara**	219	30	93	1556	66
27	**Pakpattan**	232	16	124	927	33
28	**R.Y.Khan**	342	47	128	1822	78
29	**Rajanpur**	155	17	61	629	31
30	**Rawalpindi**	507	57	223	1664	77
31	**Sahiwal**	186	28	75	1484	60
32	**Sargodha**	185	25	80	1736	73
33	**Sheikhupura**	266	38	102	847	24
34	**Sialkot**	382	69	115	2113	83
35	**T.T.Singh**	217	32	88	1252	46
36	**Vehari**	276	33	134	1271	54
Total		**8,583**	**1,101**	**3,452**	**48,030**	**1,930**

Source: Punjab MNCH Program, Dec 2011
National Program for Family Planning and Primary health Care, Punjab, April 2012

Annex 13- Nursing & Midwifery Programs by Institute in Punjab

S.No	Name of Institution	Sector	City	Training								
				SON	SOM	CMW	PM	LHV	P.B Dip	4 Year B.ScN	2 Year Post RN B.ScN	LPN
Nursing & Midwifery Schools												
1	**DHQ Hospital**	Public	Bahawalnagar		√		√	√				
2	**B.V. Hospital**	Public	Bahawalpur	√	√			√				
3	**DHQ Hospital**	Public	Bhakkar	√	√	√						
4	**DHQ Hospital**	Public	Chakwal	√	√	√						
5	**DHQ Hospital**	Public	D.G.Khan			√	√	√				
6	**Allied Hospital**	Public	Faisalabad	√	√	√						
7	**Aziz Fatima Trust Hospital**	Private	Faisalabad				√					
8	**DHQ Hospital**	Public	Faisalabad	√	√	√	√					
9	**Independent School of Nursing**	Private	Faisalabad		√							
10	**Madina Teaching Hospital**	Private	Faisalabad	√	√							
11	**Mian Mohammad Trust Hospital**	Private	Faisalabad				√					
12	**National Hospital**	Private	Faisalabad				√					
13	**PHNS Mother & Child Welfare Associate**	Public	Faisalabad					√				
14	**St. Rafael's Hospital**	Public	Faisalabad				√					
15	**DHQ Hospital**	Public	Gojra	√	√							
16	**Allama Iqbal Memorial Hospital**	Private	Gujranwala				√					
17	**DHQ Hospital**	Public	Gujranwala	√	√	√	√					
18	**Rrafiq Anwar Mem. Hospital**	Private	Gujranwala				√					
19	**Aziz Bhatti Shaheed Hospital**	Private	Gujrat	√	√	√	√					
20	**DHQ Hospital**	Public	Hafizabad	√	√	√						
21	**Fed. Govt. Services Hospital**	Public	Islamabad	√	√							
22	**School of Nursing PIMS**	Public	Islamabad	√	√							
23	**DHQ Hospital**	Public	Jhang	√	√	√	√	√				

24	**DHQ Hospital**	Public	Jhelum	√	√	√	√					
25	**DHQ Hospital**	Public	Kasur	√	√	√	√					
26	**DHQ Hospital**	Public	Khanewal	√	√	√						
27	**CMH (Army)**	Armed Forces	Kharian (Cantt)	√	√							
28	**DHQ Hospital**	Public	Khushab	√	√	√						
29	**Midwifery School**	Private	Kotli			√						
30	**Children Hospital**	Public	Lahore	√	√							
31	**Ittefaque Trust Hospital**	Private	Lahore	√	√							
32	**Jinnah Hospital**	Public	Lahore	√	√							
33	**Lady Aitchison Hospital**	Public	Lahore		√	√	√					
34	**Lady Willingdon Hospital**	Public	Lahore		√	√						
35	**Lahore General Hospital**	Public	Lahore	√	√							
36	**Mayo Hospital**	Public	Lahore	√								
37	**Services Hospital**	Public	Lahore	√	√							
38	**Sheikh Zayed Hospital**	Public	Lahore	√	√	√						
39	**Sir Ganaga Ram Hospital**	Public	Lahore	√	√							
40	**CMH (Army)**	Armed Forces	Lahore (Cantt)	√	√							
41	**DHQ Hospital**	Public	Layya	√	√	√						
42	**DHQ Hospital**	Public	Lodhran	√	√	√						
43	**DHQ Hospital**	Public	Mandi Bhaudin	√	√	√						
44	**DHQ Hospital**	Public	Mianwali	√	√	√						
45	**DHQ Hospital**	Public	Mirpur (AJK)	√	√							
46	**CMH (Army)**	Armed Forces	Multan	√	√							
47	**Nishtar Hospital**	Public	Multan	√	√	√						
48	**Women's Christian Hospital**	Public	Multan				√					
49	**Abbas Institute of Health Sciences**	Private	Muzaffarabad			√						
50	**DHQ Hospital**	Public	Muzaffargarh	√	√	√	√					

51	**DHQ Hospital**	Public	Narowal	√	√	√						
52	**DHQ Hospital**	Public	Okara	√	√	√		√				
53	**DHQ Hospital**	Public	Pakpatan	√	√	√						
54	**Sheikh Zayed Hospital**	Public	R.Y. Khan	√	√	√						
55	**DHQ Hospital**	Public	Rajanpur	√	√	√						
56	**CMH (Army)**	Armed Forces	Rawalpindi	√	√							
57	**DHQ Hospital**	Public	Rawalpindi	√	√	√						
58	**Fauji Foundation Hospital (Army)**	Armed Forces	Rawalpindi	√	√							
59	**Holy Family Hospital**	Public	Rawalpindi	√	√	√						
60	**Rawalpindi General Hospital**	Public	Rawalpindi	√	√	√						
61	**Social Walfare Socieity**	Public	Rawalpindi	√			√					
62	**Al Ghazi CMW**	Private	Sadiqabad			√						
63	**DHQ Hospital**	Public	Sahiwal	√	√	√	√					
64	**Nancy Fulwood Hospital**	Public	Sahiwal	√	√							
65	**DHQ Hospital**	Public	Sargodha	√	√	√						
66	**DHQ Hospital**	Public	Sheikhupura	√	√	√						
67	**Al-Khidmat Hospital**	Private	Sialkot				√					
68	**Allama Iqbal Mem. Hospital**	Public	Sialkot	√	√	√						
69	**Memorial Christian Hospital**	Public	Sialkot	√	√							
70	**DHQ Hospital**	Public	Toba Tak Singh	√	√	√						
71	**DHQ Hospital**	Public	Vehari	√	√							
72	**DHQ Hospital**	Public	Attock	√	√							
73	**POF (Army)**	Armed Forces	Wah (Cantt)	√								
Public Health Nursing Schools												
74	**Public Health Nursing School**	Public	Attock					√				
75	**Public Health Nursing School**	Public	Bahawalnagar					√				
76	**Public Health Nursing School**	Public	Bahawalpur					√				

77	**Public Health Nursing School**	Public	Chakwal					√				
78	**Public Health Nursing School**	Public	D.G.Khan					√				
79	**Public Health Nursing School**	Public	Jhung					√				
80	**Public Health Nursing School**	Public	Lahore					√				
81	**Public Health Nursing School**	Public	Multan					√				
82	**Public Health Nursing School**	Public	Okara					√				
83	**Public Health Nursing School**	Public	Sahiwal					√				
84	**Public Health Nursing School**	Public	Sialkot					√				
85	**Public Health Nursing School**	Public	Mirpur (AJK)					√				
Nursing Colleges												
86	**College of Nursing PIMS**	Public	Islamabad						√	√	√	
87	**Shifa College of Nursing**	Public	Islamabad							√	√	
88	**AFPGMI (Army)**	Armed Forces	Rawalpindi	√	√					√	√	
89	**PIPO Mayo Hospital**	Public	Lahore						√			
90	**shalimar College of Nursing**	Private	Lahore							√	√	
91	**Saida Waheed FMH College of Nursing**	Private	Lahore	√	√	√			√	√	√	
92	**Allama Iqbal college of Nursing**	Public	Lahore							√		
93	**National Hospital Post Basic College of Nursing**	Private	Lahore						√		√	√

Source: Pakistan Nursing Council, Dec 2011

SON: School of Nursing
SOM: School of Midwifery
CMW: Community Midwifery Program
PM: Pupil Midwifery Program
LHV: Lady Health Visitor Program
P.B Dip: Post Basic Diploma
4 Year B.ScN: Generic Bachelor Nursing
2 Year Post RN B.ScN: Post Registered Bachelor of Science Nursing
LPN: Licensed Practical Nurse

Annex 14- Nursing Institutions offering R**ecognized Degree Programs**

S.No	NAME OF INSTITUTIONS	CITY	RECOGNIZED PROGRAM	SEATS ALLOCATED	% wise allocation		Enrollment				Graduated 2011-2012
					Male	Female	Year 1	Year 2	Year 3	Year 4	
1	Shifa College of Nursing	Islamabad	Generic BSN	30	3	27					
			Post RN BSN	30	15	15					
2	Armed Forces Post Graduate Medical Institute (AFPGMI)	Rawalpindi	Generic BSN	35	35 female						
			Post RN BSN	35	35 female						
3	Saida Waheed FMH College of Nursing	Lahore	Generic BSN	50	50 female		Pub	306	865	65	220
			Post RN BSN	50	50 female		Pub	296	568	56	142
4	Nishter College of Nursing	Multan	Generic BSN	50	50 female		Pub				
5	Islamia University, Bahawalpur	Lahore	Generic BSN	30	30 female		Pub	173	230	36	44
			Post RN BSN	30	30 female		Pvt	881	1,346	122	183

Source: Pakistan Nursing Council, Punjab Mar 2012

Annex 15- Pharmacy Institutes in Punjab

S. No.	Name of Institution	Sector	Total No. of Students		Enrollment									
					1st Year		2nd Year		3rd Year		4th Year		5th Year (Final)	
			Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1	College of Pharmacy Punjab University, Lahore	Public	306	865	65	220	64	201	38	159	63	154	76	131
2	Islamia University, Bahawalpur	Public	173	230	36	44	33	46	35	45	34	47	35	48
3	Bahauddin Zakariya University, Multan	Public	299	562	53	120	57	108	67	148	51	99	71	87
4	Lahore College for Women University, Lahore	Public	-	286	-	56	-	55	-	64	-	56	-	55
5	Government College University, Faisalabad	Public	125	357	49	107	10	34	15	65	15	65	36	86
6	Faculty of Pharmacy, University of Sargodha	Public	296	568	56	142	92	96	62	141	37	112	49	77
7	The University of Lahore	Private	881	1,346	122	183	116	188	174	263	179	300	290	412
8	School of Pharmacy, The University of Faisalabad	Private	64	317	17	53	24	64	23	68	0	78	0	54
9	Pharmacy Department, Superior University, Lahore	Private	70	40	17	53	12	28	-	-	-	-	-	-
10	Pharmacy Department, Hajvery University, Lahore	Private	237	251	37	53	18	33	90	66	67	44	25	55
11	Akhtar Saeed College of Pharmaceutical Sciences, Lahore	Private	54	99	29	37	19	36	6	26	-	-	-	-
12	Lahore College of Pharmaceutical Sciences, Lahore	Private	115	152	35	45	27	38	25	30	20	30	8	9
	Total		**2,620**	**5,073**	**516**	**1,113**	**472**	**927**	**535**	**1,075**	**466**	**985**	**590**	**1,014**

Source: Pharmacy Council of Pakistan, April 2012

Annex 16 - Institutes of Pharmacy Technicians in Punjab

S. No	Name of Institution	Sector	Year 1	Year 2	Total
1	Lahore College for Pharmaceutical Sciences, Lahore	Private	50		50
2	Ace Institute of Health Sciences, Lahore	Private	100	70	170
3	Kings College of Pharmacy, Sahiwal	Private	100	80	180
4	Pakistan Pharmacy College, Sahiwal	Private	50	50	100
5	Thal Institute of Paramedics, Layyah	Private	100	0	100
6	Multan College of Pharmacy and Management Sciences, Multan	Private	100	0	100
7	Bahauddin Institute of Pharmacy Technician, Multan	Private	50	0	50
8	Aimen Institute of Pharmacy Technician, Lahore	Private	50	0	50
9	Pak Institute of Pharmacy Technician, Lahore	Private	50	0	50
10	Allama Iqbal College of Pharmacy, Lahore	Private	50	0	50

Source: Pharmacy Council of Pakistan

Annex 17- Medical & Dental FCPS Fellows

S.#	Specialty	Public	Private	Armed Forces	Total
1	Anesthesiology	363	87	51	501
2	Anatomy	0	8	1	9
3	Biochemistry	0	0	4	4
4	Cardiac Surgery	24	1	8	33
5	Cardiology	195	16	18	229
6	Cardiothoracic Anesthesia	1	0	3	4
7	Chemical Pathology	29	0	38	67
8	Chest Diseases Incl. T.B.	1	0	0	1
9	Clinical Hematology	1	0	0	1
10	Clinical Pathology	26	0	1	27
11	Clinical Pharmacology	1	0	0	1
12	Community Medicine	67	3	15	85
13	Critical Care Medicine	1	5	4	10
14	Dentistry (Operative Dentistry)	96	16	19	131
15	Dentistry (Oral And Maxillo-Facial Surgery)	65	9	15	89
16	Dentistry (Oral Surgery)	12	4	10	26
17	Dentistry (Orthodontics)	47	14	14	75
18	Dentistry (Periodontology)	10	3	1	14
19	Dentistry (Prosthodontics)	15	9	17	41
20	Dermatology	194	9	42	245
21	Diagnostic Radiology	478	38	111	627
22	Endocrinology	7	0	0	7
23	Family Dentistry	1	0	0	1
24	Forensic Medicine	19	0	0	19
25	Gastroenterology	61	9	10	80
26	General Medicine	1,283	181	103	1,567
27	General Surgery	819	54	104	977
28	Haematology	75	14	22	111
29	Histopathology	86	41	13	140
30	Immunology	0	0	4	4
31	Infectious Diseases	0	3	0	3
32	Medical Oncology	13	9	3	25
33	Microbiology	0	0	25	25
34	Neonatal Paediatrics	11	1	1	13
35	Nephrology	21	8	6	35
36	Neuro Surgery	65	0	7	72
37	Neurology	42	7	4	53
38	Nuclear Medicine	13	6	6	25
39	Obstetrics And Gynecology	1,283	203	82	1,568
40	Ophthalmology	234	54	37	325
41	Orthopedics Surgery	218	19	12	249
42	Otorhinolaryngology (E.N.T.)	152	5	29	186
43	Paediatric Cardiology	4	0	2	6
44	Paediatric Surgery	50	0	6	56
45	Paediatrics	138	43	8	189
46	Paediatrics Medicine	574	34	47	655

47	Physical Medicine And Rehabilitation	3	0	12	15
48	Physiology	7	6	8	21
49	Plastic Surgery	54	3	7	64
50	Psychiatry	123	3	12	138
51	Pulmonology	66	0	3	69
52	Radiotherapy	26	8	5	39
53	Rheumatology	6	4	0	10
54	Thoracic Surgery	2	0	5	7
55	Urology	91	8	5	104
56	Virology	0	0	1	1
57	Vitreo Retinal Ophthalmology	10	11	4	25
	Total	**7,183**	**956**	**965**	**9,104**

Source: College of Physicians & Surgeons Pakistan April 2012