

HUMAN RESOURCES

FOR HEALTH

PROFILE

SINDH

ACKNOWLEDGMENT

ACRONYMS

ACR	Annual Confidential Report
AFP	Acute Flaccid Paralysis
AHWs	Allied Health Workers
AIDS	Acquire Immune Deficiency Syndrome
ARI	Acute Respiratory Infection
BCG	Bacille Calmette Guerin
BHU	Basic Health Unit
BMS	Basic Medical Sciences
BPS	Basic Pay Scale
BScN	Bachelor of Science in Nursing
CDC	Communicable Disease Control
CEO	Chief Executive Officer
CIDA	Canadian International Development Agency
CME	Continuing Medical Education
CMW	Community Midwives
CPD	Continuous Professional Development
CPR	Contraceptive Prevalence Rate
CPSP	College of Physicians and Surgeons
DCO	District Coordination Officer
DEWS	Disease Early Warning System
DFID	Department for International Development
DGHS	Director General Health Services
DHDC	District Health Development Centre
DHQ	District Head Quarter
DHQH	District Head Quarters Hospital
DoH	Department of Health
EDOH	Executive District Officer Health
EMRO	Eastern Mediterranean Regional Office
ENT	Ear Nose Throat
EOC	Essential Obstetric Care
EPI	Expanded Program on Immunization
FAO	Food and Agriculture Organization
FBS	Federal Bureau of Statistics
FCPS	Fellow of College of Physicians and Surgeons
FHT	Female Health Technician
FLCF	First Level Care Facility
FP	Family Planning

FWC	Family Welfare Center
GAVI	Global Alliance for Vaccination & Immunization
GDP	Gross Domestic Product
GFATM	Global Fund for AIDS, TB & Malaria
GHWA	Global Health Workforce Alliance
GIZ	German Agency for International Cooperation
GoP	Government of Pakistan
HCPs	Health Care Providers
HDI	Human Development Index
HEC	Higher Education Commission
Hep B	Hepatitis B
HI&ES	Household Income and Expenditure Survey
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
HMPs	Health Management Professionals
HRD	Human Resource Development
HRH	Human Resource for Health
HRM	Human Resource Management
HRMIS	Human Resource Management Information System
HSA	Health Services Academy
HSRU	Health Sector Reforms Unit
HWs	Health Workers
IMNCI	Integrated Management of Neonatal & Childhood Illnesses
IMR	Infant Mortality Rate
IUCD	Intra Uterine Contraceptive Device
JICA	Japanese International Cooperation Agency
KPK	Khyber Pakhtunkhwa
LHS	Lady Health Supervisor
LHV	Lady Health Visitor
LHW	Lady Health Worker
MCH	Maternal and Child Health
MCPS	Member of College of Physicians & Surgeons
MDG	Millennium Development Goal
MDR	Multi-Drug Resistance
MHUs	Mobile Health Units
MICS	Multiple Indicator Cluster Survey
MIS	Management Information System
MMR	Maternal Mortality Ratio
MO	Medical Officer
MoH	Ministry of Health

MPH	Master in Public Health
MScN	Master of Science in Nursing
MTDF	Mid Term Development Framework
NCDs	Non Communicable Diseases
NGO	Non-Governmental Organization
NHIRC	National Health Resource Information Center
NHSP	National Health Survey of Pakistan
NPPI	Norway - Pakistan Partnership Initiative
OEC	Overseas Employment Corporation
OOP	Out of Pocket Expenditure
OPD	Out Patient Department
OPV	Oral Polio Vaccine
P&D	Planning and Development
PCSIR	Pakistan Council for Scientific and Industrial Research
PDHS	Pakistan Demographic and Health Survey
PG	Post-Graduate
PH	Public Health
PHC	Primary Health Care
PHDC	Provincial Health Development Centre
PIHS	Pakistan Integrated Household Survey
PMDC	Pakistan Medical & Dental Council
PMRC	Pakistan Medical Research Council
PNC	Pakistan Nursing Council
PPHI	People's Primary Healthcare Initiative
PPP	Public Private Partnerships
PR	Pakistan Railways
PRSP	Poverty Reduction Strategy Paper
PSLMS	Pakistan's Social and Living Standards Measurement Survey
PSM	Pakistan Steel Mills
PWD	Population Welfare Department
RHC	Rural Health Centre
RHS	Reproductive Health Services
RHS	Reproductive Health Services
RHSCs	Reproductive Health Services Centers
RMPs	Registered Medical Practitioners
RN	Registered Nurse
RTIs	Reproductive Tract Infections
SESSI	Sindh Employees' Social Security Institution
SHC	Secondary Health Care
SLGO	Sindh Local Government Ordinance

SON	School of Nursing
SOP	Standard Operating Procedures
STDs	Sexually Transmitted Diseases
THC	Tertiary Health Care
UC	Union Council
UHCs	Urban Health Centers
UHUs	Urban Health Units
UK	United Kingdom
UKAID	United Kingdom's Aid for International Development
UN	United Nations
UNDP	United Nations Development Program
UNFPA	United Nations Fund for Population Activities
UNICEF	United National Children's Fund
UNICEF	United Nations International Children's Fund
USAID	United States Agency for International Development
WAPDA	Water And Power Development Authority
WHO	World Health Organization
WMO	Woman Medical Officer

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PREFACE

FOREWORD

EXECUTIVE SUMMARY

Health workforce is the most vital pillar of health system. The success of any health system largely depends upon availability of sufficient numbers of health workers; having appropriate education, training and skills; adequately deployed; and working in a conducive environment that motivates and engages them. Therefore, to enhance health system to be well-organized and provide quality services and to attain goals related to health and development, an efficient and effective health workforce is required with the relevant skills, competencies and motivation.

There is a total global deficit of 2.4 million health workers; and the WHO has identified 57 countries facing a health workforce crisis. Pakistan is among countries highlighted by WHO where health workers shortage is severe. Pakistan is 6th most populous country of the world with a population of more than 180 million. The overall insufficiency of health workers is worsened by unequal distribution and discriminatory deployment among available workforce.

Pakistan is administratively divided in to five provinces namely Punjab, Sindh, Khyber Pakhtunkhwa, Baluchistan and Gilgit-Baltistan. The population of Sindh is around 36 Million which is more than one fourth of the total population of Pakistan. Sindh is lagging behind from the rest of the country in health indicators, revealed in an analysis carried out by the health department for the newly launched Sindh Health Sector Strategy (2012-2020). It spends just \$18 per capita which is very low as compared to the recommended value \$34. In Sindh, the public health sector is poorly utilized in both urban and rural areas; it is at 22% compared to 29% in rest of the country. There is a well designed district health system, but frontline facilities and even several secondary care Taluka hospitals are not properly utilized due to several issues like staff retention (particularly of female staff); frequent drug shortages, and improper maintenance of equipment and buildings.

This feeble HRH situation in the province of Sindh portrays an expression of the overall picture in the country.

The overall objective of the study was to provide overall picture regarding HRH in Sindh for the development of HRH strategy framework and costed plan. The data were collected from Health Department of Sindh, Regulatory Authorities, Para-statal Organizations, Public and Private sector Academic Institutes and Hospitals, Bureau of Emigration, and some previously published reports

1. Total number of health facilitates of DoH, Sindh is 1771. The total sanctioned posts for General Doctors and Dentists of Grade 17 to 20 are 6633 (67% filled); and for Specialists are 883 (31% filled). For Nursing Personnel, there are 2711 sanctioned (76% filled) positions; and for Paramedics 5385 sanctioned (95% filled) posts. In total 22,505 Lady Health Workers and 754 Lady Health Supervisors (Grand total 23,259) are working in DoH.

- The practitioners of Tibb-e-Unani and Homeopathy are regulated by the National Council for Tibb and Homeopathy respectively. There are 42 Unani Shafa Khanas and four Homeo Dispensaries established by DoH, Sindh to provide free health services to the public.

- The province has five medical universities. One medical college is under control of DoH Sindh, and another medical & dental college is being run by KMC. In total, there are 21 Medical (9 public & 12 private) and 16 Dental (5 public & 11 private) colleges. The average faculty position in Public sector Medical and Dental colleges is 142 and 46; whereas in Private sector Medical and Dental colleges, it is 168 and 35 respectively. The student teacher ratio for Medical colleges is 9:1 (public) and 3:1 (private).

In public sector medical colleges, 38% of the total sanctioned posts of the faculty are lying vacant. It is very surprising to note that the faculty position in the private sector academic institutes is in accordance with the PMDC.

- The average number of Nursing Personnel, Pharmacists, Paramedics, Oral Hygienists, Health Management Professionals and Allied Health Workers in Public sector is 69, 24, 131, 12, 17, 24 and in Private sector is 160, 41, 301, 25, 11 and 40 respectively.

- The total estimated number of doctors working in private set-up is 16,072 with a total number of 10,045 of private hospitals / clinics.

- The MBBS, BDS, Specialist Doctors and Specialist Dentists registered from Sindh in PMDC are 52847, 3949, 7929, and 250 respectively.

The PNC registered nurses and midwives from Sindh are 16572 and 1828 respectively.

- The male to female ratio for various categories is as under:

Admissions in Medical/Dental colleges of Sindh 33:67

Doctors and Dentists registered in PMDC 62:38 and 54:46 respectively

Faculty in Academic Institutes 62:38; Nurses 38:62; Paramedics 84:16

HM Professionals 79:21; Doctors in DoH 71:29

HRH PRODUCTION

- In Sindh, there are total 21 Medical and 16 Dental Colleges, and the number of admissions approved by PMDC in medical and dental colleges of Sindh is 3450 and 1035 respectively. Three institutes offer 2-years' MPH, with total annual intake of around 50 candidates.

- In Sindh, there are 57 institutes for General Nursing. The Nurse Mid-Wife, Pupil Mid-Wife and Community Mid-Wife institutes are 29, 18 and 37 in number respectively. There are five Public Health Schools for LHV's. The yearly output is more than 2000 of 3years' Diploma, and 400-500 each for Nurse Midwife, Pupil Midwife and Community Midwife; and 200 of LHV's.

In addition to four Pharmacy institutes established in public sector, four private medical colleges also have their pharmacy institutes.

- The examining board for paramedics is the Sindh Medical Faculty. The annual production for various categories of paramedics is around 2000.

- EMIGRATION OF HUMAN RESOURCES:** There is an increasing trend of leaving the country by skilled health workforce. In year 2011, 386 doctors, 875 dentists and 44 nurses went overseas, in addition to those who quitted the profession and emigrated.

HEALTH WORKFORCE REQUIREMENT FORECAST

For Sindh, there is one physician (combined generalists & specialist) to 737 people, and one dentist (combined generalists & specialist) to 10,669 populations. However, for 2,703 people of Sindh, there is only one nurse; and 11,592 females are covered by one midwife; and as a whole one LHW is for 11,368 women. In present situation, the needed human workforce is as under:

HRH REQUIREMENT AS PER TOTAL EXPECTED POPULATION OF SINDH

Category	International Standard/ 1000 Population	Required HWs for Sindh	Present Situation	Deficiency / Needed HWs
Doctors	2	84,800	60776	24,024
Dentists	1	42,400	4199	38,201
Nurses	8 (4 Nurses: 1Doctor)	342,400	16572	325,828

CONCLUSIONS AND RECOMMENDATIONS

The data in both Public and Private Health Sector of Sindh are largely incomplete and inconsistent. In DoH 33% positions of all cadre doctors, 69% of specialists, and 24% of nursing personnel are lying vacant. In public sector academic institutes, around 40% of the sanctioned positions for faculty are not filled. The HRH production is not directed by need approximation. There is a meager attention towards the huge deficiency of nurses, paramedics, AHWs and HMPs. In service training programs are not linked to promotion and career makeup. Though a vast majority of females is enrolled for various programs; but their number decreases drastically in registration bodies; and the same trend of low number of females is found for the faculty, Government employed doctors, and paramedics. There is an extensive urban-rural discrepancy of HRH and health infrastructure. An increasing trend of emigration is found among health professionals due to lack of absorption capacity of the province.

▪Though more than 60,000 doctors are registered in PMDC, but less than 50% of them are working in the field

In view of the above, it is recommended that;

- Establish Sindh Provincial HR Department with HR Units at district level
- Enhance the health sector leadership capacity for providing the vision and effectively advocating for HRH and the essential HR reforms
- Launch in-service training programs to develop and enhance the management capacity of HR managers and leaders
- Link management and leadership trainings to the career structure of health managers
- Strengthen the capacity of training institutions in terms of qualified staff, quality of education and output capacity

SECTION 1: INTRODUCTION

The health workforce is the most vital pillar of health system. At the core of every health system are health workers. Their knowledge, skills and motivation play a fundamental role in delivering health services to those in need.¹ The adequate numbers and quality of health workers are positively associated with the effectiveness of all other inputs in a health system, which include funds, drugs and diagnostics, equipment and infrastructure; and successful implementation of any health interventions, which include immunization coverage, outreach of primary care, infant, child and maternal survival, etc. The Human Resources for Health (HRH) should not be a mere portrayal in terms of numbers of doctors, nurses, dentists and paramedics, etc., expressed per 1000 population but should also give due consideration to expected demographic and epidemiological transition, equitable distribution, new cadres, proper skill mix and types and nature of services to be delivered.

There is a total global deficit of 2.4 million health workers; and the 2006 World Health Report identified 57 countries facing a health workforce crisis. Each of these countries has less than 23 health workers (doctors, nurses, midwives) per 1000 population - the minimum health worker density needed to deliver essential health care.² Critical shortages, inadequate skill mix and uneven geographical distribution of the health workforce pose major barriers to achieving the health-related Millennium Development Goals (MDGs).

The health workforce consists of all people engaged in actions whose primary intent is to improve health. This includes health service providers, such as doctors, nurses, midwives, pharmacists and community health workers. It also includes health management and support workers, such as hospital administrators, district health managers and social workers, who dedicate all or part of their time to improving health^{1,3}.

In March 2008, the First Global Forum on Human Resources for Health in Kampala, Uganda, issued twelve calls for urgent action to strengthen the health workforce in the 57 crisis countries. Two years later, when the UN Secretary General launched his Global Strategy for Women's and Children's Health, he highlighted the need for stronger health systems, with sufficient skilled health workers at their core.^{3,4}

The demographic and epidemiological transition with double burden of pre and post transitional diseases, compounded with migration and poor human resource management are the major causes of the current human resources crisis.

Pakistan is among those 57 countries that do not have achieved simple HRH targets. In total there are 13937 Health Institutions including 972 Hospitals, 4842 Dispensaries, 5349 Basic Health Units, 595 Rural Health Centers, 909 MCH Centers⁵; 153567 (126931+26636) total Registered Medical Practitioners (Basic & Specialists), 11740 (10920+820) Registered Dental Practitioners (Basic & Specialists) {up to 29th February, 2012}⁶, 73244 Nurses, and 104137 Hospital Beds.

In Pakistan, Doctor Population Ratio is 1:1200, Dentists Population Ratio is 1:16500, and Nurse Population Ratio is 1:2600. The number of Persons per Hospital Bed is 1700, Doctors in urban

¹ http://www.who.int/hrh/resources/strengthening_hw/en/index.html

areas are 85%, and Hospital Beds located in urban areas are 95%. Only 20% births are attended by Skilled Persons.⁷

The country has not only insufficient HRH numbers and quality but also unequal and discriminatory distribution of available HRH. The HRH situation in the province of Sindh is a manifestation of the overall situation in the country. As affirmed by the WHO, without effectively tackling this issue the country is not likely to achieve national health and the Millennium Development Goals.

The absence of appropriate human resources policies is responsible for a chronic imbalance with multifaceted effects on the health workforce: quantitative mismatch, qualitative disparity, unequal distribution and a lack of coordination between HRM actions and health policy needs.⁸

As it is evident that, without a prompt action, the HRH crisis will worsen and the fragile health system will be weakened even further. There is a critical and urgent need for the effective coordination between all stakeholders in the area of HRH to develop a national strategy and cost-effective HRH plan, because the coordination mechanisms in some countries have produced good results for the health workforce.

1.1 INITIATIVES UNDERTAKEN TO IMPROVE PAKISTAN'S HRH PROFILE

A recommendation for the establishment of a Commission to review the HRH problem was made at the National Health Conference held at Islamabad in 2004. The initiative in this regard has been taken only a few years ago.

Establishment of HRH Country Coordination and Facilitation Process: For the formulation of Pakistan's HRH Strategy, Director General at the Ministry of Health, Islamabad, convened a meeting of stakeholders in 2009; where the critical issues of reliable and valid data were highlighted. A countrywide HRH Assessment Study was conducted with the support of WHO. The private sector was also included in the study. The overall purpose was to facilitate the HRH strategy development and the subsequent formulation of a cost-effective work plan.

In 2010, with the support of Global Health Workforce Alliance (GHWA), a Country Coordination and Facilitation (CCF) process was initiated. Health Services Academy (HSA), Islamabad was notified by the MoH as the CCF Focal Institute, and a CCF Core Group was established. After reviewing relevant contextual documents, the CCF process was recommended as an appropriate and useful multi-stakeholder coordination mechanism for Pakistan the country.

Stakeholders' Orientation: To bring together HRH Stakeholders on a single forum for outlining HRH Strategies, a CCF Orientation meeting was held in Islamabad on 31st May 2010. The 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. To facilitate the implementation of HRH activities in the provinces, a consensus was reached during these meetings by the provincial health departments on the notification of an HRH focal person for the CCF Committees.

All these activities of 2010 climaxed in high level meetings at Islamabad in November and at Bhurban in December 2010. These were attended by HRH stakeholders from all the provinces including line ministries, academia, international partners, and regulatory bodies. The CCF principles and process was recognized and agreement was reached on the notification of

provincial CCF Committees. The need for a province specific approach to the CCF was emphasized.

After the approval of the 18th Amendment in the constitution, the health mandate has been shifted from the federal level to the provincial health departments. This has caused an overall damaging impact on the CCF Process in the country.

Stakeholders' Analysis: The stakeholders identified at the federal, provincial and district level in the consultative and consensus building meetings are listed in tables 1 to 3. In addition to these members, the representatives from the private sector, civil society organizations, academic institutions, regulatory bodies and other relevant departments and para-statal organizations were also recommended to be included at the three levels of government.

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

TABLE 2: HRH STAKEHOLDERS AT PROVINCIAL LEVEL

Stakeholder	Role
Chief Secretary	Chairman of CCF at Provincial Level
Secretary Health	Secretary of CCF at Provincial Level
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 PHDC	Member
CEO PRSP	Member
Chairman of all District CCF Committees	Member

TABLE 3: HRH STAKEHOLDERS AT DISTRICT LEVEL

Stakeholder	Role
DCO	Chairman of CCF at District Level
EDO Health	Secretary of CCF at District Level
EDO Finance	Member
EDO Education	Member
MS DHQH	Member
Patient Welfare Society	Member
Health Professional Associations	Member
Director DHDC	Member
District Manager PRSP	Member

1.2 HRH PROFILING IN SINDH

This study was conducted by the Dow University of Health Sciences, Karachi to map and profile HRH in the Sindh province of Pakistan, in collaboration with the WHO Provincial and

Country Office.

1.2.1 PURPOSE OF THE STUDY

Pakistan's health sector is a blend of rural and urban disparities in health; access to health care and its utilization. There are insufficient numbers of nurses, health managers, paramedics and skilled birth attendants. In Pakistan; in addition to public sector, contribution of private sector and para-statal organizations toward HRH is quite huge.

The documentation and collation of the existing information on HRH in the Sindh province will have several applications:

1. It can be the starting point for the provincial health department HRH database and the establishment of HRH information system.
2. This can serve as a bench mark for monitoring of the HRH stock and trends in the province.
3. It can be used to identify critical gaps in HRH production and distribution to strengthen policies, strategies and plans for filling the gaps.
4. This can be used to identify areas for research and further studies.

The overall aim of the study was to provide information regarding HRH in Sindh for the development of HRH strategy framework and costed plan. The ultimate purpose is to improve the HRH situation in the Sindh province to achieve the country's national health goals and MDGs.

STUDY OBJECTIVES

1. To collect and collate data of different categories of health workers in Sindh province and identify critical gaps.
2. To identify HRH training and continuing professional development programs and institutions in the province.
3. To document the number of health care professionals migrating out of Sindh to other countries.
4. To formulate recommendations for policy makers, managers and other key stakeholders for reducing the HRH deficiencies and enhancing the effectiveness of the health workforce.

1.2.2 METHODOLOGY

A meeting of the WHO representatives and a team from Dow University of Health Sciences (DUHS) led by the Vice Chancellor (VC) was held to discuss HRH profiling for Sindh. The

WHO representatives explained the basic concept for HRH profiling to VC of DUHS. The concept was approved and understanding was developed to carry out this project by DUHS. Later on, another meeting was arranged on 10-04-2012 by the Health Department of Sindh. This meeting was attended by the Special Secretary (PH) and Additional Secretary / Chief HSRU, Department of Health, and representatives from the WHO, USAID and DUHS. After a detailed discussion, the task of HRH profiling for Sindh was officially assigned to the DUHS. In this regard, a notification was issued by the Health Department of Sindh. A team of investigators, who are all faculty members of DUHS, was developed with the endorsement of the VC to build on the research protocol, data collection tools and other related documents.

CONCEPTUAL FRAMEWORK FOR THE SINDH HRH PROFILE REPORT

Given the guidelines by the WHO representative with the clear-cut objectives of this exercise, the team developed a broad-based framework for collection of data keeping in view of local perspective of Sindh province.

It was decided to contact all the departments/section of Federal and Sindh government agencies that are connected in HRH. They could be Sindh Health Department, Office of the Director General of Health of Sindh, Regulatory Authorities and Professional Institutions, Medical Colleges and Universities (both private and public), Hospitals of respected sizes, Nursing Council, Sindh Employees' Social Security Institution, Pakistan Railway, WAPDA, etc.

STUDY POPULATION

All the important categories that could possibly be in HRH in different institutions of private, government, semi-government and corporate sectors were included in the data collection instrument.

DATA COLLECTION PROCEDURE

Under the guidance of Vice Chancellor of DUHS the data collection / organization team was developed which comprises one Principal Investigator (PI), two Co-Principal Investigators (CoPI), three Research Associates (RA) and Liaison Officer (LA). Since the Liaison Officer is also the Principal Secretary of the VC, hence he has vast contacts with almost all the public and private institutions and organizations. It took some time to get authority letter from Department of Health, Sindh to collect the data. The actual project was started in May 2012.

A data collection instrument was developed containing, mostly quantitative information with some categorical responses. These variables were developed keeping in view changeable nature of data expected to obtain from different institutions. Secondary data were obtained from reliable sources of record maintained by government and semi-government institutions.

The PI and Co-PIs were also involved in data collection. Phone calls were made to office of the Head / Chief of the department / organization by the Liaison Officer and Principal Investigator of the project and focal persons were identified in each organization. The letters from PI and VC, Sindh Health Department and Performa were sent through courier to each organization. Repeated visits and reminding calls were made by the LO, PI, Co-PI and RAs to collect the information.

The collected information was transferred to Data Management Unit to enter into computer. The Data Management Unit had developed the Excel program to enter the information which was easily transferable into SPSS program, under the guidance of one of the Co-PIs who is a senior Biostatistician at DUHS. The analysis was carried out using SPSS.

1.2.3 SOURCE OF INFORMATION

For the purpose of data collection, the following institutions / departments were contacted.

A. Public Sector Academic Institutes

1. Dow University of Health Sciences Karachi (1. Dow Medical College 2. Dow International Medical College 3. Sindh Medical College 4. Dr Ishrat-ul-Ibad Institute of Oral Health Sciences)
2. Karachi Medical & Dental College
3. Liaquat University of Medical & Health Sciences, Jamshoro
4. Peoples University of Medical & Health Sciences for Women
5. Shaheed Benazir Bhutto Medical College, Lyari, Karachi
6. Shaheed Mohtarma Benazir Bhutto Medical University (1.Chandka Medical College, Larkana 2.GM Mahar Medical College, Sukkur)

B. Private Sector Academic Institutes

1. Al Tibri Medical College, Karachi
2. Altamash Institute of Dental Medicine, Karachi
3. Bahria University Medical & Dental College, Karachi
4. Baqai Medical University, Karachi
5. Fatima Jinnah Dental College, Karachi
6. Hamdard University, Karachi
7. Isra Medical University, Hyderabad
8. Jinnah Medical and Dental College, Karachi
9. Liaquat College of Medicine & Dentistry, Karachi
10. Liaquat National Medical College, Karachi
11. Muhammad Medical College, Mirpurkhas
12. Sir Syed College for Medical Science for Girls, Karachi
13. The Aga Khan University Medical College, Karachi
14. Ziauddin Medical University, Karachi
15. Dental Section, Bhattai Dental & Medical College, Mirpurkhas
16. Dental Section, Muhammad Bin Qasim Medical & Dental College, Karachi

C. Para-statal Organizations

1. Crew Medical Centre PIA, Karachi
2. Karachi Electric Supply Corporation
3. Karachi Port Trust
4. Pakistan Railways
5. Pakistan Steel Mills
6. WAPDA

D. Private Sector Hospitals

E. Government (Provincial & Federal) Departments / Institutes

1. Health Department, Government of Sindh
2. Planning Division, Health Department, Government of Sindh

3. Director General Health Services Sindh, Hyderabad
4. Sindh Medical Faculty, Karachi
5. Sindh Nursing Board, Karachi
6. Pakistan Medical & Dental Council, Islamabad
7. Pakistan Nursing Council, Islamabad
8. Sindh Employees Social Security Institution, Karachi
9. Protector / Overseas Employment Corporation

All of the Public Sector Academic Institutes responded positively and provided the required data, but some of the Private Sector Academic Institutes, Para-statal Organizations and Private Sector Hospitals, despite frequent contacts and visits by the team, did not cooperate to provide the requested information.

SECTION 2: SINDH PROVINCIAL CONTEXT

2.1 GEOGRAPHY

Sindh province is located at the South Eastern part of Pakistan, bounded by the Thar Desert to the east, the Kirthar Mountains to the west, and the Arabian Sea in the south. In the centre is a fertile plain around the Indus River. Historically Sindh is home to the Sindhis. Different cultural and ethnic groups also reside in Sindh including Urdu-speaking Muslim Indians who migrated to Pakistan from India upon independence as well as the people migrated from other provinces after independence. Sindh is linked with Baluchistan in the west and north, Punjab in the north, Gujarat and Rajasthan of India in the southeast and east, and the Arabian Sea in the south. Geographically it is the third largest province of Pakistan, stretching about 579 km from north to south and nearly 442 km in its extreme breadth (281 km average). It covers more than 160 thousand square km and is about as large as England.

Sindh lies in a tropical to subtropical region. Temperatures frequently rise above 46⁰C between May and August; and the temperature sometimes goes to 2⁰C during December and January in the northern and higher elevated regions. The average annual rainfall is about seven inches, falling mainly during July and August. The southwest monsoon wind begins to blow in mid-February and continues until the end of September, whereas the cool northerly wind blows during the winter months from October to January. Sindh lies between the two monsoons - the southwest monsoon from the Indian Ocean and the northeast or retreating monsoon, deflected towards it by the Himalaya Mountains - and escapes the influence of both. The region's scarcity of rainfall is compensated by the inundation of the Indus twice a year, caused by the spring and summer melting of Himalayan snow and by rainfall in the monsoon season.

Sindh is divided into three climatic regions: Siro (the upper region, centred on Jacobabad), Wicholo (the middle region, centred on Hyderabad), and Lar (the lower region, centred on Karachi). The thermal equator passes through upper Sindh, where the air is generally very dry. Central Sindh's temperatures are generally lower than those of upper Sindh but higher than those of lower Sindh. Dry hot days and cool nights are typical during the summer. Central Sindh's maximum temperature typically reaches 43-44⁰C. Lower Sindh has a damper and humid maritime climate affected by the southwestern winds in summer and northeastern winds in winter, with lower rainfall than Central Sindh. Lower Sindh's maximum temperature reaches about 35-38 ⁰C. In the Kirthar range at 1,800 m (5,900 ft) and higher at Gorakh Hill and other peaks in Dadu District, temperatures near freezing have been recorded and brief snowfall is received in the winters.⁹

2.2 DEMOGRAPHY

Sindh is divided into 23 districts. It is second largest province of Pakistan. The Province comprises of 23% of Pakistan's population and 18% of its land area. It has the highest

concentration of urban population at 49% as compared to an overall country average of 33%, making it the most urbanized province in the country.¹⁰

Sindh's capital Karachi is not only the most populous metropolis of the country, but also a commercial hub.



For language, Sindhi speakers make up 59.4%; Urdu 21.0%; Pashto 4.2%; Punjabi 7.0%; Gujarati/Memni 3.0%; Baluchi 2.1%; Seraiki 1.0% and others 2.3%. Other languages include Kutchi, Khovar, Thari, Persian/Dari and Brahui.

Sindh's population is mainly Muslim (91.3%), but Sindh is also home to nearly all (93%) of Pakistan's Hindus forming 7.5% of the province's population. Smaller groups of Christians (1.0%), Ahmadi (0.1%); Parsis or Zoroastrians, Sikh and a tiny Jewish community (of around 500) are also settled in the province.¹¹

According to 1998 census,¹² the total population of Sindh was more than 30 million; but the recent reports show that the number has crossed 55 million. This means, in 24 years the population has increased by around 83 percent. The maximum increase in crude number is seen in Karachi, where more than 11 million people are added with the increase of 114.5% from 1998 census. The maximum increase in percentage wise (129.4%) can be observed in Hyderabad district, where about 2 million people have been added during 24 years. Other than these two districts, Jacobabad and Jamshoro districts have also seen a 3 digits increase in percentage during this quarter of the century. Those increments are 11.4% and 102.2% respectively. The lowest rise is seen in Sanghar district with an increase of 31.1% only.¹³

Table 4 portrays the district-wise population of Sindh from 1998 to 2012.

TABLE 4: DISTRICT-WISE POPULATION OF SINDH FROM 1998 TO 2012

District	Census 1998 (‘000)*	2008 (‘000)	2009 (‘000)	2010 (‘000)	2012 (‘000)	% Increase from 1998 to 2012
Jacobabad	742	978	1005	1033	1569	111.4
Kashmore	684	901	926	952	1207	76.5
Shikarpur	887	1170	1202	1236	1347	53.0
Larkana	1003	1322	1359	1397	1563	55.9
Kamber Shahdadkot	924	1218	1252	1287	1488	61.0
Sukkur	901	1188	1221	1256	1383	52.3
Ghotki	971	1279	1315	1352	1512	55.8
Khairpur	1547	2038	2096	2154	2321	50.0
Naushahro Feroze	1088	1433	1474	1515	1622	49.1
Nawabshah	1103	1453	1494	1536	1585	48.0
Dadu	1107	1459	1500	1542	2074	87.4
Jamshoro	582	767	789	811	1177	102.2
Hyderabad	1499	1976	2031	2088	3429	129.4
Tando Allahyar	468	617	635	652	772	59.5
Tando M. Khan	441	581	598	614	620	51.6
Matiali	515	679	698	718	738	46.5
Badin	1104	1455	1496	1538	1840	62.0
Thatta	1113	1467	1508	1551	1819	63.4
Sanghar	1325	1746	1795	1845	1905	31.1
Mirpurkhas	1001	1320	1357	1395	1483	63.8
Umerkot	665	876	901	926	954	43.9
Tharparkar	914	1205	1239	1273	1694	85.2
Karachi	9856	12991	13355	13729	21142	114.5
Total	30440	40119	41246	42400	55244	

*www.sindhpn.gov.pk

The Literacy Ratio of Sindh is 45, and Population Density is 213 people/km².^{12,14}

Table 5 shows the population of Sindh, categorized by gender and age-groups (census 1998). Male to female ratio is about 53:47. Percentage distribution indicates that more than 30% of the population is under 10 years of age and 55% of the population is under 20 years of age. Furthermore, comparison of percentage of males and females shows that young females are higher than young male population.

TABLE 5: AGE-GROUP AND GENDER-WISE POPULATION OF SINDH¹⁵

Age group	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
0 – 4	2,331,091	14.5	2,233,525	15.6	4564616	15.0
5 – 9	2,494,529	15.5	2,226,065	15.5	4720594	15.5
10 – 14	2,035,091	12.6	1,695,931	13.0	4261156	12.8
15 – 19	1,654,532	10.3	1,540,915	10.7	3195447	10.5
20 – 24	1,490,239	9.3	1,429,986	9.8	2920225	9.5
25 – 29	1,310,610	8.4	1,139,271	7.9	2449881	8.0
30 – 34	1,079,972	6.7	883,416	6.2	1963388	6.4
35 – 39	803,179	5.0	683,119	4.8	1486298	4.9
40 – 44	729,619	4.5	673,983	4.6	1403602	4.5
45 – 49	584,578	3.6	497,910	3.5	1082488	3.5
50 – 54	504,590	3.1	423,719	3.0	928309	3.0
55 – 59	327,071	2.0	264,355	1.8	591426	1.9
60 – 64	301,600	1.9	258,295	1.8	559895	1.8
65 – 69	166,388	1.0	137,966	1.0	304354	1.0
70 – 74	143,391	0.9	123,136	0.9	266527	0.9
≥ 75	141,111	0.9	130,710	0.9	271821	0.9
Total	16,097,591	52.9	14,342,302	47.1	30,439,893	

2.3 POLITICAL CONTEXT

Pakistan is a federal republic with Parliamentary form of democracy. The existing constitution was prepared by consensus in 1973 and up till now 20 amendments have been done in the constitution. Parliament comprises of two houses; the Senate and the National Assembly at the federal level and provincial assemblies at the provincial level. The citizens of 18 years age and above are eligible to vote. There are reserved parliamentary seats for women and non-Muslims. In Sindh, 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.

The 18th Amendment has made fundamental changes to federal and provincial authorizations through changes in the legislative lists. It has granted 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. In total, 18 federal ministries have been devolved including health, population welfare and drug regulatory functions. The main health regulatory bodies including the Pakistan Medical & Dental Council, Pakistan Nursing Council, Pakistan Pharmacy Council, National Council of Homeopathy and National Council of Tibb continue to function at the federal level.

Because of greater autonomy, the provinces are authorized to develop their health and HRH strategies. This was formerly not their mandate, and at present they are deficient in the required capacity to assume it efficiently. The provinces need technical assistance and support for developing provincial plans and policies.

Managing the inter-provincial policy coordination and uniformity has become a challenge with the devolution of the vertical programs. For these restructured programs at the provincial level, now there is a need for harmonization of quality, standards at the programmatic level in order to facilitate integration. It is mandatory to redefine the roles, responsibilities and HR requirements for the devolved vertical programs; revise the costs involved; and establish crucial linkages.

The provinces vitally need to engage with development partners and coordinating efforts for tapping donor support, a function that was previously treated at the federal level. The federal government, at the other hand, is also required to establish institutional mechanisms to promote inter-provincial harmony; develop quality standards and guidelines that need to be articulated to the provinces and are essential for achieving the desired inter-provincial consistency and avoidance of unnecessary duplication.

2.3 ECONOMIC CONTEXT

Sindh, Pakistan's second largest province plays a central role in the national economic development. The GDP per capita of Sindh was \$1,400 in 2010 which is around 50% more than the rest of the country or 35% more than the national average. Sindh's contribution to national GDP is around 33%. Its share in the service sector has ranged from 21% to 27.8% and in the agriculture sector from 21.4% to 27.7%. Performance wise, its best sector is the manufacturing sector, where its share has ranged from 36.7% to 46.5%.¹⁶ Sindh collects 70% of Pakistan's Income Tax and 62% of Sales Tax.¹⁷

The country's largest port city, Karachi, is the financial capital of the country. Sindh has a highly diversified economy that ranges from heavy industry and finance centered in and around Karachi to a substantial agricultural base along the Indus.

Sindh has 54% of country's textile units, 45% of its sugar mills, 20% of pulp & paper mills and 35% of edible oil processed locally. Sindh accounts for 34% of total industrial capacity in large scale manufacturing and 25% of small scale manufacturing. In Sindh, agriculture has a vital role, and around 14% wheat, 30% rice, 30% sugar cane, 25% cotton and 30% vegetable crops grown in Pakistan are from Sindh.

Sindh is the richest province in natural resources of gas, petrol, and coal.¹⁸

For Pakistan being a developing nation, the proportion of GDP allocation of four to six per cent for health sector is expected. But unfortunately, the health and education sectors have been horribly neglected. Pakistan spent only 1.7 percent of its GDP on education, which was quite insufficient to ensure an ambitious academic revolution.¹⁹ The percentage of GDP being allocated towards health has declined from 0.72% in the fiscal year 2000-01 to 0.27% in the year 2010-11. The health sector will receive only 0.2% (Rs.7845 million) from the federal budget of 2012-13.²⁰ The budget allotted to the health sector is not fully utilized and a gap of 15 to 20 per cent between allocation and expenditure still exists.²¹ The health expenditure per capita is \$48.²² The Sindh health department allocated Rs11 billion in the provincial health budget for 2012-13.²³ Pakistan spent an average of Rs.260 per person on healthcare as compared to the Rs.485 it spent per person on maintaining law and order during the first half of the current fiscal year of 2012-13. Punjab's spending on healthcare increased 41%, KPK's 42%, and Baluchistan's increased 30% against the previous year; while Sindh's expenses declined by 6.4%.

Punjab spent Rs. 24.8 billion on healthcare, or 41% higher than the comparative period, KPK spent Rs.5.7 billion (42% higher), and Baluchistan spent Rs.2.9 billion (30% higher); while Sindh spent Rs.10 billion on healthcare, or 6.4% less than what it spent in the first half of the last fiscal year.²⁴

SECTION 3: HEALTH SYSTEM PAKISTAN

A health system consists 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. A Health Care System is a part of a health system and is not a health system in isolation. The system comprises of the Public and Private Health Care Systems.

Pakistan has a wide network of healthcare infrastructure, including 972 hospitals, 5349 Basic Health Units (BHUs), 595 Rural Health Centers (RHCs), 4842 Dispensaries, 909 Maternal and Child Health (MCH) Centers and 288 TB Centres.^{5,25} The utilization of this well-built infrastructure has been very low due to inadequate funding, lack of resources and poor management²⁶; only 0.5-0.6% of GDP is spent on health.²⁷

The World Health Report 2006 has identified Pakistan as one of 57 countries with critical health workforce deficiency.² This scarcity is further worsened by the absence of a well-defined policy on human resource development, lack of proper in-service training, very few numbers for certain categories of health professionals, emigration of skilled personnel and urban-rural misdistribution of workforce.²⁸ The government has introduced a devolution plan in the year 2000 to address these issues for reforming all social sectors, including health.²⁹ In pursuance of this plan, administrative and financial powers were transferred to districts of all the provinces through an ordinance in 2001.

The overall goal of devolution in the health sector was to enhance the financial and management authority at district level to improve service delivery and increase healthcare utilization at grassroots level.³⁰ This is being taken as an opportunity of providing primary healthcare to all and achieving the Millennium Development Goals 2015.³¹ It also has paved a way for integrating the vertical programs, facilitating the inter-sectoral collaboration and promoting public-private partnership.³² The concept of devolution augments accountability at local level and advances service delivery.³³

The health status indicators of Pakistan are among the unfortunate both regionally and globally. The health indicators have shown sluggish improvement over the past few years and it is unlikely that Pakistan will achieve health-related MDGs within the deadline. According to statistics of Pakistan Demographic and Health Survey 2006-07, contraceptive prevalence rate (30% to 32%) and total fertility rate (3.9% to 4.1%) remained stagnant from 2003-06.³⁴ Improvement on child and maternal mortality has not been satisfactory. The infant mortality rate has remained stagnant on 78/1000, while maternal mortality has shown slow decline from 350/100000 in 2001 to 275/100000 in 2007.³⁵

The people of Pakistan suffer a double burden of diseases i.e. increase in non-communicable diseases besides to the continuing high prevalence of communicable diseases and malnutrition. The major contributors to the population's double disease burden are diarrhea, childhood infections, malaria, tuberculosis, hepatitis B & C and life style diseases including diabetes, hypertension, ischaemic heart disease and trauma and injuries. Mental health problems and disabilities also add to the population's disease burden.³⁶

3.1 GOVERNANCE

Pakistan stands at low on the indicators of political stability, government effectiveness, rule of law and control of corruption in comparison to its counterparts. The public health sector ranked 3rd among the ten most corrupt sectors of Pakistan in 2009, 7th in 2010 and 8th in 2011, as per Transparency International Pakistan ranking for perceived corruption.³⁷ The suboptimal performance of the health care system replicate the weak governance of the country. Pakistan has very poor health status indicator not only globally but regionally also. The policies are inefficiently conceptualized and inadequately implemented.²⁵

The stewardship of the health care system was responsibility of the Federal Health Ministry, before the adoption of the 18th amendment to the constitution, and the provincial health departments had the responsibility of implementing the policies and programs developed at the federal level. First health policy of Pakistan that was announced in 1990 could not be implemented. Second health policy was announced in 1997 focused PHC which guided the development of the health care system. In 2001 the country's third health policy was announced and is still operative. This policy also has the "Health for All" goal as its vision and PHC strengthening as its focal strategy. 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 devolution of health to the provinces in 2010, the draft 2009 health policy has been deferred and the provinces are in the process of developing their individual health policies and strategies.

To improve the country's health status indicators, in addition to the overall governance issues, the health care system needs certain other critical gaps to be addressed. These include lack of use of systematically acquired evidence in policy and management, little intra and inter-sectoral collaboration and coordination and ineffective community participation. There is a lack of research culture in Pakistan, and the health sector leadership has not yet fully recognized the role of research and evidence in health care system development in the country. They also not recognized the roles of all the different stakeholders in health. Because of these gaps, the health services delivery system is functioning in isolation from the other segments of the health system entirely focusing on the medical and technological needs of health care and disregarding the social determinants of health and the role of other sectors and the community in the system.

3.2 HEALTH STATUS SINDH (go to context)

Sindh is the second most populous province of Pakistan with the highest growth rate of 2.8% in the country and has an estimated 55 million population, excluding around 3-4 million Afghan refugees.³⁸ The population composition is unusual with approximately 53% residing in rural areas and 47% in urban areas; the latter due to high rate of in-migration from across the country contributing to the highest growth rate of 3.2% in Pakistan. This has made the province vulnerable to socio-demographic challenges of both rural and urban populations. The social indicators are particularly very poor in rural population falling below the average for rural Pakistan and are closer to province of Baluchistan.

For health indicators, Sindh lags behind to both national as well as international figures. It spends just \$18 per capita when the recommended figure is \$34.

TABLE 6: SITUATION OF HEALTH INDICATORS

Indicators	Present Status Pakistan	Present Status Sindh	2012 MNCH Targets	2015 MDG Targets
Infant Mortality Rate	78/1000 LB	81/1000 LB	55/1000 LB	40/1000
<5 Mortality Rate	94/1000 LB	101/1000 LB	65/1000 LB	45/1000
Neonatal Mortality Rate	44/1000 LB	53/1000 LB	<40/1000 LB	25/1000
Maternal Mortality Ratio	275/100,000 LB	320/100,000	200/100,000	140/100000
Births attendant by SBAs	39%	44%	70%	90%
Total Fertility Rate	4.1%	4.3%	3.1	2.1
Proportion of Antenatal Care	61%	70%	> 90%	100%
Proportion of Postnatal Care	35%		> 90%	100%
Contraceptive Prevalence Rate	30%	27%	51%	55%
Institutional Deliveries	34%	42%	>70%	>90%
Women Receiving 2≥ TT Doses during Last Pregnancy	53.4%	51.2%	> 90%	100%

Sindh's IMR of >81 deaths per 1000 live births is extremely high compared to regional figures of IMR of 48 in India, 38 in Bangladesh and 14 in Sri Lanka, while Neonatal Mortality Rate has actually increased from 44 to 53 over the last decade. In Sindh, a drop in maternal mortality has been seen in Sindh from 350 in 2003 to 320 in 2006-07, however it remains much higher than the national MMR of 260 and regional figures of 100 as seen in Sri Lanka.^{39,40} There is a sub-optimal coverage of maternal services in Sindh with only two thirds of pregnant women receiving antenatal care, less than half delivering at health facility, while only a third receive post natal care.⁴¹ This is an alarming situation and thorough efforts are needed for MNCH particularly in rural Sindh where maternal and child health service coverage is inconsistent due to poorly functional basic and emergency facilities, lack of female staff and client incapacity to pay the expenses for transport, drugs and services.⁴² Immunization coverage has seen a slow increase

with existing BCG coverage at 76%, Measles at 51% and Polio at 84%. Under nutrition is also a serious issue with higher level of anemia and underweight children than other provinces. Sindh also is the most food deprived amongst other provinces with 72% of population facing food insecurity.⁴³

Contraceptive Prevalence Rate (CPR) is low and sub-optimal at 27% in Sindh, falling behind national average of 30%, and much behind CPR of regional Muslim countries such as 44% in Bangladesh and 73% Iran. CPR is particularly very low in rural Sindh at 11% close to figures of rural Baluchistan. Fertility reductions as seen in urban areas are mainly due to increased age of marriage rather than the use of contraceptive services. Contrary to common perceptions, cultural beliefs is not the major factor for non-usage of contraception in Sindh; unmet need is high with 63% of non-users wanting to use contraceptives but stuck by lack of information or insufficient access. A forward move in CPR may be achieved by meeting the unmet need through client responsive services.³⁹

Population Welfare Department of (PWD) has the main responsibility for contraceptive services but has shown a low output. They mainly have focused on sterilization of older women who have completed their parity rather than modern methods in younger couples which can bring higher impact. Department of Health (DoH) is the main provider of contraceptives followed by private sector and retail outlets. The PWD's role needs to be re-checked and moved from direct service delivery to supply of subsidized contraceptives to other providers, information provision and social marketing.³⁹

There is a need for an appropriate vector control strategy as Malaria incidence is on the rise and has coincided with outbreaks of dengue fever. TB is believed to be endemic,⁴⁴ case detection at 57% needs further improvement while treatment success rate of 87% is above national target. There is a high prevalence (3-4%) of Hepatitis B & C, but the maximum vaccination coverage is 14-15% in the best performing districts.

Sindh, like rest of Pakistan is passing through the demographic transition. There are high levels of Non Communicable Disease particularly in the urban areas with earlier age of onset, which badly affects the economically productive population.⁴⁵ Ischemic heart diseases account for the major share of disease burden with 40% of adults > 40 years in urban Sindh being hypertensive of which only 3% are adequately controlled; while diabetes level is 16.5% in urban and 13% in rural areas. Mental ill health accounts for the next leading share; a significant rise has been found due to inflation, crime and terrorism. Chronic obstructive lung disease and cancers make up the remaining burden with one of the highest global rates of particulate air pollution and breast cancer rate reported from Karachi. At present there is no strategy for NCD control and efforts are concentrated at the costly tertiary level.⁴⁶⁻⁵²

3.3 HEALTH care delivery SYSTEMS SINDH

In Sindh, the public health sector is poorly utilized in both urban and rural areas; it is at 22% compared to 29% in rest of the country.⁴¹ There is a well-designed district health system in rural areas, but frontline facilities and even several secondary care Taluka hospitals are not properly utilized due to continual issues of staff retention particularly of female staff, very frequent drug shortages, and poor maintenance of equipments and building.⁵³

The People's Primary Healthcare Initiative (PPHI) administratively controls primary healthcare (PHC) facilities (BHUs, MCH Centers, Dispensaries) in almost all districts and has recently started expansion to RHCs. The BHU functionality, maintenance, availability of drugs, and midwifery staff has improved but not of Medical Officers; facility utilization has increased while outreach MCH coverage needs increase.

The Lady Health Workers (LHWs) Program is an imperative program of DoH for community interventions but has coverage of only 20-40% in at least 6 districts and is in need of firm field based supervision in all the districts.

3.3.1 PRIVATE HEALTH CARE SYSTEM

The private health sector constitutes a varied group of doctors, nurses, pharmacists, health technicians, traditional healers, drug vendors, as well as shopkeepers and unqualified practitioners. The most important providers of out-patient care in private sector are the stand-alone clinics all across Pakistan; and majority of the private sector hospitals are run in sole proprietorship or partnership model of organization.²⁸

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.

The economic census listed 96430 health providers in the country, approximately 25000 belonging to the government and semi government organizations and 70000 to the private health sector. Sindh has the largest concentration of organized private sector as 59% of all private sector hospitals in Pakistan are located in Karachi.

Private sector is the major provider of primary, secondary, diagnostic, pharmacy and ambulance services, while public sector dominates in provision of tertiary care for low income groups.⁵⁴⁻⁵⁶

Private health sector provides 78 percent of general consultation services in Sindh, catering to all income groups. This is due to availability of functional services and patients perception of better quality of care.⁴¹ It comprises a wide mix of providers including hospitals, specialists, general practitioners, nurses, paramedics, homeopaths and hakims; for-profit and non-profit organization; and academia. Sindh has the largest concentration of individual practitioners, private sector medical and diagnostic facilities, health related NGOs and private medical, dental, public health and nursing colleges.

Dual jobs between private and public health sector: The health care providers (HCPs) employed in public sector generally work in private for-profit, non-profit and NGO run health facilities on part time basis. The main reason of absenteeism in public sector facilities is the HCPs responsibilities at the place of second job. Furthermore, late arrival and early departure, and frequent and long breaks lead to lower efficiency and output. The bitter facts of staff

absenteeism and dual jobs are the most serious issues of public health systems, which weakens the service delivery and leads to closed/under- utilized public health facilities.⁵⁷

3.3.2 PUBLIC PRIVATE PARTNERSHIPS

There is most active private health sector market in Sindh. Though duplication of private and public services is common, yet there is no strategy for Public Private Partnerships (PPPs). So far philanthropic funding for public sector facilities has been involved as PPPs model, which is well established in the urban hospitals and gradually extending to very few well performing hospitals in rural areas. This could be of a further benefit through introducing sustainability and accountability mechanisms.

There is a little recognition and practice of other models including purchasing health services from private sector as well as training, certification and regulation of private health sector. The for-profit private sector has wide variability of quality of care with flourishing of quackery and shadow pharmacies, requiring regulations of services; while the non-profit medical providers enjoy tax exemption for providing subsidized health services, requiring regulation of both user charges and services. The DoH has no focal body for regulations, where provider registration data is inconsistent, and there is lack of orientation to participatory and incentive based regulatory practices.

Outsourcing of PHC services to non-governmental organizations (NGOs), in recent years has been tried with successful results in some countries.⁵⁸ The government of Sindh also initiated the PPHI in 2008 and the management of 526 BHUs in 17 districts was transferred to SRSOii/PPHI. The review report of PPHI suggests that availability of doctors and healthcare staff has improved and non-functional BHUs have been made functional.⁵⁹ Now, in total 907 different health facilities have been contracted-out to PPHI.⁶⁰

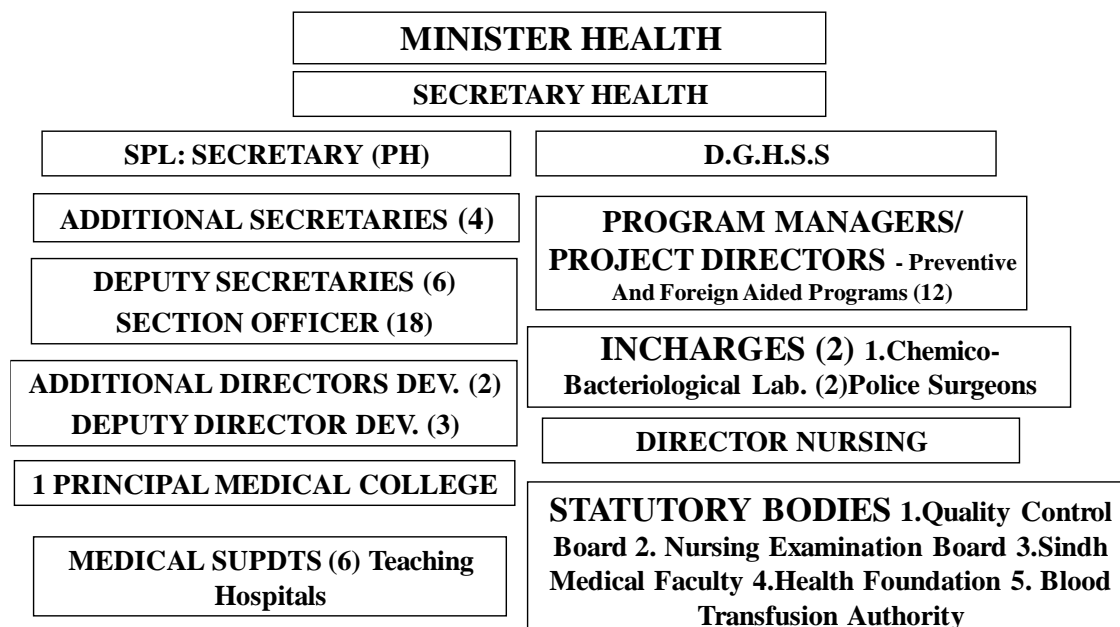
3.3.3 PHARMACEUTICAL SECTOR

The maximum out of pocket expenditure in the province is spent on drug purchase across both public and private sector health facilities. In the DoH, there is no single body that can bring together the drug regulatory and drug management functions. There are around 15000 drug outlets in Sindh, where majority do not meet licensing criteria. There is also poor availability of low cost generics and very common flooding of forged drugs. The drugs are very frequently used irrationally by HCPs with unnecessary number of drugs per prescription, excessive use of expensive originator brands and soaring use of injections. In public health sector, the supply management is poor with availability of essential generics for acute care medicines at 30-67% and essential chronic care drugs at 3-57%, the purchased drugs are of low quality and there is inadequate accountability in stock management. The production of pharmacists is extremely low and 70% of pharmacists produced are working in industry rather than in service delivery, and are particularly deficient in public sector hospitals.

3.4 DEPARTMENT OF HEALTH SINDH

The Minister for Health provides the strategic vision and policy level decision making for provision of health services in the province. Secretary being Principal Accounting Officer is responsible for overall operation of Department, supported by One Special Secretary (Public Health), four Additional Secretaries each heading Administration, Development, Public Health, Procurement and Monitoring Inspection wing. The role of Director General Health in Pre 2001 was prominent such as over-sighting the service delivery at primary and secondary levels, vertical programs, HMIS and coordinating channel between districts and province. However, after Sindh Local Government Ordinance (SLGO) 2001, office of the Director General Health is restricted to coordination between province and districts solely focusing vertical programs.⁶¹

ORGANIZATION OF HEALTH DEPARTMENT



In Sindh, health care services are delivered through a large network of Primary Health Care (PHC), Secondary Health Care and Tertiary Health Care level facilities located in the Province. The PHC services are provided through Basic Health Units (BHUs), Dispensaries, Maternal and Child Health (MCH) Centers, Maternity Homes and Rural Health Centers (RHCs).

Dispensaries do not have any fixed location or population coverage. BHUs are located in rural areas covering a population of about 15000-25000. BHU is the first point of contact for facility-based health care. The services provided at BHU include first level curative, MCH, family planning and preventive services. For every 4-5 BHUs, one RHC is established as a second level of referral. RHCs provide more extensive outpatient services and some inpatient services. RHCs serve a catchment population of about 50,000 to 100,000 people. These have 10-20 beds for

indoor medical care, x-ray, laboratory and minor surgery facilities. 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.

Pakistan has one of the largest network of first level health care facilities and infrastructure for providing PHC at the doorstep. However utilisation of these facilities is sub optimal resulting in a high cost of care at these facilities

The specific problem-oriented programs such as Expanded Program on Immunization, Control of Diarrheal Diseases Program, AIDS Control Program and Training of Lady Health Workers Program etc are also in operation for the prevention of communicable diseases.

Secondary health care level services are provided through Taluka Head Quarter (THQ) Hospitals, District Head Quarter (DHQ) / Civil Hospitals and other major hospitals.

The THQs have a catchment population of about 100,000 to 300,000 each and 40-60 indoor beds. Staff includes at least three specialists: an obstetrician & gynecologist, a pediatrician and a general surgeon. Diagnostic facilities include x-ray and laboratory

The DHQ serves catchment populations of 1 to 2 million and typically have about 100-150 beds. Staff include at least 8 specialist including obstetrician and anesthetist.

Advanced specialist or tertiary level care is provided through Teachings Hospitals and specific disease-oriented institutions such as Institutes for Chest Diseases, Skin Diseases, Psychiatry and Urology.⁶²

The Sindh Department of Health currently has more than 5,000 Doctors 2,500 Nurses and over 5,000 paramedics serving all over the province. The huge network consists of total 1468 functional (F) and 285 under construction (U) hospitals and health facilities. These include 6 Teaching Hospitals, 5 Specialized Institutions for chest, dermatological and mental illness, 11 Civil / District Headquarters Hospitals, 26F & 3U Major Hospitals located in the major cities, 43F & 7F Taluka hospitals, 106F & 13U RHCs in small towns, 773F & 90U BHUs in Union Councils, 377F & 133U Dispensaries in larger Union Councils, 37F & 5U MCH Centers, 19F & 21U Maternity Homes, 5F & 2U Urban Health Centers, 16F & 7U Urban Health Units, 3 Sub-Health Centers, 24F & 1U Unani Shafa Khanas, 1F & 3U Homeo Dispensaries, 1 Trauma Emergency Centre and 15 Leprosy Clinics. The Rural facilities are usually ill equipped, understaffed, and under-utilized.^{60,61}

There is a striking urban bias for health facilities and hospitals in both the public and private sectors, with little linkages between the two segments. Therefore, a cadre of Lady Health Workers was established at the grassroots level in 1994, in order to ensure that health education, reproductive health, vaccination, control of diarrhea and other communicable diseases, promotion of safe water and sanitation and other dimensions of PHC could be made easily accessible to the local community. The LHWs are middle level educated, preferably married and residing in the catchments areas, which they serve. They are subsequently trained enabling them to provide preventive, promotive and simple curative care. In Sindh, 22505 Lady Health Workers (LHWs) and 754 Lady Health Workers' Supervisors are working in the field.^{60,61}

In Sindh, there are 57 institutes for General Nursing. The Nurse Mid-Wife, Pupil Mid-Wife and Community Mid-Wife institutes are 29, 18 and 37 in number respectively. There are five Public Health Schools for Lady Health Visitors.^{62,63}

The province has five medical universities. These are Dow University of Health Sciences, Karachi (two medical and two dental colleges) Liaquat University of Medical & Health Sciences, Jamshoro (one medical and one dental college), Peoples' University of Medical Sciences for Women, Nawabshah (one medical college), Shaheed Mohtrama Benazir Bhutto Medical

University, Larkana (two medical and one dental college) and Sindh Medical University, Karachi (one medical college). One medical college is under control of Health Department Sindh, and another medical & dental college is being run by Karachi Metropolitan Corporation (KMC). In total, there are 21 Medical (9 public & 12 private) and 16 Dental (5 public & 11 private) colleges.^{61,64}

3.4.1 HUMAN RESOURCES POLICY

At present there is no comprehensive strategy for staff production, postings and training. Production of doctors is high and there has been continued growth in number of both private and public medical colleges. Conversely production of pharmacists, nurses and female paramedics is low and quality of training needs improvement. Positive steps towards the introduction of a new cadre of community midwives have been taken, but deployment needs to be accelerated. The LHWs Program is very crucial program of DoH for community interventions but has uneven coverage across districts of the province and also lacks a cross-sectoral strategy of motivation and incentives for female education and recruitment in rural areas. There is a desperate need to create further posts for urban slum and low income areas.

The district health systems of the public health sector have excessive general cadre and support staff at all levels as compared to their output resulting in efficiency losses. There are also excessive posts at EDOH office; many of these posts either remain vacant or filled by those lacking the necessary experience, ensuing to inadequate performance. The staff vacancies and absenteeism is particularly prevalent for all categories of female staff and for specialists in rural districts, which necessitates coming up with alternative staffing policy and plans. Political persuades and centralized powers have destabilized staff postings and retention, while promotion based on seniority but not on performance results into inefficient outcomes.

There is a critical shortage of manpower mainly at First Level Care Facilities (FLCFs) i.e. BHUs and RHCs, particularly of female staff. Correspondingly, small number of female paramedics i.e. LHV, Female Health Technicians, Community Midwife, Nurses etc. is also one of the main reasons for vacant positions of female paramedics in the BHUs, RHCs in rural areas.⁶⁵ In quantitative terms, there is a scarcity of pharmacists, technologists, nurses and other paramedics within the country. This shortage is magnified by issues related to their effective deployment.⁹

3.4.2 ADMINISTRATION

In public health sector the distribution of authority is inconsistent between district and province, and needs to be reformed. EDOHs are accountable to respective district and city governments for planning, budgeting and monitoring which has resulted in low accountability and slippage on provincial and federal commitments such as MDGs. At the same, time they have weak control over staffing. This officer cadre lies centralized with the province, and although paramedic cadre is controlled by the EDOHs, these postings are frequently based on district political affiliation and influence.

The vertical programs and projects are highly centralized requiring routine approvals at provincial or national level, thereby slowing their implementation. Moreover there are many a vertical programs working in isolation in program management, information collection and partnerships with private sector, resulting in cost inefficiencies. The Department of Population Welfare for contraceptive provision is working separately from DoH, with a low outreach but

higher cost of provision compared to DoH. This has shown inefficiency and also failure to offer integrated reproductive health.

Sindh has some of the largest Teaching Hospitals in the country including the recently devolved Jinnah Postgraduate Medical Centre (JPMC), National Institute of Cardio Vascular Diseases (NICVD) and National Institute of Child Health (NICH). These have huge number of patients, capability to self generate funds and well established faculty; however centralization within the DoH structure confines management, financial releases and staff outputs. So far there are only two hospitals working autonomously, and this experience has yielded very positive and encouraging results in terms of high patient volume and expansion of services with subsidized care supported by government and self generated funding.⁶²

3.4.3 GOVERNANCE

No comprehensive strategy for staff production, postings and training is existent at present. The annual production of doctors is around 2500 compared to 900 nurses and LHVs. There is a spontaneous expansion of medical colleges in the province. A chronic shortage of all categories of female staff and specialists in rural districts is very common. Simultaneously, there is disproportionate general cadre and support staff at all levels resulting in efficiency losses. Despite the precedence in KPK and Punjab, the administrative posts in Sindh at both district and provincial levels lack compulsory management qualification. There are frequent politically motivated transfers and postings ensuing to defective and inefficient performance.⁵³

There is no match between the health needs of the people and the education and training curricula for the health manpower. Educational institutions are not well equipped to prepare health care providers for appropriate health service delivery. In the health sector, the mechanism for training courses for different cadres is not primed; only a few such activities carried out by isolated projects. The workers are ignorant of their job description and term of reference, which are the basis for their performance evaluation. The health management is not being taken as a specialized field and management positions are filled mostly on seniority basis, with frequent back and fro movement of staff on clinical and management positions.^{25,65}

The trained public health professionals most often opt for private sector jobs due to better remuneration; furthermore, disparities in the distribution of doctors and their placement in the rural versus urban areas are well recognized. Scant attention has been paid to setting standards of performance and their monitoring. Absence of a well-defined policy on human resource development, lack of formal in-service training, low numbers for certain categories of health professionals, migration of skilled workers, misdistribution of workforce and the well-known brain drain - a manifestation of the lack of economic opportunities and incentives further complicate the issue.⁴⁶

3.5 KARACHI METROPOLITAN CORPORATION

Healthcare delivery system of Karachi is complex comprising of 18 towns and health wing is administered by a town health officer. Each town has a population of approximately one million to administer equaling population of many districts in other parts of Pakistan. The overall supervision lies with Executive District Officer. PHC activities are carried out by LHWs however Karachi has only 20% coverage of LHWs, the lowest in Sindh. Tertiary hospitals are utilized beyond capacity with Civil Hospital Karachi alone reporting an OPD of 5000 patients and admission of 2 patient per bed, due to insufficient PHC infrastructure in the city to filter patients as well as catering to patient from rural Sindh and Baluchistan which lack a well-functioning hospital system.⁶⁶

3.6 VERTICAL HEALTH PROGRAMS

Until devolution of health to the provinces, disease specific and preventive health programs were financed and implemented vertically by the federal government. These Programs integrated with local health authorities at the district level. With devolution of health to the provinces all these programs also stand devolved, and the Sindh government will now be shouldering the responsibility of their financing and management.⁵³

Expanded Program on Immunization: This was initiated in 1979 to prevent six priority diseases in children less than five years of age and tetanus in women of child bearing age through routine immunization in fixed sites (health facilities). The six diseases of children were: Poliomyelitis, Measles, Tuberculosis, Diphtheria, Whooping Cough and Tetanus. Hepatitis B vaccine, the combo vaccine (DPT and Hep-B) and Pentavalent (DPT+Hep-B+Hib) were included to routine immunization in 2002, 2006 and 2008 respectively. Twice yearly Vitamin A supplementation to children is also provided through EPI.

Poliomyelitis gained more attention from 1994 onwards when nation-wide in the communities and later door to door campaigns were also started to eradicate Polio. Over the past 12 years, around 100 rounds of Supplementary Immunization Activities have been conducted with nationwide coverage. The initial success of the Polio Eradication Initiative in Pakistan was remarkable. The number of confirmed cases of poliomyelitis across the country declined from 1155 cases in 1997 to 28 in 2005 - the lowest ever recorded in one year. However, since 2007, there has been a marked resurgence of polio cases. Pakistan is now reporting more cases than the combined total cases of the other three endemic countries: Nigeria, India, and Afghanistan. India once the world's epicenter of polio has successfully interrupted poliovirus transmission, completing one year without polio since its last case on 13 January 2011.

In Pakistan 197 cases of polio were detected in 2011; and 22 (3 in Sindh) cases up to June 2012 have been reported. The difficulties of reaching all children, law and order situation as well as cultural misunderstandings have caused the anticipated eradication date to be missed several times in Pakistan.

Out of total 1771 health facilities, EPI centers are established in 1204 facilities. A total of 1981 vaccinators' posts are sanctioned and Global Alliance for Vaccines and Immunization (GAVI) is paying for 700 vaccinators.

Maternal, Neonatal and Child Health Program: The MNCH Program was launched with broad objectives of reducing Maternal, Newborn, and Child morbidity and mortality as part of the Government's commitment to United Nations Millennium Development Goals 4 and 5 related to MCH by 2015. 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. Total cost of the project (Sindh) is Rs. 3.247 billion equally shared by DFID and Government of Pakistan. So far, more than 700 Community Midwives have been trained by the program and are waiting to be deployed. Moreover, about 1200 Community Midwives are under training. The program has also trained more than 1100 WMOs in EmONC and same number of WMOs and MOs in IMNCI. The World Health organization, UNICEF, UNFPA and Norway Pakistan Partnership Initiative provide important strategic partnerships. The program is facing financial constraints in the wake of post 18th amendment scenario.

Sindh AIDS Control Program: Pakistan is a signatory to the MDGs; Goal 6 of which 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. SACP started in 1996 was the first and most active provincial chapter of the NACP and involved close interaction with NGOs and academia. Major activities involving safe blood transfusion, services in high risk groups, awareness in general population and administrative expansion for the program started in 2003, with support of Rs. 618.663 million from the World Bank for a period 2003 - 08, which was later extended up to 2011. A downscaled program is being run funded by the DoH with some support from GFATM and UN agencies.

Provincial Nutrition Program: The "Promoting Safe Motherhood" program was operating in eight food insecure districts, but after floods in 2010 and 2011, more districts have been added. It provides food as an incentive for visits to health facilities for receiving antenatal care, post natal care, and routine vaccinations. Health education and family planning counseling are also provided in incentivized visits. Food supplies are provided by World Food Program while transportation costs to districts and salaries of program staff are borne by DoH.

National Program for Family Planning and Primary Health Care: The program was launched in 1994 for delivering integrated essential primary healthcare services to the communities at the doorstep through female community health workers, to bridge 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 which include maternal and child health activities such as antenatal care, advice on natal and post-natal services, immunization against major infectious diseases, health education, promotion of nutrition, basic sanitation, prevention and control of locally endemic diseases, treatment of common diseases and injuries and the provision of essential drugs and referral to facilities for maternal care.

LHWs coverage is only 45% in Sindh due to lack of eligible recruits in remote areas and insufficient coverage of low income areas in the Karachi metropolis. However, LHWs in rural locations have been very vital in reducing peri-natal and neonatal mortality, diarrhea reduction using zinc and ORS, management of severe pneumonia using oral amoxicillin, and have played an integral role in nutrition and child development projects.

TB Control Program: The National TB Control Program was launched alongside the Malaria Control (Eradication) Program in the 1950s; the program objective is to reduce mortality, morbidity and disease transmission so that TB is no longer a public health problem. Attention was refocused on the program in the year 2000 when Tuberculosis was declared a national emergency. The program was strategically revived and reconfigured to implement the WHO/IUATLD-recommended DOTS strategy through PSDP allocated resources.

TB-DOTS program was started in province of Sindh in 2000 and was extended to all districts of Sindh by 2003. At present free diagnosis and free treatment is available for TB patients. TB / HIV collaboration activities has started in six districts, including Karachi, Hyderabad, Mirpurkhas, Shaheed Benazirabad, Sukkur and Larkana.

Malaria Control Program: The Malaria Eradication Program started in Sindh during 1963, and although integrated later with General Health Services in 1978 was revitalized as a vertical initiative under global initiative of Roll Back Malaria in 2002. Currently the Malaria Program is getting assistance from GFTAM scheduled up to 2012. Some of the main activities of the program are; Early Diagnosis & Prompt Treatment (Case Detection by Microscopy & RDT Combo Kits & Treatment on the spot to malaria positive cases), Multiple Prevention (Larviciding by Fenthion 2% at stagnant water and breeding places, Indoor Residual Spray in positive localities and Fumigation through ULV Machines) and Health Education.

Hepatitis Prevention & Control Program Sindh (Chief Minister's Initiative): This program was officially launched in 2009 with approved cost of Rs. 2.7 million to stop ongoing spread of viral hepatitis B, C & D. The program has 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. So far more than 5 million members of high risk groups, general population and infants and children have been vaccinated against Hepatitis B. The program has established two PCR Molecular Labs in Mirpurkhas and Larkana, and trained 2000 doctors and paramedics. To stop spread, 5 million auto destroyable syringes have been provided to public sector hospitals and numerous activities are carried out to raise public awareness.

Control of Diarrheal Disease: The program's main task is to build capacity of health care providers on the control and prevention of diarrhea, ARI, malnutrition and vaccine preventable diseases, and to also increase awareness in community through health education. Additionally, it investigates outbreaks of diseases with the support of DEWS-WHO. It also is responsible for implement IMNCI strategy with the assistance of the WHO.

Safe Blood Transfusion: A regulatory authority has been set up to oversee safe blood transfusions under which licenses of blood banks are renewed every year and new blood banks are registered. Of the 148 registered blood banks, there are 35 public sector blood banks, 40 are run by Non-profit entities and 73 by private commercial institutions. During last five years' time, a blood bank has been established in every district of Sindh. The blood bank regulatory authority also provides surveillance of HIV, HBV and HCV infection in screened blood products. At present 95% of public sector blood banks and 20% of private sector blood banks report detected infections to blood bank regulatory authority. It also provides training to blood banks on safe

screening of blood products. However more blood transfusion technicians and monitoring officers are needed for continued effective functioning.⁵³

TABLE 7: PREVENTIVE PROGRAMS PERFORMANCES⁶¹

Programs	Cost
Hepatitis Prevention & Control Program Sindh -Chief Minister's Initiative.	Rs. 2704.650 million
Strengthening of Provincial T.B Control Program	Rs. 674.400 million
Operational Support Expanded Program of Immunization	Rs. 50.000 million
Strengthening of Malaria Control Program Sindh	Rs. 441.739 million
Enhanced HIV/AIDS Control Programs in Sindh	Rs. 1740.459 m
Prevention & Control of Blindness in Sindh at PCB Cell Civil Hospital Karachi	Rs. 329.304 million
Child Survival Program in Sindh	Rs. 28.320 millions
Improvement and Strengthening of District Health Information System	Rs. 116.705 m
Strengthening of Safe Blood Reforms in Sindh	Rs. 78.781 million
Development Needs Program Sindh	Rs. 25.666 million
National Blood Transfusion Services Project	Rs. 577.500 million
Promoting Safe Motherhood through World Food Program in Sindh	Rs. 13.089 million
Federal Funded Umbrella Programs	
National Maternal Neonatal & Child Health Program Sindh	Rs. 3.246 billion
National Program for Family Planning & Primary Health Care	Rs. 13.111 billion
Prime Minister's Program for Prevention & Control of Hepatitis	Rs. 3.893 billion
National Prevention & Control of Blindness in Pakistan	Rs. 48.690 million

TABLE 8: DONOR AGENCIES PROVIDING ASSISTANCE IN HEALTH SECTOR⁶¹

NPPI	(1) MNCH & Reproductive Health
USAID	(1) FALAH (through NGO HANDS), USAID Technical Assistance
German AID (Kfw)	(1) Improving Blood Transfusion Services in Sindh
UNICEF	(1) MNCH & Health (2) EPI plus (3) Interruption of Polio Virus (4) Nutrition (5) HIV/ AIDS (6) Disaster
UNFPA	(1) Comprehensive Maternal & Child Health in Thatta & Jacobabad
WHO	(1) TB Control Program (2) EPI / PEI (3) LHWs, (4) Maternal & Child Health (5) Basic Development Needs Program, Disaster Management
CIDA	(1) HIV/AIDS Surveillance Program (HASP)
GFATM	Global Fund for AIDS, TB & Malaria through Ministry of Health

3.7 PARA-STATAL HEALTH CARE PROVIDERS IN SINDH

In addition to the Department of Health and Local Government, many public sector organisations have also established health services for their employees and their families, as well as to some factions of the society. These include Population Welfare Department, Sindh Employees Social Security Institution, Pakistan Railways, Pakistan Steel Mills, Water and Power Development Authority.

3.7.1 POPULATION WELFARE DEPARTMENT SINDH

The Population Welfare Department aims to take the family planning services at doorsteps of the people, and to ensure quality of services with the right of choice for small family norms.

The demographic objectives are to raise the contraceptive use rate, and reduce the growth rate. This will not only contribute in improvement of socio economic development of the people but also to the health objective for reduction in maternal and infant mortality through birth spacing.

To achieve these objectives the scheme covers activities in the Province of Sindh, which include support for administrative infrastructure at the Provincial, City Office Karachi, District and Tehsil levels. The family planning information and services are provided through Family Welfare Centers (FWCs), Mobile Service Units (MSUs), Reproductive Health Service Centers (RHSCs-A & B type) and Male Community Based Workers, Hakeems, Homeopaths and Registered Medical Practitioners, Health outlets of the Health and the provincial line departments.⁶⁷

District Population Welfare Offices are the key agents in the implementation of the population program and delivery of Family Planning and RH services.

Taluka / Tehsil set up are headed by Tehsil Population Welfare Officer (TPWO). At present this setup is in 46 Tehsils and it is proposed to extend to remaining Tehsils. The service delivery is the core component of the population welfare program for meeting the increasing demand for contraceptive service. The numbers of program and non-program outlets providing services are given in table 9.

TABLE 9: PROGRAM OUTLETS OF POPULATION WELFARE DEPARTMENT

S. No	Program Outlets	No. of Outlets
1	Family Welfare Centers	488
2	Mobile Service Units	46
3	Reproductive Health Services-A Center	36
4	Male Mobilizers	885
5	Provincial Line Department	215
6	Health Department	1102
7	Registered Medical Practitioners	7200
8	Hakeem/ Homeopaths	4600
9	Reproductive Health Services-B Center	29

Source: <http://www.sindh.gov.pk/dpt/PopulationDev/Functions.htm>

Family Welfare Centers: The FWC is one of the main service delivery networks of the program established in hired premises in urban and rural areas. Each center is providing services to a

population of 5000 to 7000. The services provided by each FWC include: Family Planning Services, Mother Child Health Care, Medical Care of Minor Ailments, and Reproductive Health Care.

Mobile Service Units: Each MSU serves a population of about 30,000 in tehsil of 5,000 couples (15-20) villages. The MSU extends Reproductive Health and Family Planning Services to the villages through regular (twice a week) camping services. It also provides one day in week, supervision and on-the-job training to the VBFPWs, staff of the FWC and outlets of other line departments.

Reproductive Health Services Centers A-Type: RHSCs are hospital based units which provide a package of preventive obstetric / gynecological, MCH care consultation for infertility treatment and full range of family planning methods including contraceptives, surgery services. These centers also assist in public health education campaign, awareness raising and counseling about personal hygiene and nutrition, breast feeding and weaning, STD/ RTIs prevention. These centers are located in all Civil Hospitals of District Headquarters attached with Gynae Ward.

The RH Services also include training component; and provide training to medical persons in contraceptive surgery procedures. Jinnah Post Graduate Medical Center, Karachi has been upgraded to RHS Master Training Center. Four other RHS- A Centers, at Abbasi Shaheed Hospital, Karachi, Mobile Family Clinics, RTI Hyderabad, Sheikh Zaid Hospital, Larkana and Nawabshah Medical College Hospital, Nawabshah have also been upgraded as RHS Training Centers.

Male Mobilizers: Male workers in field provide family planning services as well as treatment of minor ailment.

Population Welfare Services through health outlets of Health & other Line Departments: To enhance coverage, the services are provided through involvement of health outlets of other organizations.

These outlets are equipped by providing related training and refresher on management of services, motivation and counseling, and supplies of contraceptive material.

Reproductive Health Centers B-Type: Hospitals having operating facilities and trained manpower interested to perform contraceptive surgery are designated as 'B' type RHS- Centers and enlisted with the program for providing the services. These include district and tehsil/taluka level hospitals of PLDs, surgical centers of the NGOs, private hospitals and charitable etc.

Registered Medical Practitioners, Hakims & Homeopaths: The RMPs, Hakims & Homeopaths are associated in the program to serve as agent of change, refer desirous clients to service points of the program and also participate in the service delivery through own clinics and matabs.

Training to the RMPs imparted at Regional Training Institute, as well as Reproductive Health Service-A Centers at district level.

Upon completion of training, the male RMPs are given family planning display board, IEC material, recording register and supply of contraceptives at normal cost as being charged from other outlets. While the female RMPS in addition are provided an IUCD kit

3.7.2 SINDH EMPLOYEES' SOCIAL SECURITY INSTITUTION

The Medical Department of Sindh Employees' Social Security Institution (SESSI) provides medical care facilities to the employees and their dependents. The Institution has established five hospitals (including a Kidney Centre) and 44 dispensaries in the province. In total, 408 doctors, both generalists and specialists, are working with the department. The hospitals being run by SESSI are:

1. KVSS SITE Hospital, Karachi (Daily OPD Patients 1200)
2. SS Hospital, Landhi, Karachi (Daily OPD Patients 700)
3. SS Hospital, Hyderabad
4. SS Hospital, Kotri
5. SS Kidney Centre, Landhi, Karachi

3.7.3 WATER AND POWER DEVELOPMENT AUTHORITY

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. It has around 1200 employees in the medical division providing primarily curative coverage to the organization's staff and families. Medical services to these employees are provided by WAPDA through its nationwide network of 42 facilities comprising also big hospitals.

3.7.4 PAKISTAN RAILWAYS

In addition to few dispensaries, Pakistan Railways has a big hospital in Karachi. This Hassan Hospital of Pakistan Railways is affiliated with Baqai Medical University as a teaching hospital.

3.7.5 PAKISTAN STEEL MILLS

Pakistan Steel Mills' health system is also based on an insurance plan, a re-imbursement plan and an endowment fund for the employees of Pakistan Steel. It has a 100 bedded general hospital providing health services to employees, their families and also to general population.

3.8 HEALTH FINANCING

Pakistan has yet to diversify its sources of financing health care. Tax revenues and out of pocket (OOP) expenditures by individuals and families remain the major methods of financing health. Tax revenues finance 23 and OOP payments account for 77 percent of health expenditures. These sources are proving to be increasingly inadequate owing to the rising costs of the technology dependent modern health care. Other countries have successfully generated additional health care funding from social insurance; private insurance and community financing. Pakistan itself has experience of health care financing through social insurance provided by Employees Social Security organization to about one million people, but no extension of this program has been attempted.^{68,69}

TABLE 10: COMPARISON OF HEALTH EXPENDITURE OF PAKISTAN WITH REGIONAL COUNTRIES⁶¹

Indicator	Year	Bangladesh	Egypt	India	Iran	Pakistan
Total expenditure on health as % of GDP	2009	3.40	5.00	4.20	5.50	2.60
Government expenditure on health as % of total government expenditure	2009	7.90	5.90	4.10	8.70	3.60
Public (government) spending on health as % of total health expenditure	2009	32.90	41.10	32.80	39.0	32.80
Private expenditure on health as % of total expenditure on health	2009	67.10	58.90	67.20	61.0	67.20
Donor spending on health as % of total health Spending	2009	7.90	1.50	1.10	0.00	3.70

Pakistan's health care expenditure is amongst the lowest regionally and globally. The preceding table shows a comparison of Pakistan health expenditure with some regional countries. Pakistan's government spending on health is the lowest and private spending in the country is the highest. Moreover, donor expenditure on health in Pakistan is the second highest after Bangladesh indicative of the government's dependence on donor agencies in financing health. The donor spending is mostly to sustain the vertical health programs.

Major proportion (66%) of total health expenditure in Sindh comes from households OOP expenditure. This is regressively distributed with poorer income quintiles spending a higher proportion of household income on health expenses. The largest amount is spent on medicine purchase due to both drug stock-outs at public sector facilities forcing patients to use private retail outlets as well as use of unnecessary medications and expensive originator brands in private sector. The consultation takes up the next prime share of OOP showing inadequate and unsatisfactory access to free public sector services. The total public sector spending, including federal, provincial and district levels equals to nearly a third of all expenditure. Wide variation is witnessed in per capita health spending in districts, and allocation of non-salary operational budget at district level is particularly deficient ranging from 17-25%. The allocation of development expenditure at both provincial and district level is heavily twisted towards the facility construction which has soaring operational cost burdens for coming years. The post devolution federally allocated funds have been devolved to the province in principle; however control of funds for vertical program is yet to be transferred to provinces. The existing releases of budgetary targets are delayed resulting in financial crisis for federally funded initiatives.

Sindh has the highest number and volume of philanthropic health organizations as well as contribution by corporate sector; but there is lack of estimate of total outlay. It is estimated that Sindh's OOP is less than that of Punjab and KPK due to philanthropic financial support despite highest number of private sector consultations in Sindh.

TABLE 11: PROVINCIAL HEALTH DEVELOPMENTAL BUDGETS (Million Rupees)^{61,70}

Item	2009-10	2010-11	2011-12	2012-13
ADP	5182.319	3795.000	6930.000	12 billion
Co-Finance (Sindh Govt.)	416.126	319.000	377.654	--
Total	5598.445 (↑12%)	4114.000 (↓20%)	7307.654	12 billion

3.9 HEALTH INFORMATION SYSTEM

The Health Information System consists of 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 USAID to collect, collate and disseminate information from the various levels of the health care delivery system. The aim was to support and facilitate management decision-making and thus improving services delivery. The System initiated from the first level care facilities and was to eventually cover all the levels of services delivery and the private sector. However it remains limited to the FLCFs to date. The secondary and tertiary care hospitals provide their patients' disease and death data on their own different formats. The private health sector which is reported to be providing 70% of curative services is completely excluded.

2. Disease Surveillance Systems: These systems are established for both communicable and non-communicable diseases to identify, control and end epidemics with the overall goal of diseases prevention and control. In Pakistan the Disease Early Warning System (DEWS) was started with WHO assistance 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 category. Among these Acute Flaccid Paralysis (AFP)/ Poliomyelitis surveillance system is recognized as being effective. This initiative is part of the WHO's global drive to eradicate polio and is fully supported by it. But these systems have minimal coordination and they usually do not work in all the sectors.

3. Population Based Surveys: These 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 carried out include the Pakistan Integrated Household Survey (PIHS), Pakistan Demographic and Health Survey (PDHS), Household Income and Expenditure Survey (HI&ES), Multiple Indicators Cluster Surveys (MICS) 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 assessment survey which provided the earliest data 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. The survey has not yet 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.

SECTION 4: HEALTH WORKERS' SITUATION

4.1 HEALTH FACILITIES AND HEALTH WORKERS IN HEALTH DEPARTMENT, GOVERNMENT OF SINDH

4.1.1 HEALTH FACILITIES

The province has 101 main hospitals in 23 districts. Thirteen hospitals cater the services in Karachi, the main metropolitan city which occupies 32% of the total population of Sindh. Matiari does not have any major hospital, while Umerkot, Tando Allahyar and Tando Muhammad Khan have one hospital each.

**TABLE 12A: NUMBER OF HOSPITALS FUNCTIONING & UNDER CONSTRUCTION
(DISTRICT WISE) OF HEALTH DEPARTMENT SINDH**

S #	Name of District	Teaching Hospitals	Civil Hospitals		Major Hospitals		Specialized Hospitals	THQ Hospitals		Total
			F	U	F	U		F	U	
1	Hyderabad	1	0	0	6	1	1	0	0	9
2	Thatta	0	1	0	1	0	0	3	1	6
3	Badin	0	1	0	1	0	0	3	0	5
4	Dadu	0	1	0	0	0	0	3	1	5
5	Mirpurkhas	0	1	0	0	0	0	2	1	4
6	Tharparkar	0	1	0	0	0	0	2	1	4
7	Sanghar	0	1	0	0	1	0	4	0	6
8	Sukkur	1	0	0	2	0	0	2	0	5
9	Ghotki	0	1	0	1	0	0	3	0	5
10	Khairpur	0	1	0	1	0	1	2	2	7
11	N. Feroze	0	1	0	0	0	0	2	0	3
12	Nawabshah	1	0	0	0	0	0	1	0	2
13	Larkana	1	0	0	2	0	0	2	0	5
14	Shikarpur	0	1	0	3	0	0	1	1	6
15	Jacobabad	0	1	0	0	0	0	2	0	3
16	Karachi	2	0	0	8	1	2	0	0	13
17	Matiari	0	0	0	0	0	0	0	0	0
18	T.M. Khan	0	0	0	0	0	0	1	0	1
19	T. Allahyar	0	0	0	0	0	0	1	0	1
20	Umerkot	0	0	0	0	0	0	1	0	1
21	Kamber	0	0	0	0	0	0	4	0	4
22	Kashmore	0	0	0	0	0	0	2	0	2
23	Jamshoro	0	0	0	1	0	1	2	0	4
	TOTAL	6	11	0	26	3	5	43	7	101

Source: Director General Health Services, Sindh

**TABLE 12B: TOTAL* HEALTH FACILITIES OF HEALTH DEPARTMENT
FUNCTIONING & UNDER CONSTRUCTION (DISTRICT WISE) IN SINDH**

S #	Name of District	RHCs		BHUs		Ds		MCH Cs		MHs		UH Cs		UH Us		S H C s	USKs		HDs		T E C s	L C s	Total	
		F	U	F	U	F	U	F	U	F	U	F	U	F	U		F	U	F	U			F	U
1	Hyderabad	2	1	18	0	12	5	4	0	0	0	0	0	1	0	0	0	0	1	0	0	2	48	7
2	Thatta	9		48	1	17	1	3	0	0	2	0	0	0	0	0	1	0	0	0	0	1	84	5
3	Badin	7	2	39	3	7	13	0	0	1	0	0	0	0	0	0	1	0	0	0	0	1	61	18
4	Dadu	2	1	47	6	13	2	1	2	0	1	0	0	0	0	0	0	0	0	0	0	1	68	13
5	M'khas	6	0	38	0	18	9	0	0	3	10	0	0	0	0	1	1	0	0	0	0	1	71	20
6	Tharparkar	1	1	32	0	39	16	1	0	1	0	0	0	0	0	0	3	0	0	0	0	0	80	18
7	Sanghar	5	3	60	3	21	3	2	0	1	0	0	0	0	0	0	2	0	0	0	0	1	97	10
8	Sukkur	2	0	27	0	11	7	1	0	0	0	0	0	2	0	0	1	0	0	0	0	1	50	7
9	Ghotki	4	0	31	12	10	2	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	52	14
10	Khairpur	9	0	77	13	33	15	5	0	3	1	0	0	0	0	0	20	0	0	0	0	1	153	31
11	N' Feroze	8	1	49	2	30	8	1	0	0	0	0	0	0	0	2	2	0	0	0	0	0	95	11
12	N' shah	8	0	36	0	25	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	1	75	0
13	Larkana	3	0	30	1	25	5	0	0	2	0	0	0	0	0	0	1	0	0	0	0	1	67	6
14	Shikarpur	7	1	34	3	15	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	66	5
15	Jacobabad	3	0	25	8	7	4	1	3	0	0	0	0	0	0	0	1	0	0	0	0	0	40	15
16	Karachi	5	0	37	6	32	9	5	0	7	0	5	2	1 3	7	0	3	0	0	3	1	0	120	28
17	Matiari	6	0	19	4	2	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	9
18	T.M. Khan	2	0	14	1	3	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	21	4
19	T. A Yar	1	0	15	0	3	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	6
20	Umerkot	4	3	35	1	15	6	1	0	0	5	0	0	0	0	0	1	0	0	0	0	0	57	15
21	Kamber	4	0	28	7	25	6	1	0	1	1	0	0	0	0	0	1	0	0	0	0	0	64	14
22	Kashmore	2	0	15	19	6	5	2	0	0	0	0	0	0	0	0	1	1	0	0	0	1	29	25
23	Jamshoro	6	0	19	0	8	3	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2	40	4
	TOTAL*	106	13	773	90	377	133	37	5	19	21	5	2	1 6	7	3	42	1	1	3	1	1 5	1486	285

Ds= Dispensaries, MCHCs= MCH Centers, MHs= Maternity Homes, UHCs= Urban Health Centers, UHUs= Urban Health Units, SHCs= Sub-Health Centers, USKs= Unani Shafa Khanas, HDs= Homeo Dispensaries, TECs= Trauma Emergency Centers, LCs= Leprosy Clinics

*Total includes also hospitals given in Table A.

The total number of health facilities of Health Department of Sindh are 1771 (Table 12A & 12B). The maximum number of health facilities is in Khairpur district which serves by 184 hospitals and clinics. The minimum number of health facilities is in Tando Muhammad Khan which has only 25 hospitals and clinics.. Karachi and Hyderabad district have relative low numbers of health facilities as compared to their respective populations.

The health facilities provided under PPHI are spread into nineteen districts of Sindh (Table 13). Total number of centers for these types of facilities is nine hundred and seven (907). Badin district is served by the maximum number of 128 centers, followed by Khairpur district with 102 centers. Ghotki has the minimum number with 3 centers only.

TABLE 13: LIST OF HEALTH FACILITIES UNDER PPHI IN SINDH

S #	District	TYPE OF HEALTH FACILITIES							Total
		RHC	BHU	Govt. Disp	DC Disp	ED	MCH Centre	Unani Shafakhana	
1	Jacobabad	0	14	0	0	0	0	0	14
2	Kamber	0	22	0	0	0	2	1	25
3	Dadu	0	35	12	0	0	1	0	48
4	Larkana	0	27	18	0	0	0	1	46
5	Mithi	0	31	0	0	0	0	0	31
6	T. Allahyar	0	13	16	0	0	0	0	29
7	Thatta	0	50	0	0	0	0	0	50
8	Naushahro Feroze	0	43	0	0	0	0	0	43
9	TM. Khan	1	12	0	19	0	0	1	33
10	Matiari	1	18	7	8	0	0	0	34
11	Sukkur	0	27	7	0	0	1	0	35
12	Ghotki	3	0	0	0	0	0	0	3
13	Umerkot	0	30	9	0	0	1	0	40
14	Khairpur	0	57	41	0	0	4	0	102
15	Badin	0	64	28	17	18	0	1	128
16	Kashmore	0	18	10	0	0	1	1	30
17	Sanghar	0	59	19	13	0	1	0	92
18	Mirpurkhas	0	38	48	0	0	10	2	98
19	Shikarpur	0	19	7	0	0	0	0	26
TOTAL		5	577	222	57	18	21	7	907

Source: Director General Health Services, Sindh

4.1.2 DOCTORS IN HEALTH DEPARTMENT SINDH

Table 14A & 14B depict the sanctioned, filled and percentage of filled positions of grade 17 to 20 doctors in Health Department for each 23 districts of Sindh. Eighty one percent of the available positions for grade 20 are filled in the province. Two positions each for Thatta and Hyderabad districts are not filled. No grade 20 doctor is posted in Umerkot and Jacobabad districts.

For grade 19, 67% doctors are working there; with 99% and 100% filled positions in Karachi and Tando Muhammad Khan, and only 17% and 19% in Umerkot and Kamber districts respectively. Thirty one percent of the BPS 18 (MO) sanctioned positions are lying vacant; with 98% filled posts in Karachi, 87% in Dadu, 29% in Ghotki and 28% in Umerkot.

Sixty five percent of the BPS 18 (WMO) positions are currently filled in the province. The filled position in Karachi is 99%, and 100% in Tando Muhammad Khan and Jamshoro; while no WMO is working in Umerkot and Kashmore districts.

TABLE 14A: DOCTORS (GRADE 18-20) IN HEALTH DEPARTMENT SINDH

S #	District	B-20			B-19			B-18 MO			B-18 WMO		
		S*	F*	PF*	S	F	PF	S	F	PF	S	F	PF
1	Matari	1	1	100	37	32	86	40	34	85	7	5	71
2	MP' Khas	2	2	100	47	38	81	68	48	71	21	18	86
3	Thatta	3	1	33	63	48	76	94	46	49	25	5	20
4	T. Allahyar	2	2	100	10	8	80	61	19	31	0	0	—
5	Khairpur	1	1	100	43	39	91	33	15	45	11	5	45
6	Kashmore	1	1	100	16	8	50	14	12	86	2	0	0
7	Umerkot	2	0	0	30	5	17	64	18	28	20	0	0
8	Ghotki	1	1	100	23	9	39	35	10	29	0	0	—
9	Dadu	2	2	100	33	20	61	62	54	87	14	3	21
10	Badin	1	1	100	46	19	41	108	74	69	30	3	10
11	Nawabshah	1	1	100	22	10	45	40	19	48	7	3	43
12	Sanghar	1	1	100	25	17	68	46	18	39	3	1	33
13	Tharparkar	1	1	100	23	11	48	59	20	34	13	3	23
14	Shikarpur	1	1	100	26	18	69	43	31	72	15	8	53
15	Sukkur	1	1	100	26	23	88	29	17	59	11	2	18
16	N' Feroze	2	2	100	59	35	59	74	57	77	35	14	40
17	Hyderabad	7	5	71	60	42	70	63	52	83	36	32	89
18	Kamber	1	1	100	27	5	19	28	8	29	0	0	—
19	Jamshoro	1	1	100	40	29	72	36	21	58	9	9	100
20	Larkana	1	1	100	17	7	41	40	14	35	6	3	50
21	Jacobabad	1	0	0	20	8	40	61	43	70	25	7	28
22	T.M. Khan	1	1	100	14	14	100	42	29	69	13	13	100
23	Karachi	1	1	100	96	95	99	407	401	98	184	182	99
	Total	36	29	81	803	540	67	1547	1060	69	487	316	65
	Vacant	7			263			487			171		

Source: Director General Health Services, Sindh

(S* = Sanctioned, F* = Filled, PF* = Percentage of filled positions)

Table – 14 B: Sixty six percent of grade 17 (MO) sanctioned posts are currently filled in DoH Sindh; with 97% of Khairpur, 92% of Karachi, 36% of Sukkur and 33% of Shaheed Benazirabad districts' filled positions. The percentage of filled positions for grade 17 (WMO) is also sixty six. For Karachi, Khairpur and Jacobabad districts 97, 100 and 100 percent; and for Kashmore and Umerkot 13% and 5% of grade 17 female doctors are posted respectively.

Sixty seven percent of all the sanctioned positions for BPS 17 (Dental Surgeons) are currently filled in Sindh province. In Mirpurkhas, Shikarpur, Jacobabad and Karachi districts almost all the positions for this category doctors are filled; while no Dental Surgeon is currently working in Tharparkar district. In Health Department of Sindh, for all the sanctioned posts of doctors (medical and dental) of grade 17 to 20, around 33% of the positions are currently lying vacant.

TABLE 14B: DOCTORS (GRADE 17 MALE FEMALE & DENTAL SURGEONS) IN HEALTH DEPARTMENT SINDH

S #	District	B-17 MO			B-17 WMO			B-17 Dentists Male/Female		
		S	F	PF	S	F	PF	S	F	PF
1	Matari	53	26	49	23	14	61	7	2	29
2	Mirpurkhas	98	56	57	35	17	49	8	8	100
3	Thatta	128	79	61	53	20	38	13	4	31
4	Tando Allahyar	36	18	50	0	0		0	0	
5	Khairpur	30	29	97	7	7	100	6	2	33
6	Kashmore	60	41	68	16	2	13	3	0	0.0
7	Umerkot	49	32	65	22	1	5	9	0	0.0
8	Ghotki	90	33	37	27	8	30	0	0	
9	Dadu	80	64	80	26	9	35	4	1	25
10	Badin	69	42	61	18	6	33	9	3	33
11	S Benazirabad	126	42	33	36	10	28	10	4	40
12	Sanghar	106	49	46	19	8	42	6	2	33
13	Tharparkar	110	44	40	13	2	15	3	0	0.0
14	Shikarpur	118	74	63	48	40	83	10	10	100
15	Sukkur	73	26	36	32	12	38	5	1	20
16	Naushahro Feroze	112	77	69	19	11	58	11	4	36
17	Hyderabad	196	135	69	129	76	59	10	9	90
18	Kamber	110	48	44	11	9	82	3	1	33
19	Jamshoro	87	53	61	33	14	42	6	3	50
20	Larkana	137	79	58	26	20	77	3	2	67
21	Jacobabad	49	42	86	9	9	100	4	4	100
22	Tando M. Khan	28	18	64	9	3	33	2	1	50
23	Karachi	683	630	92	343	332	97	46	45	98
	Total	2628	1737	66	954	630	66	178	106	60
GRAND TOTAL*		SANCTIONED 6633			FILLED 4418		VACANT 2215	PERCENT FILLED 67		

*(All Grade Doctors – Medical & Dental)

Source: Director General Health Services, Sindh

Tables 15A & 15 B illustrate the sanctioned, filled, percentage of filled, and total positions of Specialists in Health Department of Sindh.

Fifty eight percent of the sanctioned positions for Physicians are currently lying vacant. All of the Physicians' posts are filled in Karachi and Tando Muhammad Khan, while ten districts of the province do not have any physician specialist.

In total, 38% of the sanctioned positions of surgeons are currently filled; no surgeon is posted in twelve districts.

Sixty nine percent of the Orthopedics' positions are not currently filled with six districts having no orthopedic surgeon.

For ENT specialists, 70% of sanctioned positions are vacant; and twelve districts do not have an ENT specialist working there.

Four of the districts have no Ophthalmologist, and in total only 39% post of Ophthalmologists are filled.

Out of 14 Cardiologists' sanctioned positions for the province, only three are currently filled (79% vacant). Though sanctioned posts are there, even then eight districts do not have any Cardiologist.

Seventy six percent of Dermatologists' positions are lying vacant, with ten districts having no Dermatologists. Surprisingly, some smaller districts have four sanctioned posts of Dermatologists, while Karachi and Hyderabad have only one Dermatologist each.

For Pathologists, only 24% of the sanctioned positions are filled. Eleven districts do not have any Pathologist against their approved respective quota. Even Karachi has 4 Pathologists against 18 and Hyderabad has only one against 6 sanctioned positions.

Only two Physiotherapists, one at Mirpurkhas and one in Dadu, are currently working against 8 approved positions (75% vacant).

Seventy seven percent of the sanctioned Gynecologists are not posted at their respective positions in the province, with 11 districts having no Gynecologist.

Twenty six percent of the sanctioned Anesthetists are currently working, with no district having more than 50% of the filled positions and half of the districts without any Anesthetist in their hospitals.

Thirty eight percent of the Pediatricians are currently working against their approved quota. Six districts do not have any Pediatrician.

Only 12 Radiologists are working against 48 approved positions (75% vacant). Eleven districts do not have any approved post for Radiologist.

In total 883 specialists have been approved for Department of Health in 23 districts of Sindh. However, only 276 positions (31%) are currently filled, whereas a vast majority of 69% is lying vacant.

TABLE 15A: SPECIALISTS DOCTORS IN HEALTH DEPARTMENT SINDH

* Dist	Physician			Surgeon			Ortho- pedic S			ENT Specialist			Ophthal- mologist			Cardio- logist			Derma- tologist		
	S	F	PF	S	F	PF	S	F	PF	S	F	PF	S	F	PF	S	F	PF	S	F	PF
1	2	1	50	2	1	50	0	0		2	1	50	5	2	40	0	0		2	1	50
2	2	1	50	2	1	50	1	1	10 0	2	1	50	9	4	44	1	1	10 0	3	1	33
3	4	1	25	4	0	0	1	0	0	5	0	0	13	3	23	1	0	0	4	0	0
4	1	0	0	1	0	0	0	0		1	1	10 0	3	2	67	0	0		1	1	100
5	1	0	0	1	0	0	0	0		1	0	0	9	1	11	0	0		1	0	0
6	2	0	0	2	0	0	0	0		2	1	50	2	2	10 0	0	0		2	1	50
7	4	0	0	4	1	25	0	0		5	0	0	9	2	22	0	0		4	0	0
8	3	1	33	2	0	0	0	0		3	1	33	4	1	25	0	0		0	0	
9	4	3	75	4	2	50	1	1	10 0	5	3	60	5	5	10 0	1	0	0	4	3	75
10	4	0	0	0	0		1	0	0	4	0	0	6	0	0	1	0	0	4	0	0
11	1	0	0	1	0	0	1	0	0	1	0	0	4	0	0	0	0		1	0	0
12	4	0	0	4	2	50	1	1	10 0	4	0	0	5	3	60	1	0	0	4	1	25
13	3	0	0	3	0	0	0	0		3	0	0	5	2	40	0	0		3	0	0
14	3	2	67	2	0	0	1	0	0	3	3	10 0	6	4	67	1	0	0	3	0	0
15	3	0	0	3	0	0	0	0		3	0	0	5	2	40	0	0		3	1	33
16	3	2	67	3	0	0	1	0	0	3	1	33	1	0	0	1	0	0	3	1	33
17	5	2	40	8	3	37	5	1	20	4	4	10 0	5	2	40	4	2	50	1	0	0
18	4	1	25	4	0	0	0	0		4	0	0	6	3	50	0	0		4	1	25
19	4	1	25	4	1	25	0	0		4	0	0	9	3	33	0	0		4	1	25
20	2	0	0	1	0	0	0	0		1	0	0	4	1	25	0	0		2	0	0
21	4	3	75	4	3	75	1	1	10 0	3	0	0	7	4	57	1	0	0	3	1	33
22	1	1	10 0	1	1	100. 0	0	0		2	2	10 0	1	0	0	0	0		1	0	0
23	1 3	1 3	10 0	1 8	1 5	83	2	0	0	4	3	75	9	5	56	2	0	0	1	1	100
T*	7 7	3 2	42	7 8	3 0	38	1 6	5 31		6 9	2 1	30	13 2	5 1	39	1 4	3 21		5 8	1 4	24
V*	45			48			11			48			81			11			44		

*Dist = District Name as given in above tables, T = Total, V = Vacant

TABLE 15B: SPECIALISTS DOCTORS IN HEALTH DEPARTMENT SINDH

* Di st	Pathologist			Physio- therapist			Gyne- cologist			Anesthetis t			Pediatrician			Radiologis t			Total		
	S	F	PF	S	F	PF	S	F	P F	S	F	P F	S	F	PF	S	F	PF	S	F	PF
1	2	1	50	0	0		2	1	5 0	2	1	50	2	1	50	0	0		21	10	48
2	2	1	50	1	1	10 0	3	2	6 7	5	2	40	2	1	50	0	0		33	17	52
3	5	0	0	0	0		4	1	2 5	8	2	25	4	1	25	1	0	0	54	8	15
4	1	1	10 0	0	0		2	1	5 0	2	1	50	0	0		0	0		12	7	58
5	1	0	0	0	0		1	0	0	9	4	44	1	1	10 0	0	0		25	6	24
6	2	0	0	0	0		2	0	0	2	1	50	2	2	10 0	0	0		18	7	39
7	4	0	0	1	0	0	6	0	0	6	0	0	4	0	0	1	0	0	48	3	6
8	4	0	0	0	0		4	0	0	4	0	0	0	0		2	0	0	26	3	12
9	3	1	33	1	1	10 0	4	1	2 5	6	3	50	3	1	33	1 3	6	46	54	30	56
10	0	0		1	0	0	0	0		5	0	0	4	1	25	1	0	0	31	1	3
11	1	0	0	1	0	0	1	0	0	4	0	0	1	0	0	0	0		17	0	0
12	5	2	40	0	0		4	0	0	5	1	20	4	1	25	1	0	0	42	11	26
13	3	0	0	1	0	0	3	1	3 3	3	0	0	3	0	0	2	0	0	32	3	9
14	8	6	75	1	0	0	3	0	0	3	0	0	3	3	10 0	1	1	10 0	38	19	50
15	3	0	0	0	0		3	0	0	5	0	0	3	0	0	0	0		31	3	10
16	3	0	0	0	0		3	2	6 7	1	0	0	15	6	40	2	0	0	39	12	31
17	6	1	17	0	0		1	4	3 3	1	7	41	10	6	60	8	2	25	85	34	40
18	4	1	25	0	0		4	0	0	4	0	0	3	0	0	0	0		37	6	16
19	4	1	25	0	0		4	2	5 0	4	2	50	4	1	25	0	0		41	12	29
20	2	0	0	0	0		2	0	0	3	0	0	1	0	0	0	0		18	1	6
21	1	0	0	1	0	0	2	1	5 0	4	2	50	5	2	40	0	0		36	17	47
22	1	1	10 0	0	0		1	0	0	1	0	0	1	1	10 0	1	0	0	11	6	55
23	18	4	22	0	0		2 0	5	2 5	1 9	6	32	13	5	38	1 5	3	20	13 4	60	45
T *	83	2 0	24	8	2	25	9 0	2 1	2 3	1 2 2	3 2	26	88	3 3	38	4 8	1 2	25	88 3	27 6	31
V	63			6			69			90			55			36			607		

*Dist = District Name as given in above tables, T = Total, V = Vacant

4.1.3 NURSES WORKING IN HEALTH DEPARTMENT SINDH

Table 16 shows the sanctioned, filled and percentage of filled positions of Nurses, LHVs / FHTs and Midwives having diploma. Seventy seven percent of the total sanctioned Staff Nurses (675) are currently working in the province. Four districts have all the sanctioned staff nurses. Tando Muhammad Khan has only 30% of filled positions for this category.

Seventy four percent of 709 sanctioned staff of LHVs/FHTs is currently posted. Eight districts have all the sanctioned positions; Larkana and Karachi have 33% and 44% respectively of the sanctioned positions for this category of health workers.

Seventy six percent of 1327 of the sanctioned staff of Midwife with Diploma is currently posted. Nine districts have all the approved positions for this post, whereas only 26% of sanctioned Midwives with diploma are currently working at Umerkot, Tando Muhammad Khan and Karachi districts.

In total, 76% of the sanctioned Nurses, LHVs / FHTs and Midwife with Diploma are currently working in the DoH Sindh. All the sanctioned positions of Khairpur and Shaheed Benazirabad districts are currently filled. Umerkot is at the bottom of the list with 66% vacant positions.

TABLE 16: NURSES, LHVs / FHTs AND MIDWIFE WITH DIPLOMA IN DoH SINDH

S #	District	Staff Nurse			LHV / FHT			Midwives			Total		
		S	F	PF	S	F	PF	S	F	PF	S	F	PF
1	Matari	10	10	100	11	11	100	53	35	66	74	56	76
2	Mp Khas	47	44	94	14	14	100	37	37	100	98	95	97
3	Thatta	49	48	98	22	22	100	76	68	89	147	138	94
4	T. Allahyar	8	7	88	21	20	95	48	29	60	77	56	73
5	Khairpur	20	20	100	8	8	100	7	7	100	35	35	100
6	Kashmore	15	8	53	8	5	63	41	25	61	64	38	59
7	Umerkot	52	29	56	61	39	64	106	28	26	219	96	44
8	Ghotki	54	34	63	15	15	100	66	66	100	135	115	85
9	Dadu	6	4	67	16	14	88	54	47	87	76	65	86
10	Badin	41	30	73	62	29	47	75	38	51	178	97	54
11	S B.Abad	8	8	100	55	55	100	126	126	100	189	189	100
12	Sanghar	7	6	86	22	22	100	79	51	65	108	79	73
13	Tharparkar	21	20	95	43	28	65	66	66	100	130	114	88
14	Shikarpur	33	33	100	63	56	89	49	49	100	145	138	95
15	Sukkur	30	21	70	65	36	55	82	89	108	177	146	82
16	N'Feroze	46	45	98	23	21	91	48	28	58	117	94	80
17	Hyderabad	78	74	95	17	14	82	28	28	100	123	116	94
18	Kamber	32	9	28	39	36	92	38	33	87	109	78	72
19	Jamshoro	31	21	68	12	12	100	47	47	100	90	80	89
20	Larkana	22	11	50	63	21	33	40	25	63	125	57	46
21	Jacobabad	16	10	63	29	25	86	33	29	88	78	64	82
22	T M. Khan	10	3	30	8	7	88	47	20	43	65	30	46
23	Karachi	39	22	56	32	14	44	81	35	43	152	71	47
		675	517	77	709	524	74	1327	1006	76	2711	2047	76
	Vacant	158			185			321					

Source: Director General Health Services, Sindh

4.1.4 PARAMEDICS WORKING IN HEALTH DEPARTMENT SINDH

Table 17 shows the paramedics in the Health Department of Sindh. Eighty eight percent of the sanctioned 1399 vacancies for Health Technicians are currently filled. Eleven districts have 100%, while Tando Muhammad Khan has only 46% filled of the sanctioned positions.

For Dispensers 97% of the 1270 sanctioned posts are currently filled in the province, with 19 districts having 100% dispensers.

Ninety seven percent of the sanctioned Laboratory Technician positions are also filled, with 21 districts having 100% of the Lab Technicians.

Eighty one percent of the 27 sanctioned positions of Ultra Sound Technicians are presently filled, with 10 districts having 100% of the U/S Technicians. Nine districts do not any sanctioned position of this category.

Almost all i.e. 98% of 101 sanctioned posts of OT Technicians are currently filled; only Sanghar and Karachi have vacant positions for this category.

Ninety five percent of 65 sanctioned posts of ECG Technicians are filled, with all the districts except Dadu and Larkana having 100% filled positions.

Ninety five percent of 247 approved positions for Dental Technicians are presently filled. Six posts are still vacant in Badin which has the lowest percentage of filled positions.

Ninety seven percent of 171 vacancies of X-ray Technicians, and 90% of Physiotherapy Technicians' posts are filled in the province.

For 1981 posts of Vaccinators, 99% of the positions are currently filled in the Health Department. Mirpur Khas has the maximum number of 10 posts vacant in this category.

In total, 95% of the approved vacancies for paramedics are currently filled in Health Department, Sindh (table 18). Nine districts (Thatta, Tando Allahyar, Khairpur, Kashmore, Shaheed Benazirabad, Hyderabad, Kamber, Jamshoro and Jacobabad) have filled all the sanctioned positions of paramedics. Tando Muhammad Khan (81%) and Karachi (82%) are at the bottom of the list of filled positions.

TABLE 17: PARAMEDICS (DISTRICT-WISE) IN HEALTH DEPARTMENT SINDH

S#	District	Health Tech		Dispen- ser		Lab Tech		U/S Tech		OT Tech		ECG Tech		Dental Tech		X-ray Tech		Physio- therapy Tech		Vaccinator including GAVI	
		S	F	S	F	S	F	S	F	S	F	S	F	S	F	S	F	S	F	S	F
1	Matiari	57	52	22	22	6	6	0	0	1	1	1	1	6	6	5	5	0	0	36	36
2	Mirpurkhas	95	95	68	68	9	9	1	1	6	6	2	2	14	14	10	10	1	1	103	93
3	Thatta	126	12	10	10	7	7	1	1	11	11	5	5	19	19	15	15	0	0	125	125
4	T Allahyar	23	23	14	14	2	2	0	0	1	1	1	1	15	15	3	3	0	0	30	30
5	Khairpur	31	31	54	54	2	2	0	0	0	0	1	1	11	11	11	11	0	0	122	122
6	Kashmore	40	40	29	29	2	2	0	0	2	2	2	2	6	6	4	4	0	0	77	77
7	Umerkot	82	52	56	54	5	5	1	0	6	6	4	4	12	11	8	8	1	0	38	38
8	Ghotki	74	71	61	61	1	12	1	0	8	8	4	4	12	12	11	11	0	0	82	82
9	Dadu	88	42	69	69	7	7	1	1	7	7	4	3	15	15	6	6	1	1	94	94
10	Badin	53	41	64	64	4	4	1	1	4	4	4	4	18	12	5	5	0	0	86	86
11	S.B. Abad	127	127	48	48	2	2	0	0	1	1	1	1	14	14	9	9	0	0	74	74
12	Sanghar	106	10	37	37	5	5	1	1	7	6	4	4	11	11	6	6	1	1	110	108
13	Tharparkar	53	53	14	14	8	8	1	0	3	3	3	3	6	6	11	9	1	1	101	101
14	Shikarpur	51	48	68	68	4	4	2	2	4	4	3	3	10	10	6	6	1	1	116	116
15	Sukkur	58	36	58	41	8	8	0	0	3	3	3	3	5	5	7	7	0	0	95	95
16	N' Feroze	99	90	86	86	4	4	1	1	3	3	4	4	10	10	12	12	1	1	115	115
17	Hyderabad	44	44	54	54	5	5	2	2	14	14	3	3	7	7	7	7	1	1	137	137
18	Kamber	24	24	37	37	5	5	7	7	8	8	4	4	8	8	6	6	0	0	159	159
19	Jamshoro	36	36	60	60	4	4	0	0	3	3	4	4	15	15	9	9	0	0	63	63
20	Larkana	50	33	32	26	5	4	6	4	4	4	4	2	18	13	5	3	0	0	99	97
21	Jacobabad	43	43	36	36	3	3	1	1	1	1	3	3	6	6	6	6	1	1	52	52
22	T.M. Khan	28	13	15	15	3	3	0	0	1	1	1	1	3	3	5	4	0	0	29	29
23	Karachi	11	9	53	41	3	1	0	0	3	2	0	0	6	5	4	3	0	0	38	36
Total	Sanctioned	1399		1270		115		27		101		65		247		171		9		1981	
	Filled	1229		1233		112		22		99		62		234		165		8		1965	
	Vacant	170		37		3		5		2		3		13		6		1		16	
Grand Total		Sanctioned = 5385						Filled = 5129						Vacant = 256							

Source: Director General Health Services, Sindh

TABLE 18: FILLED POSITION OF TOTAL PARAMEDICS IN DoH, SINDH

S #	District	Total		
		Sanctioned	Filled	Percent Filled
1	Matiori	134	129	96
2	Mirpurkhas	309	299	97
3	Thatta	411	411	100
4	Tando Allahyar	89	89	100
5	Khairpur	232	232	100
6	Kashmore at Kandhkot	162	162	100
7	Umerkot	213	178	84
8	Ghotki	265	261	98
9	Dadu	292	245	84
10	Badin	239	221	92
11	Shaheed Benazirabad	276	276	100
12	Sanghar	288	279	97
13	Tharparkar	334	331	99
14	Shikarpur	265	262	99
15	Sukkur	237	198	84
16	Naushahro Feroze	335	326	97
17	Hyderabad	274	274	100
18	Kamber	258	258	100
19	Jamshoro	194	194	100
20	Larkana	223	186	83
21	Jacobabad	152	152	100
22	Tando M. Khan	85	69	81
23	Karachi	118	97	82
	Total	5385	5129	95

Source: Director General Health Services, Sindh

4.1.5 LADY HEALTH WORKES & LADY HEALTH SUPERVISORS OF NATIONAL PROGRAM FOR FAMILY PLANNING AND PRIMARY HELTH CARE SINDH

In total 22,505 Lady Health Workers and 754 Lady Health Supervisors are working under National Program for Family Planning and Primary Health Care (NPFP&PHC) Sindh in all the 23 districts of Sindh. The maximum number of LHWs is posted in Karachi followed by Khairpur, Naushahro Feroze, Nawabshah and Dadu. The grand total of this category of health workers is 23,259 (table 19).

TABLE 19: LHWs AND LHSs OF NPFP&PHC- SINDH

S #	Name of District	No. of LHWs	No. of LHSs
1	Karachi	3,139	127
2	Hyderabad	1,170	46
3	Tando Allahyar	530	15
4	Tando Muhammad Khan	424	11
5	Matiari	492	19
6	Dadu	1,210	40
7	Jamshoro	479	17
8	Badin	1,092	35
9	Thatta	619	18
10	Mirpurkhas	960	39
11	Umerkot	561	22
12	Sanghar	1,164	41
13	Tharparkar	652	26
14	Larkana	1,048	34
15	Kamber	874	24
16	Jacobabad	587	12
17	Kashmore	501	15
18	Shikarpur	881	14
19	Sukkur	1,157	37
20	Nawabshah	1,244	39
21	Khairpur	1,623	52
22	Ghotki	729	22
23	N Feroze	1,369	49
	Total	22,505	754
	GRAND TOTAL	23,259	

Source: Director General Health Services, Sindh

4.1.6 SUPPORTING STAFF WORKING IN HEALTH DEPARTMENT SINDH

Table 20 illustrates the sanctioned and filled position of supporting staff in Health Department of Sindh. Five hundred twelve positioned are approved and 488 are currently filled. This makes 95% of the filled positions. Fifteen districts (Matiari, Thatta, Khairpur, Kashmore, Umerkot, Ghotki, Dadu, Shaheed Benazirabad, Sanghar, Tharparkar, Shikarpur, Sukkur, Naushahro Feroze, Hyderabad, and Jacobabad) have all the sanctioned posts occupied. Percentage wise Tando Muhammad Khan is the least filled district for supporting staff. Category wise Senior Clerk position is mostly vacant; it is about 9% of the total approved vacancies. In contrast Junior Clerk position is the least vacant post; it is about one and half percent of the 273 sanctioned positions.

TABLE 20: SUPPORTING STAFF IN HEALTH DEPARTMENT SINDH

S #	District	Assistant						Comput er Operato		Senior Clerk		Junior Clerk		Total		
		Office Assistant		Statistical Assistant		Accounts Assistant										
		S	F	S	F	S	F	S	F	S	F	S	F	S	F	% F
1	Matiari	2	2	1	1	0	0	0	0	4	4	11	11	18	18	100
2	Mirpurkhas	3	3	3	3	1	1	1	1	8	6	18	17	34	31	91
3	Thatta	1	1	1	1	1	1	1	1	5	5	11	11	20	20	100
4	T. Allahyar	2	2	1	0	0	0	0	0	2	2	7	7	12	11	92
5	Khairpur	1	1	2	2	1	1	1	1	3	3	14	14	22	22	100
6	Kashmore	1	1	1	1	1	1	0	0	4	4	8	8	15	15	100
7	Umerkot	2	2	1	1	0	0	0	0	2	2	12	12	17	17	100
8	Ghotki	3	3	1	1	0	0	1	1	6	6	14	14	25	25	100
9	Dadu	2	2	2	2	1	1	0	0	6	6	14	14	25	25	100
10	Badin	3	3	1	0	1	1	1	0	8	7	17	17	31	28	91
11	SB. Abad	2	2	2	2	1	1	2	2	3	3	11	11	21	21	100
12	Sanghar	1	1	2	2	1	1	1	1	3	3	10	10	18	18	100
13	Tharparkar	1	1	2	2	1	1	0	0	4	4	9	9	17	17	100
14	Shikarpur	2	2	2	2	3	3	1	1	8	8	17	17	33	33	100
15	Sukkur	1	1	2	2	1	1	0	0	7	7	12	12	23	23	100
16	N' Feroze	2	2	2	2	1	1	1	1	5	5	16	16	27	27	100
17	Hyderabad	1	1	1	1	1	1	0	0	3	3	6	6	12	12	100
18	Kamber	2	2	1	1	0	0	0	0	4	1	15	15	22	19	86
19	Jamshoro	2	2	1	1	1	0	1	0	4	4	12	12	21	19	90
20	Larkana	3	1	2	2	0	0	0	0	9	7	18	18	32	28	88
21	Jacobabad	2	2	3	3	1	1	1	1	5	5	12	12	24	24	100
22	T. M. Khan	2	1	1	0	0	0	0	0	2	2	5	5	10	8	80
23	Karachi	8	8	12	12	2	0	2	2	5	4	4	1	33	27	82
	Total	49	46	47	44	19	16	14	12	110	101	273	269	512	488	95
	Vacant	3		3		3		2		9		4				
Grand Total		Sanctioned = 512				Filled = 488				Vacant = 24						

Source: Director General Health Services, Sindh

4.1.7 HUMAN RESOURCES AND HEALTH FACILITIES OF KARACHI METROPOLITAN CORPORATION (to Para statal)

These are shown in the following table 21.

TABLE 21: FACILITIES & STAFF OF KARACHI METROPOLITAN CORPORATION

Health Facilities	275
Major Hospitals	18
Maternity Hospitals	39
Total Beds Available	2535
EPI Centres	285
Vaccinators	593 (488 + 105 GAVI)
Doctors	2219
Specialists	213
Paramedics	3712
Other Staff	1935
LHVs	98
Midwife	150

Source: <http://14.192.147.139/cdgk/Home/Departments/HealthDepartment/tabid/234/Default.aspx>

4.2 HUMAN RESOURCES IN ACADEMIC INSTITUTES

4.2.1 PUBLIC SECTOR MEDICAL COLLEGES

In nine academic institutions managed under government administrations, 185 faculty members are positioned as professors. The average number of professors working in these institutions is about 21. Seventy seven percent of faculty members working under this cadre are males. One hundred sixty three faculty members working in these government institutions have academic rank of Associate Professors with mean value of 18. Again the majority of them (74%) are males. Four hundred thirty two academic staff in these institutions is positioned as Assistant Professor with mean value of 48 per institution. Sixty four percent of them are males. Four hundred ninety seven academic staff in these government academic institutions is working as Lecturers or Instructors. Again the males are little more (56%) than females. The minimum numbers for Professors, Associate Professors, Assistant Professors and Lecturer/Instructors working in these nine institutions are 4, 9, 18 and 31 respectively.

4.2.2 PRIVATE SECTOR MEDICAL COLLEGES

Out of total twelve institutions, ten provided the information of their academic faculty members. Two hundred thirty two professors are working in these institutions; the average number of professors per institution is 26. One institution does not have any professor. One hundred sixty six (72%) professors are male. One hundred fifty five Associate Professors are giving their services to these private intuitions with the average of 16 per institution. Two third of them (66%) are males. Four hundred fifty two faculty members are Assistant Professor with mean value of 45 per institution. Two hundred seventy five of them (61%) are males. Eight hundred thirty six of the faculty members are either Lecturers or Instructors with mean value of 84. In contrast to other categories, females are more (56%) than males in this cadre.

TABLE 22: FACULTY POSITION IN PUBLIC SECTOR MEDICAL COLLEGES

Categories	Male			Female			Total		
	No*.	Mean	Total	No.*	Mean	Total	No.*	Mean	Total
Lectures/ Instructors/ Demonstrators	9	31	279	9	24	218	9	55	497
Assistant Professors	9	31	276	6	26	156	9	48	432
Associate Professors	9	13	120	6	7	43	9	18	163
Professors	9	16	143	5	8	42	9	21	185

*Number of institutes that provided data for this category

TABLE 23: FACULTY POSITION IN PRIVATE SECTOR MEDICAL COLLEGES

Categories	Male			Female			Total		
	No*.	Mean	Total	No.*	Mean	Total	No.*	Mean	Total
Lectures/ Demonstrators	10	37	370	10	47	466	10	84	836
Assistant Professors	10	28	275	10	18	177	10	45	452
Associate Professors	10	10	102	10	5	53	10	16	155
Professors	9	18	166	9	7	66	9	26	232

4.2.3 PUBLIC SECTOR DENTAL COLLEGES

In addition to one separate dental college, four colleges out of nine medical colleges also have dental sections. In total five dental colleges are in Sindh province in public sector establishments. Four professors are working in those dental colleges. Furthermore, 14 Associate Professors are also working in those dental sections with mean value of three per institutions. Majority of those faculty members (85%) are males with only two females. Forty three Assistant professors are also attached with those dental colleges with mean value of nine per institutions. The major faculty in those dental colleges is comprised of 126 Lecturers, Instructors or Demonstrators with average of 25 per dental college. The females are little more (56%) than male faculty members.

4.2.4 PRIVATE SECTOR DENTAL COLLEGES

Eleven dental colleges have been established in the private sector. Seven colleges provided the required information. Fourteen professors with average of two are working in those colleges. It should be noted that more dental professors are inclined to work in the private establishments than government administered colleges. The males are in majority (71%) than females for this cadre. The Associate Professors working in these colleges are 17 with mean value of more than two. Again the male faculty members are much higher (82%) than females. The positions for Assistant Professors are filled by 54 faculty members with average of eight per institutions, with an equal ratio of male to female. One hundred eighty one faculty members are working as Lecturers, Instructors or Demonstrators. Here, the females are in majority (58%) than male faculty members. Average number of demonstrators is 22 per institute. Again, we can see a sharp exponential growing curve for the total numbers of Professors, Associate Professors, Assistant Professors and Lecturers, due to same logic as mentioned above.

TABLE24: FACULTY POSITION IN PUBLIC SECTOR DENTAL COLLEGES

Categories	Male			Female			Total		
	No*.	Mean	Total	No.*	Mean	Total	No.*	Mean	Total
Lectures/ Demonstrators	4	14	56	4	18	70	4	32	126
Assistant Professors	3	4.	13	3	4	13	4	7	26
Associate Professors	3	4	12	2	1	2	3	5	14
Professors	1	1	1	1	1	1	2	2	4

TABLE 25: FACULTY POSITION IN PRIVATE SECTOR DENTAL COLLEGES

Categories	Male			Female			Total		
	No*.	Mean	Total	No.*	Mean	Total	No.*	Mean	Total
Lectures/ Demonstrators	8	9	75	7	15	106	8	22	179
Assistant Professors	6	3	16	6		16	7	8	54
Associate Professors	5	3	14	2	2	3	5	3	17
Professors	7	1	10	4	1	4	7	2	14

As per data collected from public sector medical colleges, out of total sanctioned posts of the faculty for these institutes, 38% of the positions are lying vacant. The maximum vacancies (61%) are for the post of Associate Professors followed by Professors (47%).

It is very surprising to note that the faculty position in the private sector academic institutes is in accordance with the PMDC.

The average number of faculty in medical and dental colleges of Sindh is shown in table 26.

TABLE 26: AVERAGE FACULTY POSITION IN ACADEMIC INSTITUTES

Category	Medical		Dental	
	Public	Private	Public	Private
Lecturer	55	84	32	22
Assistant Professor	48	45	07	08
Associate Professor	18	16	05	03
Professor	21	23	02	02
Total	142	168	46	35

It is evident from the table 26 that there is no significant difference in the faculty position of public and private institutions. But because of the difference in the number of students per public and private college, the student teacher ratio is better in private medical colleges according to the data provided by them. This is shown in table 27.

However, this difference is mainly due vast majority of Lecturers/Instructors in the private colleges and little edge in the professors' total. The male to female ratio in public and private sector medical and dental colleges is 1.8:1, 1.2:1 and 0.95:1, 0.9:1 respectively. This indicates that male faculty is in majority in medical colleges and almost equal in dental colleges. The female academicians are more in private as compared to public sector.

TABLE 27: STUDENT TEACHER POSITION IN ACADEMIC INSTITUTES

Category	Medical		Dental	
	Public	Private	Public	Private
Students Institute Ratio	244:1	104:1	75:1	60:1
Students Teacher Ratio	9:1	3:1	6.5:1	7:1

4.2.5 GOVERNMENT NURSING INSTITUTIONS

Two institutions out of 9 government medical colleges have nursing schools. One hundred twelve teaching staff is working over there with the mean personnel of 56 per institutions. Majority of the teaching staff are females. Thirty two faculty members have postgraduate diploma with the mean value of sixteen per institutions.

4.2.6 PRIVATE NURSING INSTITUTIONS

Eight private medical colleges have established their nursing schools. Seven hundred fifty teaching staff is working in these institutions with mean value of 94 per institutions. Almost same percentage of males and females are in these institutions. These institutions have one hundred fifty one personnel with Post Diploma/PG Nurses with mean value of 30 PG Nurses per institutions. Majority of them (66%) are females. Two hundred fifty nine midwifery personnel are also working in these private institutions.

TABLE 28: NURSING PERSONNEL IN PUBLIC SECTOR INSTITUTIONS

Categories	Male			Female			Total		
	No.	Mean	Total	No.	Mean	Total	No.	Mean	Total
Nursing Personnel	2	15	29	2	42	83	2	56	112
Midwifery Personnel	-	-	-	2	7	14	2	7	14
Post Diploma / PG Nurse	2	4	8	2	12	24	2	16	32

TABLE 29: NURSING PERSONNEL IN PRIVATE SECTOR INSTITUTIONS

Categories	Male			Female			Total		
	No.	Mean	Total	No.	Mean	Total	No.	Mean	Total
Nursing Personnel	7	54	376	8	46	369	8	93	745
Midwifery Personnel	-	-	-	7	37	259	7	37	259
Post Diploma / PG Nurse	2	13	26	5	25	125	5	30	151

4.2.7 GOVERNMENT PHARMACY INSTITUTIONS

Only one institution of nine reported government institutions is running its Pharmacy College. Thirty four teaching staff is working in this college with average. In addition, twenty six teaching faculty has postgraduate training.

4.2.8 PRIVATE PHARMACY INSTITUTIONS

Out of eleven private colleges that reported for this survey, seven institutes have Pharmacy Colleges. Two hundred and one personnel are working in these institutions with 29 pharmacists per institutions. In addition thirty six personnel have postgraduate training in these institutions.

TABLE 30: PHARMACISTS IN PUBLIC & PRIVATE SECTOR INSTITUTIONS

Sector	Categories	Male			Female			Total		
		No.	Mean	Total	No	Mean	Total	No.	Mean	Total
Public	Pharmacists	1	4	4	2	7	13	2	9	17
	PG Pharmacists	1	3	3	1	12	12	1	15	15
Private	Pharmacists	5	23	115	5	17	86	7	29	201
	PG Pharmacists	3	5	16	3	7	20	3	12	36

4.2.9 PARAMEDICS

Ten institutions have reported for their paramedics' staff. Three of them are from government and seven of them are from private institutions. Three hundred ninety three personnel are working in government institutions with average of 131 per institutions and two thousand one hundred and eight are hired in private colleges with mean value of 301 paramedics per institutions. Males are in majority in both the setups of private and public institutions.

TABLE 31: PARAMEDICS IN PUBLIC & PRIVATE SECTOR INSTITUTIONS

Paramedics	Male			Female			Total		
	No.	Mean	Total	No.	Mean	Total	No.	Mean	Total
Public Sector	3	116	347	3	15	46	3	131	393
Private Sector	7	242	1692	6	69	416	7	301	2108

4.2.10 DENTAL TECHNICIANS:

The four dental colleges mentioned earlier administered along with government medical colleges reported that a sum of 50 dental technicians/ chair side assistants/ oral hygienists were working in those institutions with the average personnel of 13 per institutions. Surprisingly, most of them are males. Seven dental colleges established under private administrations hired 174 dental technicians/ chair side assistants/ oral hygienists with the average of 25 per institutions. It clearly showed that the private institutions have hired almost double of this category of health workers.

TABLE 32: DENTAL TECHNICIANS IN PUBLIC & PRIVATE INSTITUTIONS

Dental Technicians / Assistants / Oral Hygienists	Male			Female			Total		
	No.	Mean	Total	No.	Mean	Total	No.	Mean	Total
Public Sector	4	12	46	2	1	2	4	12	48
Private Sector	7	21	146	7	4	28	7	25	174

4.2.11 COMMUNITY HEALTH WORKERS

Two government institutions reported of having a staff of 31 community health workers which includes both teaching and non-teaching staff members, with mean value of 16 per institution. All the staff members in those departments are females. Six private institutions out of 11 reported for this survey mentioned of having 41 employees working in this category, with a mean number of seven per institution.

4.2.12 HEALTH MANAGEMENT PROFESSIONALS

Three of the government medical colleges provided data about Health Management Professionals. Fifty one professional of this category are working in those institutions with the average value of 17 per institution. Most of the health management professionals are males. Six private institutions mentioned about health management professionals working in their establishments. Sixty five health management professionals are appointed in those institutions with mean value of 11 personnel per institution. One hundred forty six support workers are also working with those health management professionals with mean value of 25 support workers per institution.

TABLE 33: HEALTH MANAGEMENT PROFESSIONALS IN PUBLIC & PRIVATE SECTOR INSTITUTIONS

Health Management Professionals	Male			Female			Total		
	No.	Mean	Total	No.	Mean	Total	No.	Mean	Total
Public Sector	3	15	46	2	3	5	3	17	51
Private Sector	6	7	44	3	7	21	6	11	65

4.2.13 ALLIED HEALTH WORKERS

Only one government and five private academic institutions provided data of allied health workers in their institutions. Twenty four such workers are serving in government medical college and 201 are employed in private medical colleges with an average number of 40 per institution. The sex ratio is almost the same in both private and public institutions.

TABLE 34: ALLIED HEALTH WORKERS IN PUBLIC & PRIVATE SECTOR INSTITUTIONS

Allied Health Workers	Male			Female			Total		
	No.	Mean	Total	No.	Mean	Total	No.	Mean	Total
Public Sector	1	8	8	1	16	16	1	24	24
Private Sector	4	25	100	5	20	101	5	40	201

4.2.14 HRH in JPMC, NICVD & NICH (DoH)

Before the 18th amendment, Jinnah Postgraduate Medical Center (JPMC), National Institute of Cardiovascular Diseases (NICVD) and National Institute of Child Health (NICH) were federally administered. Though these three institutions are now under the administrative control of Health Department of Sindh, but the employees have lodged a petition against the decision in the court. Their case is yet to be decided. These three teaching hospitals are presently attached with Sindh Medical College / University. The data collected show that 103 Medical Officers are appointed in these institutions. Twenty nine specialists are also working in the institutions and majority of them (86%) are males. One hundred two Assistant Professors are posted there, and two-thirds of them are males. Forty two Associate Professors are also appointed in these three hospitals and 81% of them are males; while the number of professors is 17.

Two hundred seventy one nurses are serving in these institutions. Male-female ratio is about the same. The average salary these nurses are drawing per month is Rs. 28,000. Three hundred and eleven paramedics are providing their services to these institutions and 107 (96%) of them are males. Their average salary is Rs. 12,000/-

4.3 HUMAN RESOURCES IN 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. Any HR policies or protocols practiced in the private sector are institutional based and vary widely.

A country wide survey carried out by the WHO⁷¹ covered 28 private hospitals / clinics of four districts, namely, Mirpurkhas, Badin, Naushahro Feroze and Larkana of Sindh province. The summary of the data of these private hospitals / clinics is mentioned in the following table.

TABLE 35: NUMBER OF HEALTH WORKERS IN PRIVATE HOSPITALS/CLINICS

Category	N	Male	Female	Total	Mean
Generalist Doctors	28	61	16	77	2.75
Generalist Dentists	28	1	3	4	0.14
Specialist Doctors	28	41	12	57	2.04
Specialist Dentists	28	1	1	2	0.07
Nursing Personnel	28	40	0	40	1.43
Paramedics	28	171	10	183	6.57

Source: WHO Report, 2009

Table 32 shows that 77 generalist doctors were working in these hospitals / clinics. Majority of them (79%) were males and the average doctors practicing in those institutions were 2.75. Furthermore, 57 specialists were also working in those private health facilities, which makes the average of 2 specialists per hospital/clinic. However, only 4 generalist dentists and 2 specialist dentists were working in those 28 places. The survey showed that only 40 nursing personnel were assisting 142 doctors / dentists. It is evident that the number of nursing personnel was less than one-third as compared with doctors / dentists working in private sector.

The number of hospitals/clinics in each district of Sindh was estimated using the following calculations.

The number General Practitioners working in Karachi is about 3778.⁷² In addition, a report published by IFC Advisory Service in the Middle East and North Africa, indicated that average number of private hospitals and medium size clinics per town of Karachi is about 60-70.⁷³ Since, Karachi is divided into 18 towns; therefore number of such type of establishments should be around 1100. Hence using this information, the average number General Physician is about 3 per establishment. The population of Karachi was about 13.729 million in 2010. It indicated that one private hospital/clinic serves about 12000 populations.

The yellow pages of Hyderabad indicated that there were 193 private hospitals and medium size clinics in Hyderabad.⁷⁴ The population of Hyderabad is about 2.088 million in 2010.⁷⁵ Hence, every 11,000 population is covered by such type of hospital/clinic. It is quite close to the

estimated number of populations per hospital/clinics, as mentioned for Karachi. Hence, the number of 11000 populations per hospital is taken to estimate the number of private hospitals/clinics in 23 districts of Sindh.

Furthermore, the survey of WHO discussed earlier showed that on average 3 General Practitioners per hospital / clinic were practicing in private hospitals of 4 districts (Mirpurkhas, Badin, Naushahro Feroze and Larkana) of Sindh.

In addition, there are many small size clinics having one or two physicians all over the province. These could be of the same number as the medium size clinics or hospitals. These small size clinics usually function in the evening times. Majority of the doctors of these clinics, either work in some other hospital or academic institution during the day time. It is quite difficult to estimate how many of them work at other places. A wild guess could be that at least 80% of those doctors work at some other health facilities. Therefore, at the most 20% of these doctors work only for their private clinics.

Using the above estimates, the following calculations can be applied to estimate the number of clinics and doctors in the private practices.

- The number of hospitals and clinics in each district are estimated at 11,000 populations per clinic.
- On an average, 3 doctors per clinic are used to calculate hospitals and medium size clinics.
- The number of clinics is doubled to add small size clinics.
- Twenty percent of doctors of additional clinics are appended to adjust small size clinics doctors.

For example, the calculations for one of the district (e.g. Kashmore) will be as under: Population of this district is 1207 thousands.

Divided this number by 11,000 gives the number 109.7, which is hospital plus medium size clinics.

The number of small size clinics is the same as 109.7.

Therefore, the total number of clinics is = $109.7 \times 2 = 219$

At the most 20% of small size clinics' doctors do not work at other health facility.

Hence, the number of General Practitioners = $109.7 \times 3 + 109.7 \times 0.2 = 351$.

TABLE 36: DISTRICT-WISE POPULATION AND ESTIMATED NUMBER OF PRIVATE HOSPITALS/CLINICS AND GENERAL PRACTITIONERS IN SINDH

S #	District	2012 (‘000)	Number of Hospitals /Clinics	Number of Doctors
1	Jacobabad	1569	285	456
2	Kashmore at Kandhkot	1207	219	351
3	Shikarpur	1347	245	392
4	Larkana	1563	284	455
5	Kamber Shahdadkot	1488	271	432
6	Sukkur	1383	251	402
7	Ghotki	1512	275	440
8	Khairpur	2321	422	675
9	Naushero Feroze	1622	295	472
10	Nawabshah	1585	288	461
11	Dadu	2074	377	603
12	Jamshoro	1177	214	342
13	Hyderabad	3429	624	998
14	Tando Allahyar	772	140	224
15	Tando Mohammad Khan	620	113	180
16	Matiori	738	134	215
17	Badin	1840	335	535
18	Thatta	1819	331	529
19	Sanghar	1905	346	554
20	Mirpurkhas	1483	270	432
21	Umerkot	954	173	278
2	Tharparkar	1694	308	493
23	Karachi	21142	3844	6151
	Total	55,244	10,045	16,072

4.4 HUMAN RESOURCES IN PARASTATAL ORGANIZATIONS

4.4.1 SINDH EMPLOYEES' SOCIAL SECURITY INSTITUTION

Three hundred sixty three doctors are appointed in Sindh Employees' Social Security Institution, 62% of them are males; and 61 sanctioned positions are still vacant. The average salary per month for these physicians is Rs. 35000.

Forty five doctors in SESSI are specialists, and majority of them (78%) are males; 23 sanctioned positions for specialists are still vacant. The average remuneration per month for these specialists is Rs. 45,000. Eighty four nurses are serving in SESSI hospitals, all of them are females, except one. One hundred forty two nurses are still needed for these hospitals. The average salary per month for these nurses is Rs. 25,000. Three post-diploma nurses and 19 midwives are also attached with SESSI establishments. The average salary per month for midwife and post diploma nurses is Rs. 15,000 and 35,000 respectively.

4.4.2 POPULATION WELFARE DEPARTMENT

In Population Welfare Department of Sindh, 60 Medical Officers are currently appointed and 97% of them are females. However, 27 sanctioned positions are still vacant. Their average salary is Rs. 35,000/- Other than these Medical Officers, 26 doctors are also working as trainers / instructor in PWD, in addition to 591 Community Health Workers. However about 1400 sanctioned positions of CHWs are still vacant.

4.4.3 PAKISTAN RAILWAYS

In Pakistan Railways' Hassan Hospital, Karachi, 11 Physician Generalists are appointed. Male to female ratio is almost the same. One male dentist is also working in the hospital. Their average salary per month is about Rs. 40,000. Three sanctioned posts of doctors are still vacant. Three physicians are working as specialists. The average salary per month of these specialists is Rs. 62,000. Nine nurses are posted in this hospital, and 7 sanctioned positions of nurses are still vacant. The average salary per month of these nurses is Rs. 25,000. Along with these nurses, one midwife is also providing health services. Fifty three paramedics are working in this hospital. Majority of them are males. Their average monthly salary is Rs. 11,000.

4.4.3 PAKISTAN STEEL MILLS

Pakistan Steel Hospital has employed 55 general doctors for patients care. More than two-third of them are males. The average monthly salary, these doctors are drawing, is Rs. 50,000. Sixteen other doctors are graded as specialists and two-thirds of them are males. The average salary per month is Rs. 60,000/- for these specialists. Only one dentist is providing services for oral diseases. His salary is about Rs. 71,000. Twenty six nurses are working in this hospital. The male to female ratio is exactly the same. Their average salary per month is Rs. 14,000. Along with these nurses, 5 midwives are also working in this hospital. The average salary per month of these midwives is Rs. 12,000. Two pharmacists are also giving their services to this hospital. Hospital is giving an average salary of Rs. 23,000 to these pharmacists. Ninety one paramedics are also employed in this hospital. Majority of (93%) them are males. Their average salary per month is about Rs. 13,000. One dental technician is also working in dental section. The salary of this technician is about Rs 34,000.

4.5 HUMAN RESOURCES REGISTERED WITH ACCREDITATION AND REGULATORY BODIES

- **HIGHER EDUCATION COMMISSION** is the primary regulator of higher education in Pakistan². HEC 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)** is the regulatory body for medical and dental pre service educational programs and registration authority for general and specialist medical & dental practitioners and public health professionals.
- **PAKISTAN NURSING COUNCIL (PNC)** is a regulatory body empowered to examine and register Nurses, Midwives, Lady Health Visitors (LHVs) and Nursing Auxiliaries to practice in Pakistan.
- **PHARMACY COUNCIL FOR PAKISTAN (PCP)** is a professional body responsible for the registration of pharmacists and promotion of pharmacy education in Pakistan.
- **COLLEGE OF SURGEONS & PHYSICIANS (CPSP)** is responsible for maintaining high principles of medical profession, promotion of specialists' medical practice and arrangement of postgraduate medical training in hospitals.

4.5.1 DOCTORS REGISTERED WITH PAKISTAN MEDICAL & DENTAL COUNCIL

These data are the registration with Pakistan Medical and Dental Council up to 29th February, 2012. Table 37 shows the total number of doctors of all the four provinces registered in PMDC. One hundred twenty one thousand five hundred eleven (121,511) doctors are registered with males contribution of 68,079. This males' contribution makes 56% of the totals registered doctors. The maximum numbers are enrolled from Sindh province with percentage of 43.5% of the total. Khyber Pakhtoonkhawa showed the highest percentage for male gender as compared to other provinces, while Sindh showed the least with 53% of male doctors. As expected, Baluchistan has the lowest registration of doctors in PMDC registry with 3% of the total.

**TABLE 37: TOTAL NUMBER OF DOCTORS (WITH BASIC DEGREE ONLY)
REGISTERED IN PMDC**

Province	Male		Female		Total
	Number	Percent	Number	Percent	
Punjab/Federal Area	27786	55	22728	45	50514
Sindh	28129	53	24718	47	52847
K.P.K	9853	68	4537	32	14390
Baluchistan	2311	61	1449	39	3760
Total	68079	56	53432	44	121511

Source: Pakistan Medical & Dental Council

Table 38 describes the current total number of dentists registered in PMDC registry. Ten thousand two hundred and eighty seven (10,287) dentists with male contribution of 4,357 are

enrolled. Punjab/Federal Administered Area showed the largest of registry with crude number of 4,356 and percentage wise 42.3%. Baluchistan showed the lowest number of registry of 284 dentists with 3% only, which is really low as compared to the area and population of this province. Gender wise Baluchistan showed the highest percentage of male dentists (59%), while Sindh showed the lowest (36%). The five years data of Sindh showed that the current registration of dentists in the province was 3,949. In 2008, this figure was only 2,668, and so number the dentists increased during last five years are 1,281. Percentage wise this increase was about 48%, and hence the annual increase is about 10%. The rate of increase is quite encouraging in oral the health sciences for Sindh province.

TABLE 38: TOTAL NUMBER OF DENTAL SURGEONS (WITH BASIC DEGREE ONLY) REGISTERED IN PMDC

Province	Male		Female		Total
	Number	Percent	Number	Percent	
Punjab/Federal Area	1908	44	2448	56	4356
Sindh	1432	36	2517	64	3949
K.P.K	850	50	848	50	1698
Baluchistan	167	59	117	41	284
Total	4357	42	5930	58	10287

Source: Pakistan Medical & Dental Council

Table 39 shows the current number of specialist doctors registered in PMDC. Total number of doctors enrolled in this category is 25,974, which is about 21.4% of the total registered doctors. It shows that every one out of five medical doctors have some sort of post graduate degree. The maximum number of registered doctors as specialists is from Punjab/Federal Administered Area and the crude number is 13,565, which makes it 52.2% of the total specialists. The minimum number of specialists registered in PMDC is again from Baluchistan with the figure of 927. Every three out of four specialists is a male (75%). Gender wise K.P.K and Baluchistan have the highest percentage of male specialists in their respective provinces. Sindh showed the lowest percentage of male specialists (72%) as compared to other provinces.

TABLE 39: TOTAL NUMBER OF SPECIALIST DOCTORS REGISTERED IN PMDC

Province	Male		Female		Total
	Number	Percent	Number	Percent	
Punjab/Federal Area	10136	74	3429	25	13565
Sindh	5685	72	2244	28	7929
K.P.K	2879	81	674	19	3553
Baluchistan	750	81	177	19	927
Total	19450	75	6524	25	25974

Source: Pakistan Medical & Dental Council

Table 40 shows the specialist dental surgeons registered in PMDC. Seven hundred eighty nine dentists are enrolled as specialists. Punjab/ Federal Administered Area indicated the maximum number of specialists in this category, which is about 45% of the total number. Baluchistan has only 33 specialist dental surgeon, which is about 4% of the enrolled specialist dental surgeons.

TABLE 40: TOTAL NUMBER OF DENTAL SPECIALIST REGISTERED IN PMDC

Province	Male		Female		Total
	Number	Percent	Number	Percent	
Punjab/Federal Area	264	74	91	26	355
Sindh	181	72	69	28	250
K.P.K	126	83	25	17	151
Baluchistan	28	85	5	15	33
Total	599	76	190	24	789

Source: Pakistan Medical & Dental Council

Table 41 describes five years information of Sindh province. The male doctors registered in PMDC from this province are 28,129 which are 53% of the total. Doctors registered at PMDC registry in 2008 from this province were 46,638. The male doctors in this sum were 26,540 with percentage point of 57%. It shows that ratio is tilted little bit in favor of females during these five years. The percentage increase during the five years period in Sindh was 13.3% with annual increase of 2.7%.

The total dentists from 2008 to 2012 have increased from 2668 to 3949 i.e. 1281, with an average annual increase of 256 per year. The percentage of male dentists has decreased from 43 to 36, while that of female dentists has increased from already higher 57 to 64 percent.

TABLE 41: PMDC REGISTERED GENERAL DOCTORS & DENTISTS OF SINDH

Year	Doctors					Dentists				
	Male		Female		Total	Male		Female		Total
	No.	%	No.	%		No.	%	No.	%	
2008	26540	57	20098	43	46638	1146	43	1522	57	2668
2009	26879	56	21220	44	48099	1214	41	1740	59	2954
2010	27304	55	22435	45	49739	1276	38	2059	62	3335
2011	27990	54	23786	46	51776	1301	36	2267	64	3568
2012	28129	53	24718	47	52847	1432	36	2517	64	3949

Source: Pakistan Medical & Dental Council

Table 41 shows the specialists, both medical and dental, registered in PMDC from 2008 to 2012 in Sindh province. Total number of doctors/dentists indicated as specialists in 2012 are 8,179. Seventy two percent (n=5,397) of them are males. The male percentage was 74 in 2008, which has decreased to 72% in five years. During this period about 1000 male specialists have been added, while about 500 females have been included in PMDC registry.

TABLE 42: PMDC REGISTERED MEDICAL & DENTAL SPECIALISTS OF SINDH

Year	Male		Female		Total
	Number	Percentage	Number	Percentage	
2008	4406	74	1518	26	5924
2009	4786	74	1682	26	6468
2010	5195	73	1936	27	7131
2011	5397	72	2081	28	7478
2012	5866	72	2313	28	8179

Source: Pakistan Medical & Dental Council

4.5.2 NURSES REGISTERED WITH PAKISTAN NURSING COUNCIL

The nurses of different cadres registered with Pakistan Nursing Council (PNC) up to year 2012 are shown in table 43.

TABLE 43: REGISTERED NURSE PROFESSIONALS IN SINDH⁷⁶

Category	Gender	As on 2009	2010	2011	2012	Total
PhD	F	4	1	2	0	7
	M	0	0	0	0	
MSN	F	20	6	11	3	40
	M	0	0	0	0	
Post RN BSN (2years)	F	265	78	98	52	493
	M	0	0	0	0	
General BSN (4years)	F	113	47	40	43	243
	M	0	0	0	0	
General Nursing Diploma	F	12472	598	786	101	15789
	M	478	649	607	98	
Community Midwife		539	92	200	71	902
Pupil Midwife and Nurse Midwife		705	101	93	27	926
Lady Health Visitors		1721	49	57	37	1864

Source: Pakistan Nursing Council

There were four well qualified nurses who had PhD degree in nursing in 2009 in Sindh province. It has been increased by one in 2010 and two more were added in 2011. There was no increment in 2012. So, now there are seven PhDs in nursing in this province. All of them are females. Presently, there are 40 nurses with master's degree (MSN) in the province. There were 20 nurses with MSN degree up to 2009. But now 20 more nurses with MSN degree are added during the last 3 years. Again all of them are females. Four hundred ninety three (493) nurses are currently registered in PNS with Post RN BSN qualification. Until 2009, there were only 265 nurses having such degrees, but more than one hundred are added during the last 3 years. Nurses registered in PNC with 4 years General BSN degree from Sindh province is 243. Less than half of them had qualified before 2009; and 130 have been registered in PNC during last 3 years. All of them are females.

About 16000 nurses with General Nursing Diploma are currently registered in PNS from Sindh. About 13000 were registered up to 2009. Three thousand more are added during last 3 years. About two thousands of them are males. In addition to these qualified nurses, 902 community midwife, 926 pupil midwife and nurse midwife, and 1864 lady health visitors are also registered in PNC.

4.6.1 GENDER DISTRIBUTION OF HEALTH WORKERS

The data on gender distribution of health care providers is largely unavailable. It is very imperative to note that from 55% to more than 80% (average admissions in medical and dental profession are of females. This situation is not different in other health care professions. But after graduation and at the time of absorption into the health delivery system, the number of female HCPs drops drastically. This indicates that a vast majority of female HCPs, particularly doctors, are not able to work and precede their professional careers possibly due to social stigma, family circumstances, gender insensitive working environment and policies.

The ratio of male to female admissions, registration with accreditation bodies, post-graduation trend and finally working in the practical field and continuing the health profession is shown in the following graphs and tables. This pattern clearly indicates the number of female health workers is much less than those trained and educated for health care profession.

FIGURE - 1

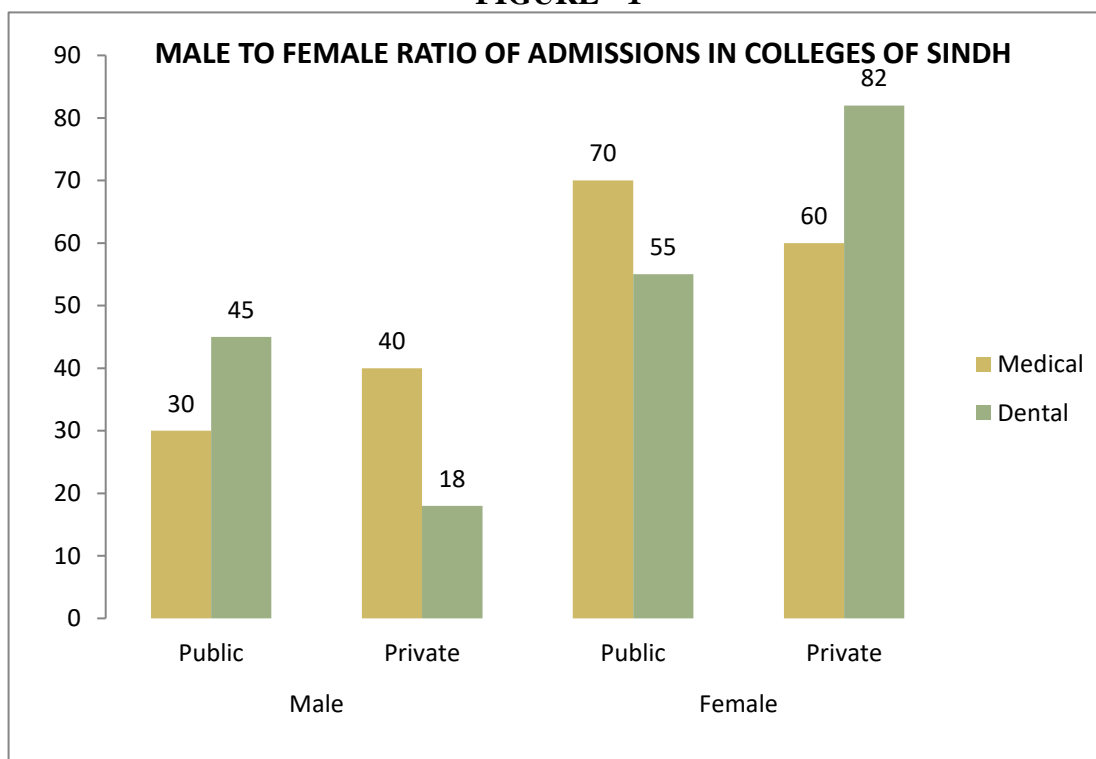


FIGURE - 2

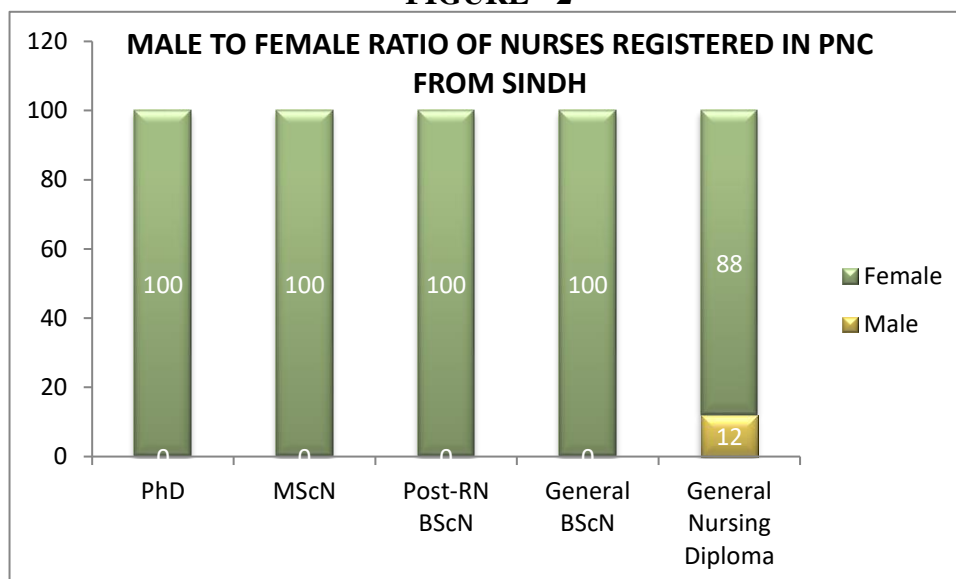


FIGURE - 3

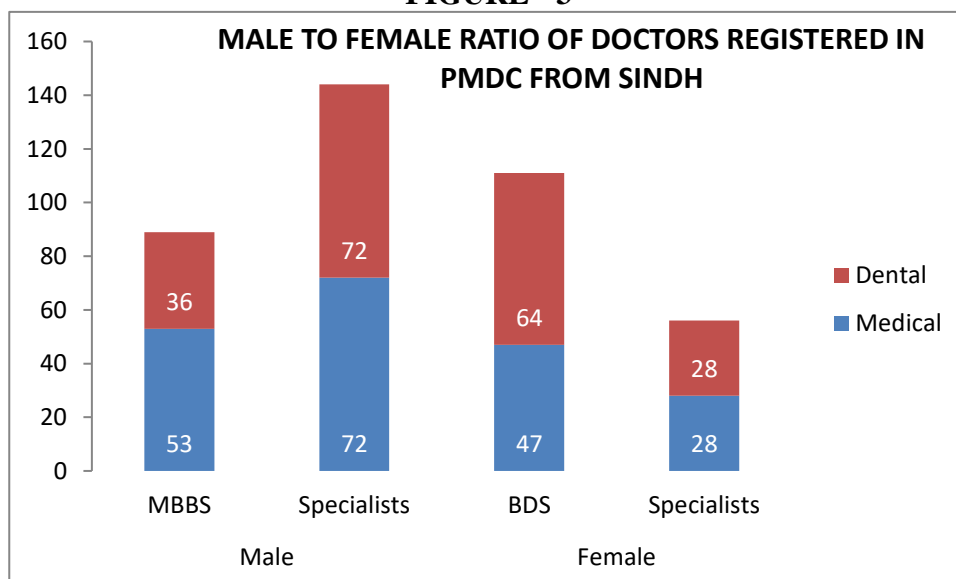
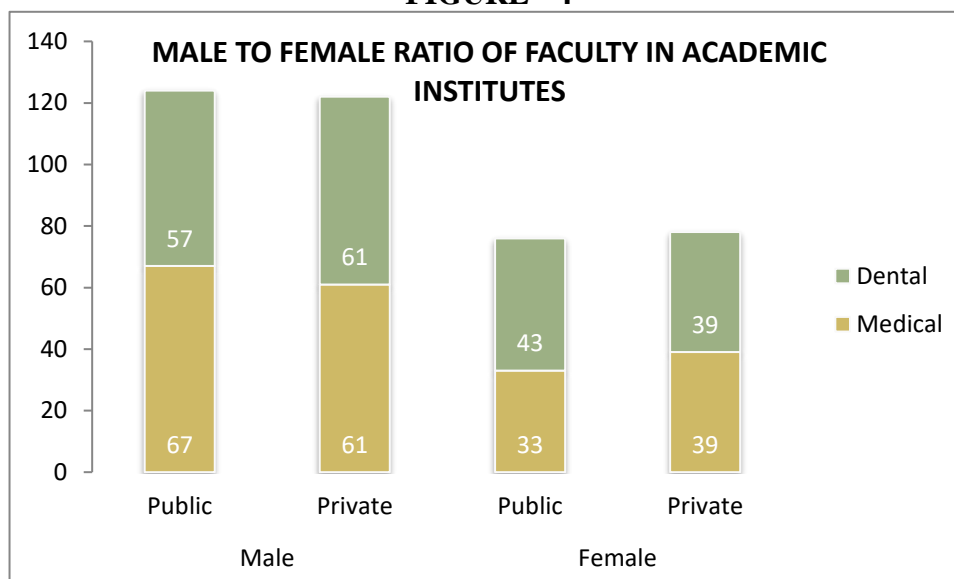


FIGURE - 4**TABLE 44: MALE TO FEMALE RATIO OF VARIOUS CATEGORIES OF HEALTH WORKERS**

Category	Public Sector	Private Sector
Nurses	38:62	38:62
Pharmacists	22:78	55:45
Paramedics	88:12	80:20
Oral Hygienists	96:04	84:16
HM Professionals	90:10	68:32
Allied Health Workers	36:64	50:50

FIGURE - 5

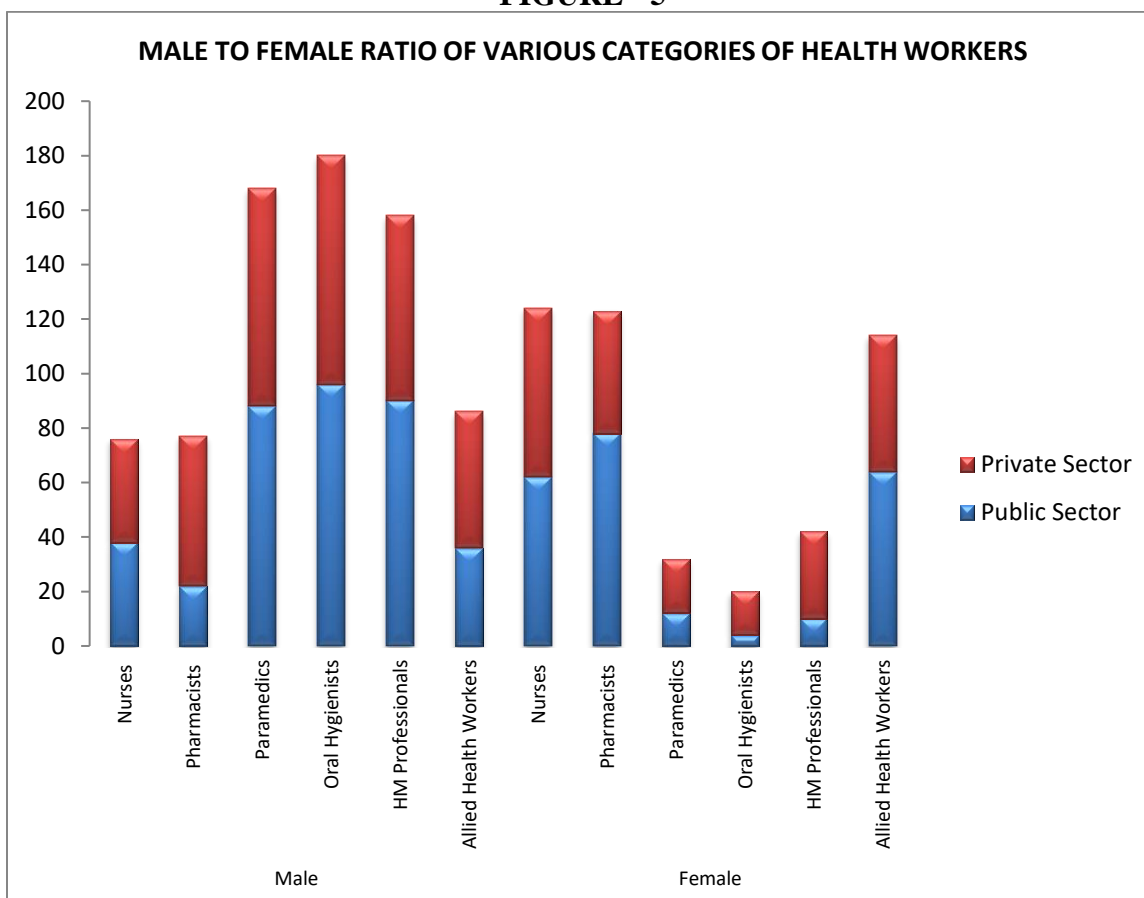
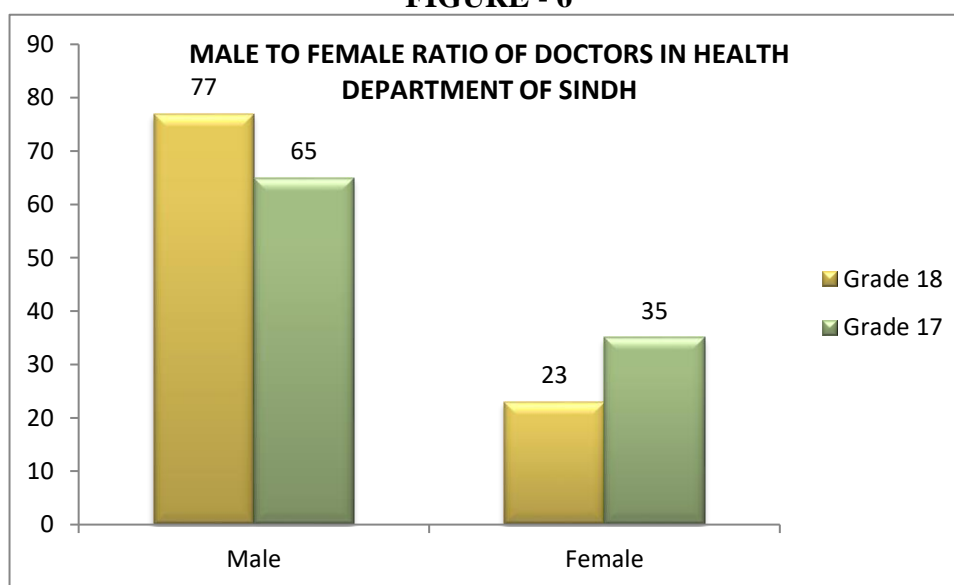
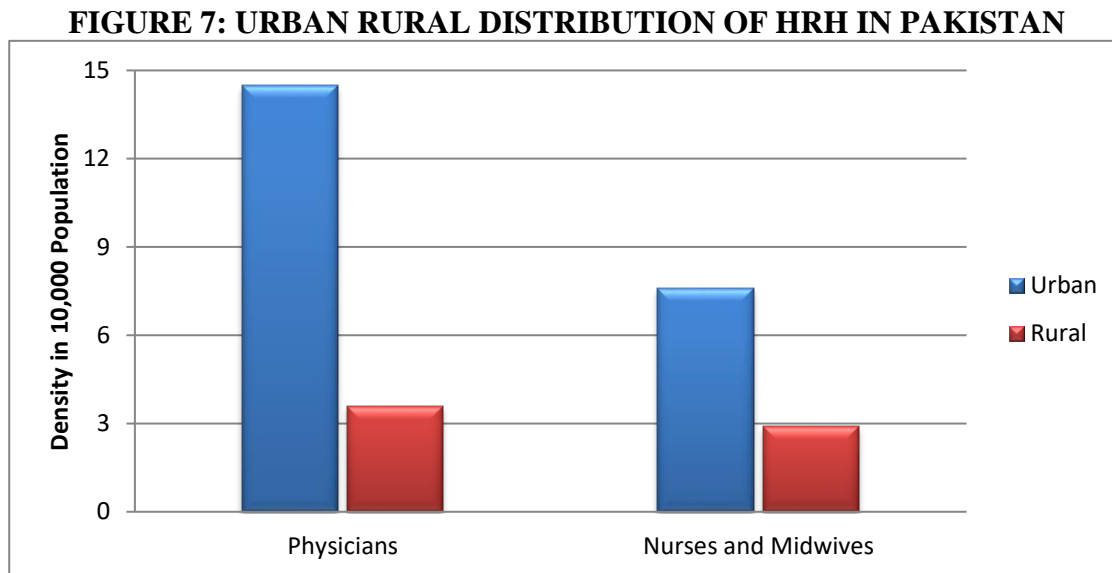


FIGURE - 6



4.6.2 URBAN RURAL DISTRIBUTION OF HEALTH WORKERS

Though the secondary data for the Rural and Urban divide of healthcare providers in Sindh was not specifically available, but it is expected that it follows the same trend as has been estimated for Pakistan. This is illustrated in the Fig below:⁷⁷



Source: Pakistan, Global Health Workforce Alliance

There is a huge gap in the urban-rural distribution of health workers because of hasty growing urbanization amongst the population with subsequent increase in their demand in the urban areas. In addition, comparatively better infrastructure in urban areas and law and order situation are the pulling factors for health workers to move towards urban centers.

4.6.3 AGE DISTRIBUTION OF HEALTH WORKERS

Age distributed data were available only from the PMDC. Table 42 shows the number and percentage of medical and dental professionals by age-groups. Percentage wise dentists showed the highest value to join the profession before 30 years of age. Every one out of four dentist joined his professional career before the age of 30. Medical and dental professional working as faculty member showed the highest percentage in the age group of 31-40 years. More than half of the specialists and faculty members are situated in this age group. One out of four professional in all the 4 categories have attended the age group of 41-50 years. However, General Physicians have the highest percentage of 31 in this age group, while teaching faculty showed the lowest percentage of 21. After the retirement age of 60 years, only dentists showed a percentage of double digits of 10, while other categories that are still in the institutional profession showed very low percentage.

TABLE 45: AGE STRUCTURE OF MEDICAL & DENTAL PROFESSIONALS OF SINDH

Professionals	Less than 30		31-40		41-50		51-60		61-70		Total
	No	%	No	%	No	%	No	%	No	%	
Doctors	7609	14	15331	29	16601	31	11667	22	1639	3	52847
Dentists	984	25	1103	28	1002	25	447	11	413	10	3949
Specialists	641	8	4230	52	2199	27	1071	12	38	1	8179
Faculty	20	1	2711	56	1011	21	981	21	41	1	4764

SECTION 5: HRH PRODUCTION

In Pakistan HRH production has not been directed by any need approximations. The medical doctors' production has been focal point of HRH production, and training of nurses has been limited to lower level of getting a diploma in nursing. The health sector has paid a little attention towards the allied health professionals and paramedical trainings. The numbers as well as the quality of the human resource produced are below the international standards. Now the need for augmenting HRH number, quality and diversity is being recognized, and both the public and private sector institutions are coming up with new programs to fill the HRH gaps.

5.1 MEDICAL EDUCATION

The basic degree awarded in the field of Medicine is a five years' program of MBBS, and that in the field of Dentistry is a four years' program of BDS.

Pakistan Medical & Dental Council recognized Medical and Dental colleges are shown in table 46.

TABLE 46: RECOGNIZED MEDICAL & DENTAL COLLEGES IN PAKISTAN

Province	MEDICAL			DENTAL		
	Public	Private	Total	Public	Private	Total
Punjab	18	28	46	03	12	15
Sindh	09	12	21	05	11	16
K.P.K	08	08	16	02	04	06
Baluchistan	01	01	02	01	-	01
Total	36	49	85	11	27	38

Source: Pakistan Medical & Dental Council

The current information from PMDC shows that in all the four provinces of Pakistan 85 medical colleges are established in private and public sector. Forty two percent (n = 36) of them are in public sector. Fifty four percent (n = 46) of the Pakistani medical colleges are located in Punjab province with 18 of them are in public sector. KPK has established 16 colleges with 19% of the all the medical colleges. It should be noted that KPK population, according to the 1998 census is only 13%.

Currently, 38 dental colleges are functioning in Pakistan. Surprisingly, 16 of them (42%) are in Sindh which has only 25% population of Pakistan. Punjab has only 3 dental colleges out of 10 which are controlled by the government in Pakistan i.e. 30% of the dental colleges under public sector. Baluchistan has only one dental college, which is administered by the public sector.

In Sindh, there are total 21 Medical and 16 Dental Colleges, and the number of admissions approved by PMDC in medical and dental colleges of Sindh is 3450 and 1035 respectively (Tables 47 & 48). In private sector, there are 12 medical colleges, and 10 (83%) are located in Karachi. All of these colleges, except Ziauddin Medical College, have the permission of 100 admissions per year from PMDC.

Five dental colleges are functioning in the province under public administration. Three (60%) of them are located at Karachi with number of permissible admissions of 250 (67%), out of 375 for

all the public institutions. Eleven dental colleges of the province are working under private ownership. Nine (82%) of them are situated at Karachi with allowable admissions of 560 (85%) of total of 660 approved admissions in private dental colleges.

TABLE 47: RECOGNIZED MEDICAL COLLEGES IN SINDH

S #	Public Sector Medical Colleges	Number of Admissions	S #	Private Sector Medical Colleges	Number of Admissions
1	Chandka Medical College, Larkana	350	1	Al-Tibri Medical College, Karachi	100
2	Dow Medical College, Karachi	350	2	Bahria University Medical & Dental College, Karachi	100
3	Dow International Medical College, Karachi	150	3	Baqai Medical College, Karachi	100
4	Ghulam Mohammad Maher Medical College, Sukkur	100	4	Faculty of Medicine & Allied Medical Sciences/Isra University, Hyderabad	100
5	Karachi Medical & Dental College, Karachi	250	5	Hamdard College of Medicine & Dentistry, Karachi	100
6	Liaquat University of Medical & Health Sciences, Jamshoro	350	6	Jinnah Medical & Dental College, Karachi	100
7	Peoples University of Medical & Health Sciences for Women, Benazirabad/Nawabshah	200	7	Liaquat College of Medicine & Dentistry, Karachi	100
8	Shaheed Benazir Bhutto Medical College, Lyari, Karachi	100	8	Liaquat National Medical College, Karachi	100
9	Sindh Medical College, Karachi	350	9	Muhammad Medical College, Mirpurkhas	100
			10	Sir Syed College of Medical Sciences for Girls, Karachi	100
			11	The Aga Khan University Medical College, Karachi	100
			12	Ziauddin Medical College, Karachi	150
	Total	2200		Total	1250
	Grand Total	3450			

Source: Pakistan Medical & Dental Council

TABLE 48: RECOGNIZED DENTAL COLLEGES IN SINDH

S #	Public Sector Dental Colleges	Number of Admissions	S #	Private Sector Dental Colleges	Number of Admissions
1	Dental Section, Dow International Medical College, Karachi	50	1	Altamash Institute of Dental Medicine, Karachi	80
2	Dental Section, Karachi Medical & Dental College, Karachi	100	2	Baqai Dental College, Karachi	75
3	Dental Section, Liaquat University of Medical & Health Sciences, Jamshoro	75	3	Dental Section, Bhittai Dental & Medical College, Mirpurkhas	50
4	Dr. Ishratul Ebad Institute of Oral Health Sciences Karachi	100	4	Dental Section, Hamdard College of Medicine & Dentistry, Karachi	50
5	Bibi Aseefa Dental College, Larkana	50	5	Dental Section, Jinnah Medical & Dental College, Karachi	50
			6	Dental Section, Liaquat College of Medicine & Dentistry, Karachi	75
			7	Dental Section, Muhammad Bin Qasim Medical & Dental College, Karachi	50
			8	Dental Section, Sir Syed Medical College, Karachi	50
			9	Fatima Jinnah Dental College, Karachi	80
			10	Isra Dental College, Hyderabad	50
			11	Ziauddin Dental College, Karachi	50
	Total	375		Total	660
	Grand Total	1035			

Source: Pakistan Medical & Dental Council

As per data collected from medical and dental colleges of Sindh, there are around 50 students less than the approved number in public sector medical colleges, whereas the number of the students in private sector medical colleges is more than that allowed by PMDC. As a whole, the total number of admissions in both public and private sector medical colleges is a little more than the allowed number of 3450; and the total number in dental colleges is a little less than the allowed number of 1035.

5.1.1 PUBLIC HEALTH SPECIALIZATION PROGRAMS

In Sindh, there are three institutions that offer a two years' Masters in Public Health (MPH) program for Public Health professionals. These institutions are Baqai Medical University, Dow University of Health Sciences, Karachi and Liaquat University of Medical & Health Sciences, Jamshoro with a total annual intake of around 50 candidates. In addition, five to ten professionals from Sindh are also admitted at Health Services Academy, Islamabad for MPH program annually. A total of 1035 public health specialists are registered with the PMDC. There is a dire need for strengthening the management cadre in the Sindh Health Sector in view of the gross deficiency in this field.

5.2 NURSING EDUCATION

Various programs of Nursing and Midwifery training are offered in Sindh. These programs include General Nursing / Diploma, Nurse Midwife, Pupil Midwife, Community Midwife and Lady Health Visitor. The examination for various programs is conducted under the Sindh Nursing Examination Board. The Programs are regulated and accredited by the Pakistan Nursing Council.

General Nursing / Diploma: This is a three years' program. The eligible age for the diploma programs is 15-25 years. Unmarried applicants are preferred. Matriculation is the requirement for admission in diploma. Although students with both Arts and Science subjects are eligible, but preference is given to the ones who had already studied Science Subjects. **Nurse Midwife** is one year course after diploma in nursing. **Pupil Midwife** is one year course without diploma in nursing; and **Community Midwife** is 1.5 years (18 months) course.

Lady Health Visitor training is a two year diploma program. LHV's are trained at five Public Health Nursing Schools in the Public Sector. Eligible candidates must be females with Matric in science subjects. Preference is given to candidates with FSc pre medical. The age limit for enrolment into the LHV Program is 30 years.

Generic B.Sc Nursing is a four years Bachelor program. The education required for candidates is FSc pre medical.

Post RN B.Sc. Nursing is a two years Bachelor program for nurses with General Nursing Diploma.

MScN is a two years Masters program for nurses with BScN.

In Sindh, there are 57 institutes for General Nursing (table 49). Fifty eight percent (n=33) of them are working under private establishments. Twenty seven (82%) of them are located in Karachi. Most of the private nursing institutes are functioning under Nonprofit and charity based organizations. Twenty one of such types of nursing institutions are established under public sector. But in contrast to the private sector only 5 (24%) of them are based at Karachi. Other than these nursing institutions of private and public sectors, two are established by Armed Forces and one is under Karachi Metropolitan Corporation. All of them are situated at Karachi. About 2000 nurses are taking training annually from these 57 institutions. These institutes produce around 2000 nurses (GN Male 1300 and GN Female 700) yearly.

Table 50 shows the nurse midwife institutions of Sindh province. These institutions offer one year diploma course after 3 years of General Nursing training. Thirteen such schools out of 29 are working under private institutions and organizations. Ten of them are located at Karachi and the rest are located at Hyderabad. Almost half (n=14) of these institutions are functioning under government sector. Opposite to the private sector, only 4 out of 14 schools are established at Karachi. Other than these institutions functioning under private and public sectors one is working under Armed Forces administration and one under KMC.

TABLE 49: INSTITUTIONS FOR NURSES THREE YEAR PROGRAM

S.#	NAME OF INSTITUTE	S.#	NAME OF INSTITUTE
	NON GOVERNMENT ORGANIZATIONS		SINDH GOVERNMENT
1	Agha Khan Univ. (SON) Karachi.	1	Ayaz Samoon Nur.T.I . Lyari Karachi
2	Amazing Grace Karachi	2	C.M.C.H SON Larkana
3	Baqai University (SON) Karachi	3	Civil Hospital SON Badin
4	Beachwood (SON) Hyderabad	4	Civil Hospital SON Karachi
5	Bhattai Naushahro Feroze	5	Civil Hospital SON Khairpur
6	Burraq Karachi	6	Civil Hospital SON Mirpurkhas
7	Dr. Ziauddin Hospital SON Karachi	7	Civil Hospital SON Sanghar
8	Holy Family Hos. SON Karachi.	8	Civil Hospital SON Thatta
9	IIMIYA Institute of Nursing Karachi	9	Jinnah Postgraduate M.C SON Karachi
10	Islamic Mission Hospital Karachi.	10	Landhi Medical Complex
11	Karachi Adventist Hos. SON Karachi.	11	Liaquat M.U.H. SON Hyderabad.
12	Kharadar General Hospital Karachi.	12	LUH Hyderabad
13	Khyber Karachi	13	Male School of Nursing Jacobabad
14	KK (SON) Karachi	14	NICH SON Karachi
15	Kulsoom Bai V.S.S.H Karachi.	15	P.M.C Hospital .SON Sukkur
16	L.N.H. (SON) Karachi	16	P.M.C. Hospt. SON Nawabshah
17	Life Saving (SON) Karachi	17	PMI SON Larkana
18	Medicare Hosp. (SON). Karachi	18	R.B.U.T SON Shikarpur
19	Murshid Hospital (SON) Karachi	19	Sindh Govt. Hospt. Liaquatabad
20	National Medical Centre (SON) Karachi	20	Sindh G. Qattat Hosp. Orangi Karachi
21	New Life (SON) Karachi	21	Sir. C. J.Instt. of Pshy. SON Hyderabad
22	Patel (SON) Karachi		
23	Pride Karachi		
24	Rufaida Hamdard SON Karachi		ARMED FORCES
25	Sachal Sarmast (SON) Khairpur	1	PAF Base Masroor Karachi
26	Shahbaz (Male) Larkana	2	PNS Shifa Hospital SON Karachi
27	SIUT (SON) Karachi		
28	SMK Male Shikarpur		
29	St. James (SON) Karachi		
30	St. James (SON) Karachi		KARACHI METROPOLITAN CORPORATION
31	The Angel Inst. Karachi	1	Abbasi Shaheed Hosp. Karachi
32	Unique Inst. Karachi		
33	Wali Bhai R.H (SON) Hyderabad		
Grand Total		57	

Source: Sindh Nursing Examination Board

TABLE 50: NURSE MIDWIFE INSTITUTIONS

S.#	NAME OF INSTITUTE	S.#	NAME OF INSTITUTE
	NGOs		SINDH GOVERNMENT
1	Agha Khan Karimabad Karachi	1	Ayaz Samoon Nur.T.I . Lyari Karachi
2	Agha Khan Mat. C.C.Hyderabad	2	C.M.C.H SON Larkana
3	Agha Khan Univ. (SON) Karachi	3	Civil Hospital Karachi.
4	Baqai University SON Karachi	4	Civil Hospital SON Khairpur
5	Dr. Ziauddin Hospital SON Karachi	5	Civil Hospital SON Mirpurkhas
6	Holy Family Hos. SON Karachi	6	Civil Hospital SON Sanghar
7	Islamic Mission Hospital Karachi	7	Civil Hospital SON Thatta
8	Karachi Adventist Hos. SON Karachi	8	Jinnah Postgraduate M.C Karachi
9	Liaquat National Hospital Karachi	9	Liaquat M.U.H. SON Hyderabad
10	Medicare Hosp. (SON). Karachi	10	LUH Hyderabad
11	Murshid Hospital Karachi.	11	NICH SON Karachi.
12	St. Elazbeth Hosp. Hyderabad	12	P.M.C Hospital .SON Sukkur
13	Wali Bhai R.H (SON) Hyderabad	13	P.M.C. Hospt. SON Nawabshah
		14	R.B.U.T SON Shikarpur
	KMC		ARMED FORCES
1	Abbasi Shaheed Hosp. Karachi	1	PNS Shifa Hospital Karachi.
Grand Total 29			

Source: Sindh Nursing Examination Board

The Pupil Midwife institutes are 18 (Non Governments Organizations 10, Sindh Government 7, and KMC 1). The Community Midwife institutes are 37. Twenty five of these are working under government administration. Only five of them are based at Karachi. Other than public sector, eight are working under private institutions or organizations, and four under KMC (tables 51 & 52). The annual production for each of these categories i.e. Nurse Midwife, Pupil Midwife and Community Midwife is more than 500.

TABLE 51: PUPIL MIDWIFE INSTITUTIONS

S.#	NAME OF INSTITUTE	S.#	NAME OF INSTITUTE
	NGOs		SINDH GOVERNMENT
1	Agha Khan Mat. Garden Karachi	1	Kunri Christian Hosp. Kunri
2	Agha Khan Mat. Karimabad Karachi	2	Public Health School Hyderabad
3	Agha Khan Mat. Kharadar Karachi	3	Public Health School Karachi
4	Dr. Ziauddin Hospital SON Karachi	4	Public Health School Larkana
5	Islamic Mission Hospital Karachi	5	Public Health School Mirpurkhas
6	Lady Dufferin Hosp. Karachi	6	Public Health School Sukkur
7	Liaquat National Hospital Karachi	7	Sindh Govt. Qattar Hospt. Karachi.
8	Murshid Hospital Karachi.		
9	St. Elizbeth Hosp. Hyderabad		KMC
10	St. Teresas Hosp. Mirpurkhas	1	Sobhraj Mat. Home Karachi.
Grand Total 18			

Source: Sindh Nursing Examination Board

TABLE 52: COMMUNITY MIDWIFE INSTITUTIONS

S.#	NAME OF INSTITUTE	S.#	NAME OF INSTITUTE
	SINDH GOVERNMENT		NGOs
1	Ayaz Samoon Nur.T.I . Lyari Karachi	1	Agha Khan Mat. C.C. Hyderabad
2	C.D.F Hospital Hyderabad	2	Agha Khan Mat. Garden Karachi
3	C.MC.H Larkana	3	Agha Khan Mat. Karimabad Karachi
4	Civil H. (Shahdadpur Unit) Sanghar.	4	Agha Khan Mat. Kharadar Karachi
5	Civil Hosp. (Qatar Hosp. Unit) Karachi	5	Atia (SOM) Karachi.
6	Civil Hospital Khairpur	6	Atia SOM Karachi
7	Civil Hospital Naushahro Feroze	7	Baqai Uni. Hosp. SON Karachi
8	Civil Hospital Sanghar	8	Islamic Mission Hospital Karachi
9	Civil Hospital SON Badin		
10	Civil Hospital SON Karachi		
11	Civil Hospital SON Mirpurkhas		
12	Civil Hospital SON Thatta		KMC
13	Civil Hospital Sukkur	1	Gizri (SOM) Karachi.
14	Kunri Christian Hosp. Kunri	2	Khateeja Tul Kubra (SOM) Karachi
15	L.U.H (SON) Hyderabad	3	Sartaj Bani (SOM) Karachi
16	Midwifery School Mithi.	4	Sobhraj Mat. Home Karachi.
17	PMCH (SON) Shaheed Benazirabad		
18	Public Health School Hyderabad		
19	Public Health School Karachi		
20	Public Health School Larkana		
21	Public Health School Mirpurkhas		
22	Public Health School Sukkur		
23	R.B.U.T Shikarpur		
24	S. Govt. H: SOM Liaquat Abad Karachi		
25	Sir. C. J. Instt. of Pshy. SON Hyderabad		
Grand Total		37	

Source: Sindh Nursing Examination Board

The Government sector five Public Health Schools are working in major cities of Sindh i.e. Karachi, Hyderabad, Larkana, Mirpurkhas and Sukkur. These are producing around 150 Lady Health Visitors annually.

TABLE 53: LADY HEALTH VISITORS / PUBLIC HEALTH SCHOOLS

S.#	NAME OF INSTITUTE
	SINDH GOVERNMENT
1	Public Health School Hyderabad
2	Public Health School Karachi
3	Public Health School Larkana
4	Public Health School Mirpurkhas
5	Public Health School Sukkur

Source: Sindh Nursing Examination Board

The following tables (54 to 58) show the output of various nursing programs from Sindh Nursing Board for years 2007-2010. The data show that the output for all these categories has significantly increased except for nurse midwife and pupil midwife, for which there is a declining pattern in output of the candidates.

**TABLE 54: SINDH NURSES EXAMINATION BOARD
OUTPUT NURSES THREE YEAR PROGRAM FROM VARIOUS INSTITUTIONS**

S #	Institute	2007			2008			2009			2010		
		M*	F*	T*	M	F	T	M	F	T	M	F	T
1	Federal Govt.	16	58	74	37	118	155	14	143	157	14	84	98
2	Sindh Govt.	411	246	65	630	196	826	591	345	936	650	235	885
3	KMC		21	21		17	17		22	22		15	15
4	NGOs	179	275	454	320	359	679	599	332	931	696	366	1062
	Total	606	600	1206	987	690	1677	1204	842	2046	1360	685	2045

*M = Male, F = Female, T = Total

Source: Sindh Nursing Examination Board

**TABLE 55: SINDH NURSES EXAMINATION BOARD
OUTPUT OF NURSE MIDWIFE FROM VARIOUS INSTITUTIONS**

S#	Name of Institute	2007	2008	2009	2010
1	Federal Government	55	84	62	86
2	Sindh Government	210	185	133	126
3	KMC	24	5	13	6
4	NGOs	141	131	132	89
	Total	430	405	340	301

Source: Sindh Nursing Examination Board

**TABLE 56: SINDH NURSES EXAMINATION BOARD
OUTPUT OF PUPIL MIDWIFE FROM VARIOUS INSTITUTIONS**

S#	Name of Institute	2007	2008	2009	2010
1	Federal Government	20	20	-	-
2	Sindh Government	330	248	147	161
3	KMC	23	20	17	1
4	NGOs	258	223	140	132
	Total	631	511	304	293

Source: Sindh Nursing Examination Board

**TABLE 57: SINDH NURSES EXAMINATION BOARD
OUTPUT OF COMMUNITY MIDWIFE FROM VARIOUS INSTITUTIONS**

S#	Name of Institute	2007	2008	2009	2010
1	Federal Government	-	79	250	552
2	Sindh Government	-	-	21	41
3	KMC	-	77	174	108
4	NGOs	-	156	445	701

Source: Sindh Nursing Examination Board

**TABLE 58: SINDH NURSES EXAMINATION BOARD
OUTPUT OF LADY HEALTH VISITORS FROM PUBLIC HEALTH SCHOOLS**

Year	2006	2007	2008	2009	2010
Total	134	120	181	184	163

Source: Sindh Nursing Examination Board

5.3 PHARMACY EDUCATION

The Doctor of Pharmacy (Pharm.D) is a professional degree that prepares the graduate for pharmacy practice. Traditionally in Pakistan, the B.Pharmacy (4- year courses) was the first-professional degree for pharmacy practice. However, in 2003, the Pakistan Pharmacy Council mandated that a doctorate in pharmacy would be the new first-professional degree. The Pharm.D in Pakistan is a professional basic degree consisting of 5 years. The education required for admission is FSc pre medical.

In addition to four Pharmacy institutes established in public sector, four private medical colleges also have their pharmacy institutes. Out of these eight pharmacy institutes, seven are located at Karachi.

**TABLE 59: RECOGNIZED PHARMACY INSTITUTIONS FOR DEGREE
PROGRAMS IN SINDH⁷⁸**

S#	Name of the Institution	Programs
A)	Public Sector Institutions	
1.	University of Karachi, Karachi	Pharm.D
2.	University of Sindh, Jamshoro	Pharm.D
3.	Federal Urdu University of Arts, Science & Technology, Karachi	Pharm.D
4	Dow College of Pharmacy, Karachi	Pharm.D
B)	Private Sector Institutions	
1	Baqai Medical University, Karachi	Pharm.D
2	Jinnah University for Women, Karachi	Pharm.D
3	Hamdard University, Karachi	Pharm.D
4	Zia-ud-din University, Karachi	Pharm.D

Source: Pharmacy Council of Pakistan

5.4 PARAMEDICS PRODUCTION

For the training of paramedics various programs are being offered. The examining board for paramedics is the Sindh Medical Faculty. Various categories of paramedics who qualified from year 2007 to 2011 are shown in the following table.

TABLE 60: NUMBER OF PASSING PARAMEDICS AS PER RECORD OF SINDH MEDICAL FACULTY⁷⁹

Year	2007	2008	2009	2010	2011
Dispenser	893	840	173	884	744
Laboratory Technician	225	305	24	250	188
OT Tech	303	322	46	276	247
X-ray Technician	83	93	10	88	72
Dental Surgeon Assistant	52	59	17	83	61
Physiotherapy Technician	87	45	3	30	41
Pediatric Technician	35	33	3	45	53
Anesthesia Technician	45	66	9	50	55
ICU Technician	58	15	1	22	21
ECG Technician	58	40	5	33	24
Ophthalmic Technician	5	31	23	37	9
Dental Hygienist (1 Year)	11	11	1	12	5
Dental Hygienist (2 Years)	10	14	1	11	9
Blood Transfusion Technician	18	15	8	18	37
Dialysis Technician	11	8	2	10	16
Health Technician	27	96	73	103	100
NICU Technician	6	7	0	4	0
Cardiac Technician	4	4	0	2	5
Oncology Technician	2	3	0	1	4
CT Scan Technician	3	3	0	0	1
US Technician	0	0	1	1	0
Lab Diploma (1 Year)	0	0	0	9	13
Lab Diploma (2 Years)	0	0	0	0	8
OT Diploma (1 Year)	0	0	0	19	15
OT Diploma (2 Years)	0	0	0	0	15
Cardiac Diploma (1 Year)	0	0	0	0	17
Cardiac Diploma (2 Years)	0	0	0	0	0
CSSD Technician	0	0	0	0	5
Leprosy Technician	0	0	0	0	3
Sanitary Technician	0	0	0	0	1
Food Inspector	0	0	0	0	8
Nurse Aid	0	0	0	0	4
Total	1936	2010	400	1988	1781

Source: Sindh Medical Faculty

5.5 ALTERNATIVE MEDICINE PROGRAMS

Traditional Medicines have been a well-known component of the cultural heritage of Pakistan and has played a significant role in providing health care to a large portion of the population. 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 utilize its potential. Traditional Medicines and practitioners primarily belong Tibb-e-Unani (Hikmet) and Homoeopathic. Ayurvedic is not very common in Pakistan though included in the UAH Act 1965. Acupuncture and Traditional Chinese Medicine have also been recently introduced as alternative health care systems.

In Sindh, the Pakistan Council of Scientific and Industrial Research (PCSIR) Laboratories, Qarshi Industries, Lassani, Hamdard Foundation, Sindh Agriculture University, Tando Jam, and the Botany and Pharmacology departments of various universities are engaged in research on traditional/alternate medicine, the medicinal and aromatic plants.

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.⁸⁰

Tibb-e-Unani: According to the basic principles of Tibb-e-Unani (Greco-Arabs) the body is made of four basic elements; Earth, Air, Water, and Fire with different temperaments i.e. cold, hot, wet and dry. The body organs get their nourishment through four humors; Blood, Phlegm, Yellow Bile and Black Bile. The concepts of health in Tibb-e-Unani are a state of body in which there is equilibrium in the humors, and the function of the body is normal in accordance with its own temperament and the environment. When the equilibrium in the humors is disturbed and the functions of body are abnormal that state is called disease. Tibb-e-Unani takes a holistic approach to words prevention of disease, cure and promotion of health. Tibb-e-Unani relies on drugs made from medicinal plants, herbs, minerals, or of metallic or animal organ, for the treatment of disease.⁸¹

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 and registers qualified practitioners of the Unani System of Medicine. It is estimated that there are approx. 52,600 Hakims / Tabibs registered with NCT.⁸² A total of 457 Tibbi Dispensaries are providing alternative medicinal care in Pakistan.⁸³ These are supplemented by growing number of private clinics. There are 42 Unani Shafa Khanas established by Health Department, Sindh to provide free health services to the public.^{60,61}

Homoeopathy: This is 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. 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. Four Homeo Dispensaries are being run by Health Department, Sindh for the provision of free health services to the public.^{60,61}

TABLE 61: HIKMAT COURSES IN PAKISTAN

Title of Course	Eligibility	Duration
DHMS (Diploma in Homeopathic Medical Sciences)	Matriculation or O Levels (Science Subjects)	4 years
Dilpoma course for Tibb-e-Unani [Fazil-Tibb-Wal-Jarhat (FTJ)]	Matriculation or O Levels (Science Subjects)	4 years
BEMS (Bachelor of Eastern Medicine and Surgery)	FSc (Pre-Medical) or A Levels or B.Sc (Biological Sciences)	5 years
BEMS (Bachelor of Eastern Medicine and Surgery) – <i>Fast Track</i>	Fazil-Tibb-Wal-Jarhat (FTJ) Diploma Holders	3 years
BHSM (Bachelor in Homeopathic Medical Sciences)	FSc (Pre-Medical) or A Levels or B.Sc (Biological Sciences)	4 years

DHMS has been made equivalent to BSc.

TABLE 62: RECOGNIZED HOMEOPATHIC COLLEGES IN SINDH

S#	College Name
1	Ansari Homeopathic Medical College, Karachi
2	Jinnah Homeopathic Medical College, Karachi
3	King Fahad Homeopathic Medical College, Karachi
4	Muhammadi Homeopathic Medical College, Karachi
5	Drs. Nasir & Akbar Homeopathic Medical College, Karachi
6	Nawabshah Homeopathic Medical College, Nawabshah
7	Pakistan Central Homeopathic Medical College, Karachi
8	Sanghar Homeopathic Medical College, Sanghar
9	Sukkur Homeopathic Medical College, Sukkur
10	Shah Abdul Latif Bhitai Homeopathic Medical College, Karachi
11	Sughra Memorial Homeopathic Medical College, Karachi
12	Sindh Homeopathic Medical College, Hyderabad

5.6 ENROLMENT AND EXPECTED PRODUCTION OF HUMAN RESOURCES FOR HEALTH?????

The following two tables show the expected production (as per admission record of the institutes) of health care providers in Sindh Province. Table 63 gives the break up by gender of the admitted candidates in private and public institutions for MBBS and BDS degrees. The total expected production for MBBS is 3450 with male to female ratio of 28:72; and that of BDS is 1035 with male to female ratio of 28:72. The data illustrate that the expected production of female doctors would be more than two thirds of the total doctors.

Table 64 shows the information obtained from the medical / dental institutions regarding enrollment in FCPS, PhD, MDS, MScN, BSc Nursing, Diplomas, MCPS, and Paramedic Technician. The data are spilt into male and female ratio.

TABLE 63: ANNUAL INTAKE AND EXPECTED PRODUCTION FROM MEDICAL & DENTAL COLLEGES OF SINDH

Degree	Institution	Male	Female	M:F Ratio	Total
MBBS	Public	620	1580	28:72	2200
	Private	350	900	28:72	1250
	Total	970	2480	28:72	3450
BDS	Public	130	245	35:65	375
	Private	180	480	27:73	660
	Total	310	725	30:70	1035

TABLE 64: ENROLMENT IN DIFFERENT PROGRAMS RECEIVED IN THIS SURVEY FOR 2011

Degree	Institution	Number	Male	Female	M:F Ratio	Total
FCPS	Public	4	550	1408	28:72	1958
	Private	4	243	338	27:73	876
	Total	8	793	1746	28:72	2834
Diploma/ MCPS/ Masters	Public	4	173	109	61:39	282
	Private	6	148	64	70:30	212
	Total	10	321	173	65:35	494
PhD	Public	2	8	14	37:63	22
	Private	2	19	8	70:30	27
	Total	4	27	22	55:45	49
Master in Dentistry	Public	2	17	32	35:65	49
	Private	3	20	7	74:26	27
	Total	5	37	39	49:51	76
Bachelor in Nursing	Public	2	18	153	10:90	171
	Private	4	84	103	45:55	187
	Total	6	102	256	28:72	358
Master in Nursing	Public	1	5	5	50:50	10
	Private	1	5	5	50:50	10
	Total	2	10	10	50:50	20
Paramedics Technician	Public	1	36	68	35:65	104
	Private	1	38	4	90:10	42
	Total	2	74	72	51:49	146

5.7 IN-SERVICE TRAINING PROGRAMS AND CONTINUING EDUCATION

There are many in service training programs for all categories of health workers in Sindh, but these are neither institutionalized nor linked to career structures. As there is no central authority regulating these programs, no consistent data are available in this context.

Provincial Health Development Center (PHDC) has been established to strengthen the in service training of health workers. PHDC has not been successful in providing institutionalized induction programs specific to each category of healthcare workers. The situation is complicated by critical shortage of technical experts in the fields of health system planning, health human resource management, health economics, hospital management and administrative, health information and health system research.

District Health Development Centres (DHDCs) 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 DHDCs 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.

In Sindh, as is in other provinces, mandatory CME credit hours are not defined or linked to promotion of health workers. The Continued Medical Education (CME) and Continued Professional Development (CPD) Programmes for the health workforce, therefore, are a missing link in the health workforce management and development in the province.

The required qualifications and trainings, particularly for management positions, are shockingly disregarded in public health sector of Sindh.

In both the public and private sector academic institutes many health related programs are being offered in the province. These include Diplomas, Masters, MPhil, PhD, MD, MS, beside trainings for MCP and FCPS.

The various programs, in addition to MBBS and BDS, of public and private sector medical colleges / universities of Sindh are shown in table 65. The BMSI (Basic Medical Sciences Institute) at JPMC, and affiliated with Karachi University, is one of very old and prestigious institute where MPhil in Basic Medical Sciences is offered to medical graduates.

TABLE 65: VARIOUS HEALTH-RELATED EDUCATIONAL PROGRAMS OF PUBLIC AND PRIVATE SECTOR ACADEMIC INSTITUTES OF SINDH

Program	Duration	Institute*									
		D	L	C	P	A	B	Z	Ln	H	I
BScN	4 Years	√	√	√		√	√	√	√		
Post-RN BScN	2 Years					√	√		√		
BScM (BS Midwifery)	2 Years					√					
MSc Nursing	2 Years	√				√					
PhD Nursing	4 Years										
BS- Dental Care Professional	4 Years	√									
BS Physical Medicine & Rehabilitation	4 Years	√					√				
DPT (Doctor of Physiotherapy)	5 Years	√	√				√	√	√		
Pharm-D	5 Years	√					√				
BS Medical Technology	4 Years	√					√				
BS Dental Technology	4 Years	√									
BS Occupational Therapy	4 Years	√									
BS Prosthetics & Orthotics	4 Years	√									
BBA Health Care	2/3/4 Years	√					√			√	
MS Health Policy Management	2 Years	√				√					
MS Epidemiology & Biostatistics	2 Years	√				√					
MS Health Prof. Education	2 Years	√									
MBE (Masters in Bio-ethics)	2 Years										
MBA Health Care	1/2 Years	√					√				
MS Bio Physics	2 Years	√									
MS Physiotherapy	2 Years	√					√				
BS Speech Language Therapy	2 Years							√			
MS Diabetes & Endocrinology	2 Years	√						√			
MPH (Masters in Public Health)	2 Years	√	√		√		√				
MS Medical Technology	2 Years	√	√				√	√			
Diploma (Basic & Clinical)	2 Years	√	√	√	√		√	√			√
MPhil (Basic Medical Science)	2/3 Years	√	√	√	√		√	√		√	√
PhD (Basic Medical Science)	3/4 Years	√	√			√	√				√
MCPS (Training)	2 Years	√	√	√	√		√	√	√	√	√
FCPS (Training)	4 Years	√	√	√	√	√	√	√	√	√	√
MD / MS (Doctor of Medicine / Master of Surgery)	4/5 Years	√	√	√	√						√

*D= Dow University of Health Sciences; L= Liaquat University of Medical & Health Sciences; C= Chandka Medical College; P= Peoples University of Medical & Health Sciences for Women; A= Aga Khan University; B= Baqai Medical University; Z= Ziauddin Medical University; Ln = Liaquat National Medical College; H= Hamdard Medical University; I= Isra Medical University

SECTION 6: HRH RETENTION AND EMMIGARTION

There is a crucial need that the HRH production and utilization are directed by evidence based policies and plans and closely coordinated to meet demand and supply imperatives, fair distribution and adequate skill mix.

This requires the establishment of HRH specific methods and devices in the departments of health. There is no specific focus on HRH, and Department of Health does not have so far HRH divisions, information systems and managers.

6.1 WORK ENVIRONMENT AND JOB SATISFACTION

The major determinants of a nice work environment and job satisfaction include job security, remuneration compatible with qualification, openings for professional growth and availability of resources and organizational support for discharging the duties. As regards the job satisfaction and work environment of health workers in Pakistan, it has been found that the private sector scores better than the public sector on all indicators while the rural workers are in worse condition as compared to the urban workers on almost all indicators as is shown in table 66.

TABLE 66: COMPOSITE SCORE ON JOB SATISFACTION INDICES OF HEALTH WORKERS IN PAKISTAN⁸⁴

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
<i>Lower Score is a better and more positive indication.</i>				

Source: Pakistan Health Human Resource Assessment 2009

6.2 HRH PERFORMANCE MANAGEMENT

In public sector, the health workers performance is evaluated through the out dated subjective system of ACR (Annual Confidential Report). The ACRs are written by the respective supervising officers and countersigned by heads of departments and institutions. The promotions

are not performance based, and these reports are found biased in most of the cases and dependent on the personal likes and dislikes of heads of departments.

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.

6.3 HRH REMUNERATION AND BENEFITS

Public sector health workers are awarded salaries as per a system of Basic Pay Scales (BPS).

The table 67 gives salary per month of faculty members and physicians for private and government academic institutions. It also gives the starting salaries in government institutions.

TABLE 67: SALARY OF DOCTORS IN PRIVATE AND GOVERNMENT SECTOR

Category	Private			Government			Govt. Starting*
	Minimum	Maximum	Mean	Mini-	Maxim-	Mean	
Physician Generalist	26000	105000	57000	25000	68000	46000	BPS 17 29316
Physician Specialist	26000	125000	80000	40000	74000	55000	
Lecturer	15000	50000	33000	28000	65000	42000	BPS18 41682
Assistant Professor	40000	90000	66000	35000	74000	62000	69628 BPS19
Associate Professor	60000	125000	88000	47000	96000	80000	BPS 20 85860
Professor	75000	150000	121000	96000	115000	102000	BPS21 102848

*It includes BMS and PG allowances

The average salary of the government sector physicians / academicians is lower than private sector's physicians. The difference was more than Rs. 10,000 per month. Even though the starting salaries in these two types of institutions are the same, the higher upper limit in private sector makes the mean difference that much higher. For physicians' specialists, the minimum salaries in private establishments are much lower than the government institutions. But, due to the higher upper limits, it brings the average salary much higher for private institutions than government institutions. The collected information showed that the government institutions are paying on average ten thousand more to the Lectures/Instructors/Demonstrators than private setups. The minimum and maximum salaries being paid to these academic ranks are higher in government institutions than private establishments. There is a difference of only five thousand in the average salary for Assistant professors in the private sector than government institutions. This difference is also visible in the lower limits of private and government institutions. The private institutions are paying about eight thousand more to their Associate Professors than competitive government institutions. The minimum salaries in the private institutions are about

60,000/- and the maximum goes up to 125,000/-. However, the public institutions are paying minimum of 47,000/- and maximum of 96,092 to their Associate Professors. The private institutions are paying about 20,000/- more on average to their professors than the government institutions. Even though, the minimum salary in this cadre in the government institutions is much higher, but due to a lot higher maximum salary in the private sector makes the average salary that much higher to their professors.

The last column of the table shows the starting salary of different Basic Pay Scale (BPS) for different academic positions. It also includes the Basic Medical Science (BMS) and Post Graduate Teaching allowances along the basic salary of the respective BPS. The mean salaries of government institutions are less than these starting salaries. The reason could be that some faculty members might not be receiving the other allowances like BMS or Post Graduate Teaching allowances, because they are not entitled to receive those extra allowances.

In almost all the level of the academic ranks, the salaries are higher in private institutions; and for different categories of health workers in public sector, career development and professional growth are very slow.

Though the public sector health workers are not satisfied from remuneration packages, yet they prefer the government job. The public sector provides stable jobs and benefits in terms of pensions and gratuities after the retirements. This makes the government institutions more attractive than private establishments.

6.4 MIGRATION OF HUMAN RESOURCES

The information collected from Overseas Employment Corporation regarding the emigration of doctors, dentists and nurses from the year 2008 to 2011 is shown in the following table and graphs.

TABLE 68: TOTAL NUMBER OF DOCTORS, DENTISTS & NURSES WHO MIGRATED FROM SINDH FOR OVERSEAS JOB⁸⁵

Category	Emigrated	2008	2009	2010	2011
Doctors	Direct	132	179	169	217
	OEC	83	94	100	169
	Total	215	273	269	386
Dentists	Direct	02	08	02	123
	OEC	124	263	219	752
	Total	126	271	221	875
Nurses	Direct	28	12	12	00
	OEC	14	25	08	44
	Total	42	37	20	44

Source: Protector/Bureau of Emigration & Overseas Employment

FIGURE 8: TREND OF EMIGRATION OF DOCTORS FROM SINDH TO OVERSEAS

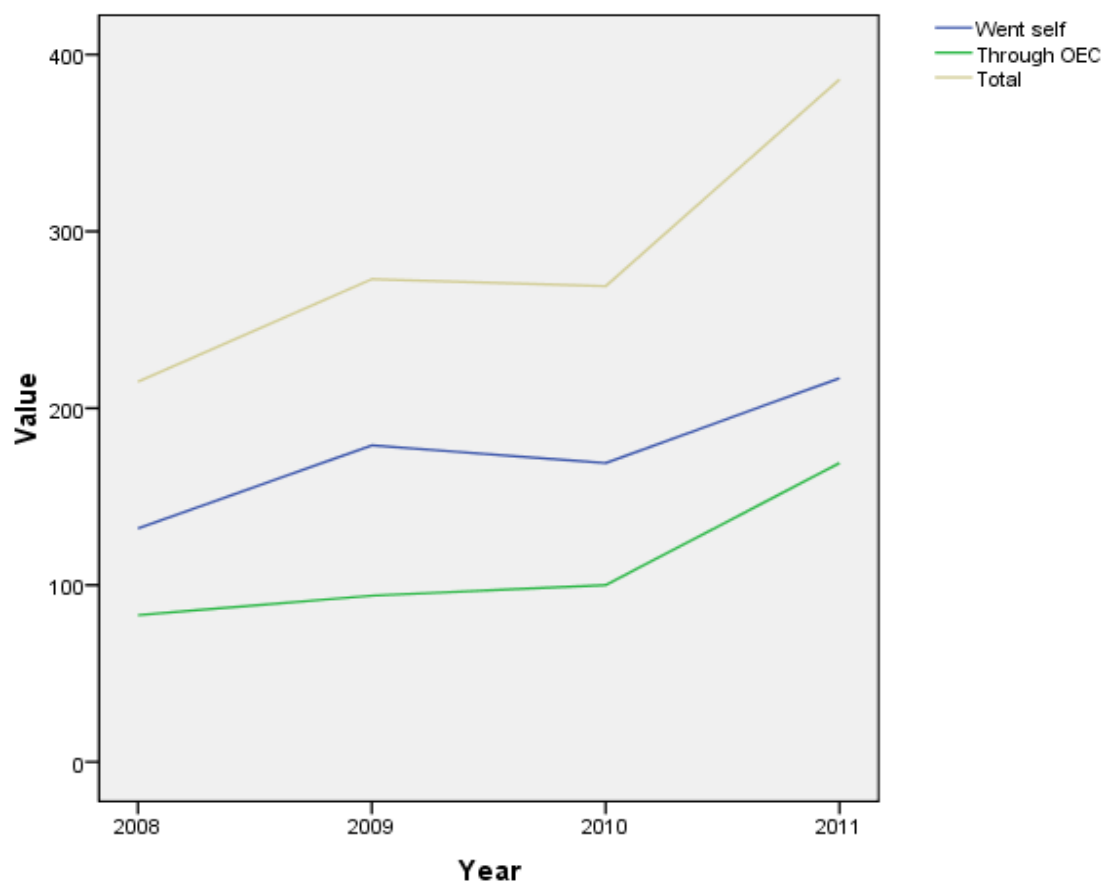


FIGURE 9: TREND OF EMIGRATION OF DENTISTS FROM SINDH TO OVERSEAS

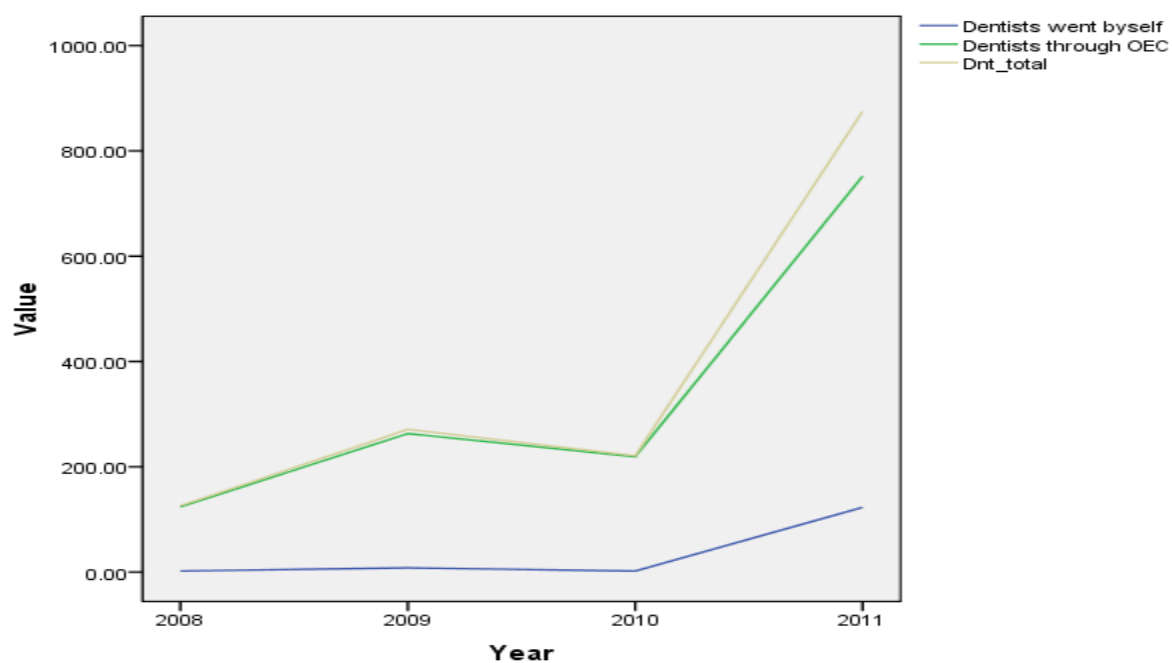


FIGURE 10: TREND OF EMIGRATION OF NURSES FROM SINDH TO OVERSEAS

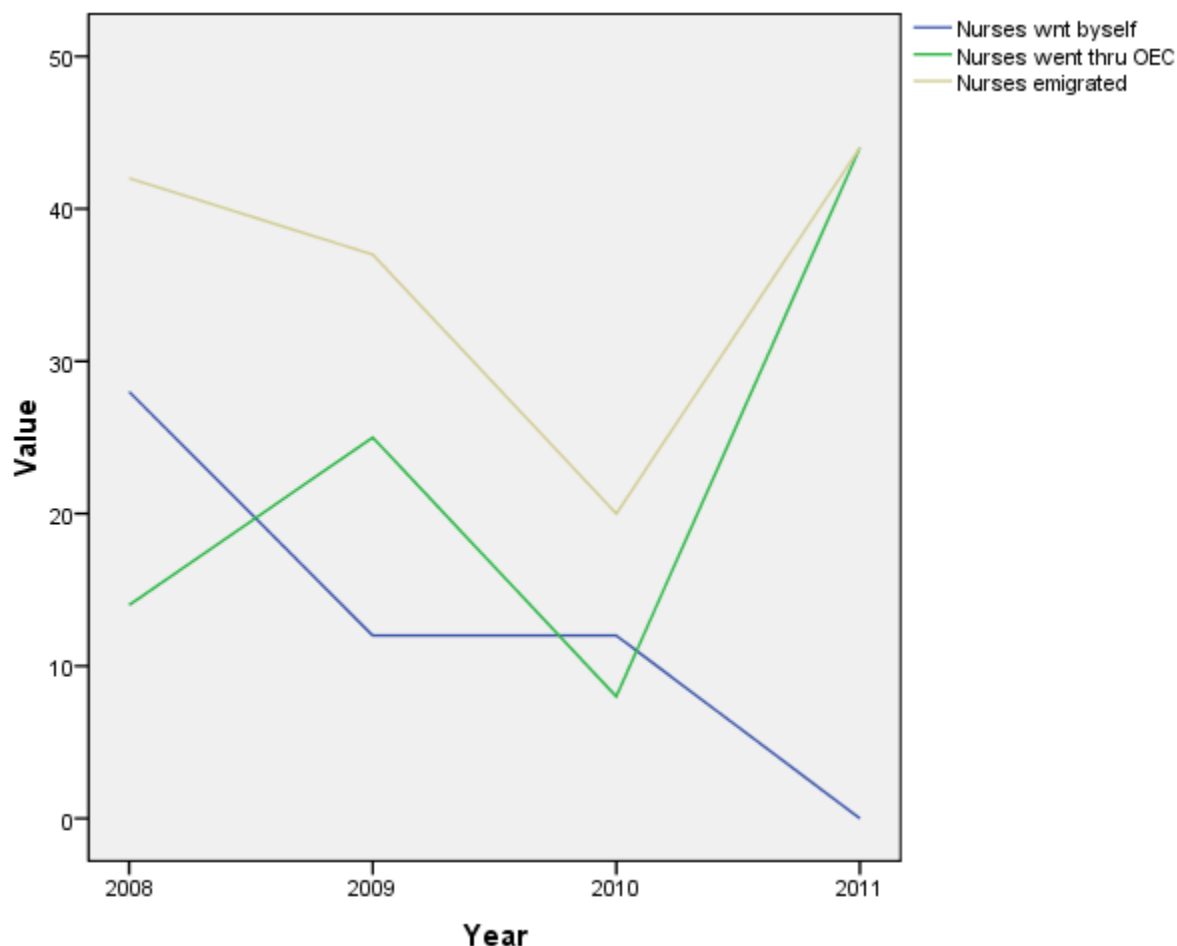


Figure 8 shows the trend of emigration of Pakistani doctors to overseas through Overseas Employment Corporation, by them self and the total emigrations. The trends clearly show that during 2008 to 2010, the emigration curves were almost stable. However, they changed into deep upward direction in 2011.

The graph of dentists showed that the lines were almost stable up to 2010 and jumped exponentially after that. That means there was a sharp increase in the migration of dentists to overseas in 2011. Same trend can be observed in nursing graph. However, self-migration of nurses was continuously coming downward from 2008 to 2011.

There is an overall increasing trend for migration of all the health care providers to overseas for employment, in addition to those who quit their profession and migrate permanently.

SECTION 7: HEALTH WORKFORCE REQUIREMENT FORECAST

The census report of 1998 portrays that the population of Sindh was 30,439,893. The male-female ratio was 53:47. The male and female distribution was 16,097,591 and 14,342,302, respectively. The census showed that the approximate growth rate is about 2.79%. Using this growth rate, the present expected population of Sindh is about 44.8 million. By applying this expected current population, the ratio of health providers to the population is shown in table 69.

TABLE 69: HRH SITUATION AS PER TOTAL EXPECTED POPULATION OF SINDH

Category Health Worker	Male	Female	Total	Population / HW	HW/ 1000 population
Doctor (MBBS)	28129	24718	52847	848	1.2
Medical Specialist	5685	2244	7929	5650	0.18
Total Doctors	33814	26962	60776	737	1.4
Dentist (BDS)	1432	2517	3949	11345	0.09
Dental Specialist	181	69	250	179200	0.006
Total Dentists	1613	2586	4199	10669	0.09
Nurse	1832	14740	16572	2703	0.37
Midwife	-	1828	1828	11,592*	0.09
Lady Health Worker	-	1864	1864	11,368*	0.09
Population	23,690,000	21,190,000	44,800,000		

*The expected women population in 2012 in the province is about 21.19 million.

For Sindh, there is one physician (combined generalists & specialist) to 737 people, and for one dentist (combined generalists & specialist) to 10,669 populations. However, for one specialist physician is for 5,650 and one specialist dentist for 179,200 people. However, for 2,703 people of Sindh, there is only nurse; and 11,592 females are covered by one midwife and as a whole one lady health worker is for 11,368 women.

While considering international recommendation for the minimum required human resources for health,^{86,87} in present situation, the needed human workforce is shown in the table 70.

TABLE 70: HRH REQUIREMENT AS PER TOTAL EXPECTED POPULATION OF SINDH

Category	International Standard/ 1000 Population	Required HWs for Sindh	Present Situation	Deficiency / Needed HWs
Doctors	2	84,800	60776	24,024
Dentists	1	42,400	4199	38,201
Nurses	8 (4 Nurses: 1Doctor)	342,400	16572	325,828

For each 1000 population, there should be two physicians. The data for Sindh shows that the current population-doctor ratio is 1000:1.4, which is not very bad, as compared to the situation in other provinces. However, to meet international standard, still there is a need of 24000 doctors in Sindh province. The population-dentist ratio is pathetic. For 1000 population, there is only 0.09 dentists. The international recommendation is 1000:1. Therefore many more dentists (38,201) are needed to meet this target. The situation of number of nurses is really pathetic. For 1000 population, there should be 4 nurses. But the current situation is that for 1000 population only 0.37 nurses are available. Therefore, very large number of nurses (325,828) is required to cover this big gap.

Table 71 shows the number of doctors and dentists registered with PMDC from year 2008 to 2012. The linear regression equation was employed to determine the growth rate of doctors and dentists for years 2013 and 2014. The R^2 value was very high (Range: 0.919 – 0.997). Therefore, the estimated equations were considered effective and the forecasting value can be taken as realistic.

TABLE 71: ESTIMATED DOCTORS AND DENTISTS FOR SINDH UPTO 2014

	Year	2008	2009	2010	2011	2012	2013	2014
Doctors	Male	26540	26879	27304	27990	28129	28571	29000
	Female	20098	21220	22435	23786	24718	26353	27533
	Total	46638	48099	49739	51776	52847	54924	56533
Dentists	Male	1146	1214	1276	1301	1432	1472	1537
	Female	1522	1740	2059	2267	2517	2776	3028
	Total	2668	2954	3335	3568	3949	4248	4565

SECTION 8: CONCLUSION & RECOMMENDATIONS

The study results specify that

- Data in both Public and Private Health Sector of Sindh are largely incomplete and inconsistent.
- The data collection and management systems are non-existent
- Health services delivery is deficient because of non-availability of well trained and qualified human resources. Though the number of health workers sanctioned for various categories is well below the minimum standards, yet 33% positions of all cadre doctors, 24% of nursing personnel, and 5% of paramedics are lying vacant in the Department of Health, Sindh.
- Health education and training could be grossly compromised as in public sector academic institutes around 40% of the sanctioned positions for faculty are not filled; and in private sector academic institutes, though the faculty is almost according to the requirement of PMDC, but the information does not seem reliable as many a positions are found vacant when examined privately.
- HRH production is not directed by need approximation. Medical doctors are the main focus, particularly in private sector. There is a huge deficiency of paramedics, allied health workers and health management professionals. The situation for nurses is very terrible as only 16572 nurses are providing their services, whereas the actual required number is of 342,400 nurses.
- In service training programs are neither institutionalized nor linked to promotion and career makeup. No central authority exists to regulate these haphazard programs. The PHDC lacks technical experts and is unable to provide requisite technical support to DHDCs. The mandatory qualifications and trainings for management positions are dreadfully ignored. The consequences are poor performance of health systems, inefficient health services delivery with ineffective outcome.
- The Male to Female ratio for admissions (Medicine & Dentistry) is 30:70, and enrollment in FCPS is 28:72. For registration in PMDC, the ratio goes to 53:47 for generalist doctors and 72:28 for specialists. This further soars up for the faculty as 62:38, Government employed doctors 71:29, and paramedics 84:16. This clearly points out that a very significant number of qualified female doctors and other HCPs do not continue their profession and cause a huge wastage of national resources.
- There is a wide urban-rural disparity of HRH and health infrastructure. Health facilities available in rural areas are much less than required and of very low quality. Health workers prefer to stay in urban areas because of various reasons including law and order situation.
- Trained and skilled health workers' retention is not the priority of both the public and private health sector. An increasing trend of emigration is found among health professionals.
- Total number of medical doctors registered with PMDC is more than 60,000; whereas the total calculated doctors working in Sindh (DoH, KMC, Para-statal organizations, Private sector and Academics) are less than 30,000. This indicates that only around 50% of the total registered doctors are working in the field. The situation might be similar for other Health Workers.
- There is a need to know actual position of all cadres of HRH. More health workers may be required than estimated.

It is evident that

- There is a lack of research culture in Pakistan, and the health sector leadership has not yet fully recognized the role of research and evidence in health care system development in the country.
- The HR Systems in Sindh are split 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. There is no institutionalized staff development plan linked to performance evaluation and career structures.
- The basic reasons of HRH shortages and misdistribution include limited management capacity, inadequate financial resources, deficiency of a comprehensive costed HRH Plan, and absence of a HRH Policy.
- It is estimated that private sector in Sindh provide around 80% of the outpatient services. The PPHI Model has been very effectively implemented with encouraging outcomes, it is essential to further develop effective partnerships for optimal utilization of existing resources. After the 18th amendment, donor coordination is now being done primarily at the provincial level which provides an opportunity to harmonize and support future reforms and initiatives with Provincial HRH Priorities for improved health service delivery.
- As the province lacks a comprehensive, costed HRH Plan to anticipate its health worker needs, calculate HR deficiency and outline strategy to meet the projected demand, there is a mismatch between production and absorption. The limited resources are exhausted on production of health workers who have no jobs in the provincial health care system. This is also resulting in rising number of health worker migrants.
- Pre service curricula do not prepare health workers for effective health service delivery. In Service training programs are not institutionalized and not linked to career structures in majority of cases. There is mounting number of medical and dental colleges in Sindh with a critical shortage of faculty compromising 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

- The numbers as well as quality of HR need to be enhanced
- The vacancies of all cadres of health workers should be filled and more jobs according to need be created
- Proper trainings and required qualifications should be made compulsory for career advancement and placements
- Registration and recognition of the academic institutes which do not fulfill the requirement of having full faculty must be cancelled
- HRH production should be directed by need estimation. More institutes for paramedics, allied health workers, health management professionals, and particularly for nurses should be established.
- The admission policy of open merit (gender issue) should be reviewed to save resources from being wasted.
- Urban-rural inequality issue should be seriously addressed. HCPs may be attracted towards rural areas by giving them incentives and improving law and order situation.
- A policy must be in place for retention of skilled and trained HRH.
- The concrete position of all cadres of HRH must be investigated, and further research should be conducted for all sectors and categories of HRH.

There is swift need to

- Establish Sindh Provincial HR Department with HR Units at district level
- Ensure that HR Managers have the requisite capacity and decision making authority for recruiting staff as per work plans, their deployment and development, performance management, motivation and retention.
- Develop HR Performance Management Systems to promote retention
- Develop positive workforce environment that promotes team work, professional development and growth, and also career structure
- Enhance the health sector leadership capacity for providing the vision and effectively advocating for HRH and the essential HR reforms
- Launch in-service training programs to develop and enhance the management capacity of HR managers and leaders
- Introduce management and leadership module in the in-service and post graduate training curricula of health professionals
- Link management and leadership trainings to the career structure of health managers
- 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.
- Revise and update Pre service curricula and connect it to provincial health needs for effective health service delivery
- Introduce institutionalized in-service training programs for building a skilled health workforce
- 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

There is a crucial necessity for a comprehensive HRH policy for career development and promotion of health workers.

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ANNEX 1- HEALTH WORKERS' CATEGORIES IN SINDH'S LOCAL CONTEXT

Profession	Description
Generalist Doctors	MBBS or Equivalent Degree Holders; Registered with PMDC
Specialist Doctors	Doctors with Additional Postgraduate Qualification from Pakistan or Abroad; Registered with PMDC
Dental Surgeons / Dentists	BDS Degree Holders; Registered with the PMDC
Specialist Dental Surgeons	Dentists with Additional Postgraduate Qualification from Pakistan or Abroad; Registered with PMDC
Allied Health Professionals	Dieticians and Nutritionists, Occupational Therapists, Optometrists and Opticians, Physiotherapists, Podiatrists, Psychologists/ Psychotherapists, Diabetic/ Health Educators, Respiratory/ Speech/ Occupational Therapists
Nursing & Midwifery Professionals	All categories of Nurses and Midwives having Diploma / BS / MS /PhD; Registered with PNC
Pharmacists	B Pharmacy / Pharm D Holders; Registered with Pakistan Pharmacy Council
Paramedics	LHVs/FHTs, Laboratory/ Medical/ OT/ X-ray/ CT/MRI/ ECG/ NICU Technicians/Assistants, Dispensers, Radiographers; Registered with Sindh Medical Faculty
Community Health Workers	Community Midwives - Working under the MNCH Program & Registered with PNC Lady Health Workers - Working under the NP-FP & PHC
Traditional and Alternative Medicine Practitioners	Homeo Doctor, Hakeems / Tabeebs; Registered with National Council for Homeopathy and 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, etc.
Health Management Professionals	EDOH, DOH, DDOH, MS, MS, DMS, MD, Project/ Program Directors, Managers / Deputy/Assistant Directors