



PAKISTAN HUMAN RESOURCES FOR HEALTH ASSESSMENT 2009

March 2010

A Report of
Director General Health
Ministry of Health,
Government of Pakistan

Supporting Partners:

- World Health Organization
- Global Health Workforce Alliance
- United States Agency for International Development



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FROM THE AMERICAN PEOPLE





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FOREWORD

Over the past few years, Ministry has been pursuing an elaborate plan of Health Sector Reforms. Objective of this effort is to provide a cost-effective and a quality health care delivery system to the general masses. Though there has been considerable progress towards this end lot more is yet to be accomplished.

One of the areas identified for the Ministry to deliberate is the improvement of the situation of Human Resources for Health. This includes not only a quantitative expansion of human resource, but also, enhancement in working conditions and HR management practices. An important factor associated with this goal include; implementation of standardized human resource management (HRM) policies and practices. Unfortunately, in the health sector most of the existing administrative functions are still based on the old traditional norm, which are time-consuming and have not been effective, in the wake of other available options. An earlier transformation of these norms towards better is to be ensured.

I see this study on “*Assessment of Human Resources for Health in Pakistan*” as a first step towards transforming these traditional practices into modern day human resource management plans – capable of contributing significantly to national health system.

I understand that the ultimate objective of this study is to move towards the development of National Strategic Plan of Action. National Strategic Plan would now be based on the findings of this study. Once finalized, plan is expected to address the concerns of all stakeholders and will provide a framework for both federal and provincial governments, to guide and direct interventions, investments and decision making in this crucial area.

Given historical and financial scenarios, successful implementation of these recommendations would certainly pose many challenges for the Ministry. I am confident that with the concerted efforts and sustained support from federal and provincial health departments, technical partners and other stakeholders, we would be able to generate a conducive environment for tangible gains in HRH area.

Let me also commend and appreciate the vital support that we received from WHO/GHWA and USAID/TACMIL that enabled us to complete this assignment. In this context effort of Dr. Assad Hafeez (Director HSSPU/ HSA) and his team in designing the entire study plan, and that of, Dr S.M. Mursalin, National Coordinator (HMIS) and his team in organizing the data collection survey are commendable. This report would certainly be an asset for improving health care delivery system in Pakistan.

Prof. Dr. Rashid Jooma
Director General-Health
Ministry of Health

MESSAGE FROM FEDERAL MINISTER FOR HEALTH

It gives me immense pleasure to write a few words for the organization of this study of national significance. This assessment study on 'Human resources for Health (HRH)' is unique in its kind and which has never been attempted before. Ministry therefore deserves special appreciations for its organization at the very outset. I am delighted to know that this study has not only analyzed the situation with regards to the public sector, but have also, explored the human resource dimensions of private care services.



It is now well-known fact that even the availability most sophisticated medical equipment and a mammoth investment cannot improve the desired functioning of health system, till the deployment of professionally sound workforce is not ensured. Recent assessment of a number of national health systems has revealed that the presence of a trained manpower is critical for the success of health systems.

Ministry of Health is fully conversant with this need and is very keen to improve the human resources for its national health system. We are in the mid of national health system reform process. Government is currently developing a new national health policy, where improvement in human resource situation, is being seen as one of the most important breakthrough that Ministry could make during the current regime. For this, an ambitious plan is expected to be developed. This plan is expected to address the key issues, being faced by the health care providers, So that they are able to contribute towards an efficient health care delivery system. This assessment study gives us some concrete recommendations for up-scaling National HRH profile. We would ensure implementation of all these steps.

Let me also take this opportunity to commend the hard work and contribution of our partners and staff, particularly WHO and USAID, with whom's assistance we were able to produce this very useful document.

Makhdoom Shahabuddin
Federal Minister for Health
Ministry of Health
Government of Pakistan

MESSAGE FROM FEDERAL SECRETARY HEALTH

Human Resource for Health is of critical importance in the health system of any country and specifically so in the resource constraint situation. One of the constraints in the delivery of essential health services in Pakistan is the inability to scale-up the number of health care workers, their distribution and their capabilities. Proper planning related to the Human Resource for Health towards the long term health related needs is direly needed.

The report will cover the distribution of human resource for health in the country along with their job satisfaction & working environment. This will enable the Ministry for proper planning & policy level decisions to direct the human resource in the right direction & better health outcomes of the country.



The survey is the result of concerted effort on the part of various individuals and institutions, and it is with great pleasure that I would like to acknowledge the work that has gone into producing this useful document. I would like to extend my appreciation to our partners and staff, particularly WHO and USAID for providing financial as well as technical support for the survey. The earnest effort put forth by the core team of HRH assessment in the timely completion of the study is highly appreciated. This report serves not only as a valuable reference but is a call for effective action for the health of the country.

Khushnood Akhtar Lashari
Federal Secretary Health
Ministry of Health
Government of Pakistan

MESSAGE FROM WHO & USAID REPRESENTATIVES

World Health Organization and United States Agency for International Development has always been a strong advocate of development of 'Human Resource for Health'. As we believe that ministries require effective action to address the growing health work force issues, for which solid information, reliable research and firm knowledge is extremely essential.

It is now fully recognized that availability of an effective workforce is critical for addressing both acute and chronic disease profile comprising cardio-vascular and metabolic diseases, cancer, injuries and neurological and psychological disorders. This affects both rich and poor population alike. It is heartening that Ministry of Health has developed a report on 'Assessment of Human Resource for Health in Pakistan' with the support provided by WHO and USAID. This gives valuable information on status of human resources in terms of their numbers, distribution, the level of job satisfaction, work environment and human resource management polices. This report provides well-needed information on existing health workforce in the country and future requirements for achieving ambitious national health agenda.

This gives us an opportunity to understand the existing situation of human resource management. It also highlights the key concerns of the health personnel that have direct implications on the staff motivation and commitment.

It is hoped that this report will help in formulating policies and systems related to human resource improvement and would be a guide for all of us in better understanding the prevailing situation to meet broader national objectives.

It is our pleasure to extend personal appreciations for the staff Ministry of Health, WHO, USAID TACMIL Health project and other staff involved in this splendid work. We also appreciate the role of all those who contributed towards the successful completion of this report. We hope this report will be beneficial to the planners, administrators, academicians, researchers and other professionals. Ministry would now be able to finalize an elaborate and actionable 'National Strategic Plan of Action.

Dr. Guido Sabatinelli
WHO Representative

Janet Paz-Castillo
Health Office Chief USAID

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A team of key study supervisors was constituted at an early stage under the supervision of Prof. Dr. Rashid Jooma, Federal DG Health. The team provided leadership and technical guidance throughout the process of creation of survey instruments, sampling and data collection, as well as in the design of the data analysis:

1. Dr. Assad Hafeez, Director (Policy Unit/HSA) Ministry of Health, Islamabad.
2. Dr. Zulfiqar Khan, Technical Officer (WHO), Islamabad.
3. Dr. Hasan Orooj, Core Team Leader HRH / Senior HRH consultant
4. Dr. S.M. Mursalin, Technical Officer HMIS, WHO.
5. Dr. Zafarullah Gill, Chief of Party, TACMIL Project, Islamabad.
6. Marc Luoma, TACMIL Project / Senior Associate, Abt Associates Inc.

In addition, there were federal, provincial, and field survey teams that played a crucial role.

Federal Level:

- Dr. Hasan Orooj, Senior HRH consultant
- Mr. Shehzad Ahmad, HRH consultant
- Dr. Muhammad Naseem Khan, HRH consultant
- Dr. Kanwal Khan, HRH consultant

Provincial Level Facilitators (designated by provincial Health Departments)

- Dr. Tanwir Ahmed, Provincial Focal Person, Punjab
- Dr. Ali Ahmed, Provincial Focal Person, KPK
- Dr. Mohammad Ali Laghari, Provincial Focal Person, Sindh
- Dr. Muhammad Farooq Jan, Provincial Focal Person, Balochistan

Field Survey Teams

- Mr. Khalid Hussain, Survey Coordinator (Punjab/KPK)
- Mr. Salman Masood, Data Manager (Punjab)
- Mr. Waseem Nawaz, Data Manager (KPK)
- Mr. Asad Afzal Hamayoun, Survey Coordinator (Sindh/Balochistan)
- Mr. Salman Cheema, Data Manager (Sindh)
- Mr. Abaid Tahir, Data Manager (Balochistan)

From Abt Associates Inc., data analysis support from Obiko Magvanjav, guidance and leadership from Margarita Fernandez (TACMIL Portfolio Manager), and project management support from Manual Thomas are gratefully acknowledged. A number of data collectors and data entry technicians worked to implement the survey part of this study, and though it is not possible to name all of these individuals here, their contribution is gratefully acknowledged.

Ministry of Health Pakistan.

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Abbreviations

ANC	Antenatal Care
BDS	Bachelor of Dental Surgery
BHU	Basic Health Unit
DHD	District Health Department
DHIS	District Health Information System
DHMT	District Health Management Team
DHQ	District Headquarters
DOH	District Officer (Health)
EPI	Expanded Program for Immunization
FATA	Federally Administered Tribal Areas
FLCF	First-Level Care Facility
HMIS	Health Management Information System
HRH	Human Resources for Health
IMR	Infant Mortality Rate
LHS	Lady Health Supervisor
LHV	Lady Health Visitor
LHW	Lady Health Worker
LSMF	Licentiate of State Medical Faculty
MBBS	Bachelor of Medicine, Bachelor of Surgery (Latin)
MCH	Maternal and Child Health
MDG	Millennium Development Goal
MOH	Ministry of Health
MMR	Maternal Mortality Ratio (Rate)
NCHD	National Commission for Human Development
NGO	Nongovernmental Organization
NHPU	National Health Policy Unit
KPK	Khyber Pakhtunkhwa
OPD	Outpatient Department
PHC	Primary Health Care
PHCE	Primary Health Care Extension
PDHS	Pakistan Demographic Health Survey
PMDC	Pakistan Medical and Dental Council
RHC	Rural Health Center
THQ	Tehsil Headquarters Hospital
WHO	World Health Organization

1. Executive Summary

There is a significant need for the public health sector to increase its role in providing quality essential health services in Pakistan to reduce the burden of out-of-pocket expenditure derived from seeking care in the private sector, for the low socioeconomic status population, and to help meet the unmet demand for health services. One of the constraints on the ability of the public health sector to scale-up is the number of public health care workers, their distribution, and their capabilities. It is essential for the public system to carefully gauge the status of human resources for health in the system, to understand its distribution, and the patterns of its growth. The public health care system must retain its staff at the minimum; but given the need for health care in the country, there may even have to be an increase.

Adequate and appropriate strategic planning related to human resources for health (HRH), especially with a thought towards Pakistan's long-term health-related needs is now direly needed. The time is opportune as a new National Health Policy is being drafted. As a basis for future action, the MOH requested a careful HRH Assessment in Pakistan, focusing on both the public and private sector. With the assistance of the TACMIL project and WHO, the MOH conducted data collection for such an assessment. The current report summarizes the findings and provides interpretations and recommendations. Our analysis for the number and distribution of workers is focused on the front line public health care workers only; but for job satisfaction and work environment, we consider both public and private workers.

The following are the main conclusions from our assessment.

Numbers and distribution of front line public health workers in Pakistan

We analyzed the results of a survey of public health facilities as well as provincial, district, and federal (vertical programs) offices. Based on an 'extrapolation' analysis using four separate estimates of the sample averages of health workers by cadre per facility type in each province, we arrived at median estimates of the total stock by cadre of front line public sector health workers per province, including both sampled (Balochistan, KPK, Punjab, and Sindh) and un-sampled (ICT, AJK, and Northern Areas) areas. We also included the federal workers in vertical programs in our final estimates.

Our conclusions are as follows.

- The median estimate for 2009 is of 417,288 front-line public sector health workers, not including provincial, district, or federal staff at MOH offices involved in planning, budgeting, training, or research.
- The median estimate of doctors, both GPs and specialists (not including dentists) in Pakistan for 2009 is 46,153. Sindh has the highest estimated number of doctors even though it did not have the highest total of health workers, followed by Punjab. Our opinion is that Pakistan is relatively well supplied with front-line doctors (GPs and specialists), dentists, and support staff compared to well-known international norms. However, there are regional variations. Punjab appears to have far fewer doctors than indicated by its population and health need; whereas Sindh has far too many.
- Pakistan may be suffering a nursing shortage, exacerbated by a maldistribution of such staff across provinces. The shortage is particularly pronounced in Sindh, where they may not be adequate nurses to assist doctors. In contrast, KPK had high numbers of nursing staff both as a total and as a ratio to population.
- Our estimates indicate there are 2.1 managers and administrative staff for every 100-health workers of all other cadres. This is a very low managerial and administrative ratio for a country with the health care delivery complexity that Pakistan faces.
- Attrition in doctors or nurses does not appear to be significant, except for dentists in KPK. Projections of the stock show a rise of 25% in the stock of doctors and dentists in Pakistan over 2009-2013.

Job Satisfaction and Work Environment for Public and Private Health Workers

We surveyed a sample of 3,549 health workers across the public and private sectors with questions related to job satisfaction and the work environment. In the former area, questions posed related to both financial as well as non-financial aspects of reward and motivation. In our survey, work environment related to organizational culture, administrative facilitation, as well as the adequacy of material, equipment, and infrastructure related to the physical environment of the health facilities.

Our results for job satisfaction indicate that in general, public sector health workers are neither satisfied nor dissatisfied, but broadly neutral. A lack of dissatisfaction is not in itself a positive. Based on specific related questions, there is an indication that public health workers across the cadres do not intend to separate. Scores on the positive and negative aspects of retention were in the appropriately healthy ranges. In this respect, there was no marked difference between the public and private health sector. Some specific findings:

- Health workers from Punjab (public and private), had the best job satisfaction scores, comparing across provinces and the Federal MOH.
- Regular employees were less satisfied on salary, motivation and recognition, and professional facilitation; compared to their contractual colleagues.
- Increasing number of years of service whether in current position or in current facility, was associated with an improvement in aspects of retention.

While there is considerable salary-related dissatisfaction in the public sector, and at levels significantly higher than the private sector; these do not necessarily translate into a choice or desire to work elsewhere either full-time or part-time. We believe there is evidence for a lack of salary-related 'push' factors for attrition in the public sector. For the employees dissatisfied with salary, the overall dissatisfaction with working for their organization was quite high. Though the overall salary-related dissatisfaction rates are lower for the private sector, the 'push' from such dissatisfaction is much stronger in the sector than in the public sector.

For work environment, there were large differences between the conditions public sector health workers face vs. their private sector counterparts. The private sector outstrips the public sector on all aspects of the work environment based on analysis of the responses of the health workers. The differences are particularly sharp for facility-level infrastructure, machinery and equipment, and administrative facilitation. The larger provinces (Punjab and Sindh) had better scores for supplies and logistics, and machinery and equipment, compared to Balochistan or KPK.

Overall, considering both the job satisfaction as well as the work environment analysis, there is an indication of a pattern of under-resourced provinces, compared to certain provinces with more satisfied and better-resourced health workers (Punjab). Other specific findings:

- Work environment improved with the size of a public sector health facility. The smallest facilities – dispensaries and basic health units – face the largest constraints in terms of logistics and supplies.
- The trend across provinces was echoed in the significant differences between urban and rural health facilities in the reported work environment, considering both public and private facilities. Urban health facilities outperform the rural facilities on almost all aspects of work environment.

Status of Human Resources Management in the Health Sector in Pakistan

The responses from our sample of interviewees in management positions related to HRH indicate that provinces are at different levels of achievement in developing HRM capacity and systems; and this achievement is over varying levels of policy experience,

from no policies developed to extensive experience of more than five years. Across the responses, the KPK appears to be of particular concern.

The private facility managers interviewed had varying levels of achievement across the five areas, with the private hospital interviewed in Sindh reporting the strongest achievement with recent policy implementation experience. Among the other private facilities, the private hospital from Punjab also reported strong achievement on some of the components, for example, putting in place an Oracle-based hospital information system for employee data. There is much that the public sector needs to do to catch up on HRM capacity and systems, especially in KPK and Punjab.

Discussion and Next Steps

Our assessment shows that Pakistan has a maldistribution of front line public health sector, especially in terms of the number of nursing staff that are available in provinces and areas; the numbers of managerial staff that can effectively supervise and direct the clinical staff. In overall numbers, Punjab and Sindh, the most populous provinces, do have the most front line public health workers; but for Punjab, it does not appear that the number is appropriate for its health needs given the data from this assessment as well as the recent Pakistan Demographic and Health Survey.

The public health sector is not facing a severe crisis in the retention of its health workers; however, compared to the private sector, it is failing in providing an appropriate working environment to the front line public health workers. This has severe consequences for ongoing quality of care, utilization, and eventually, the motivation of even the most dedicated of staff.

We propose the following next steps:

- We recommend that further policy-oriented studies be carried out to inform whether the numbers of staff indicated as present in the provinces and areas of Pakistan are adequate for health needs at a sub-provincial level.
- An assessment should be conducted which focuses on the nursing staff levels at the provincial level and how such levels can be matched to the need, this can inform the proposed national Nursing Policy.
- We recommend that the scaling up of any of the prevalent PHC/first level care models align with the findings of this report and generally incorporate thinking on how the 'base of the pyramid' health care workers can be strengthened through training, and then deployed appropriately. In the future new interventions in this sphere will involve the community in shouldering some of the responsibility of health care delivery, aided by better trained and motivated CHWs and LHWs.

- Our findings indicated that the smallest facilities had the poorest working environment. We therefore suggest that provincial and district authorities conduct their own spot checks on the working environment at BHUs and RHCs in their care, and federal authorities work with the lower levels to ensure proper budgets and technical knowledge can be made available to improve these working environments.
- This assessment has been a 'dipstick' survey of the number and distribution of front line public health care workers. For better policymaking in the future, it is imperative that human resource information systems across the levels of the public health care system be strengthened.
- Our job satisfaction survey, as well as our data on attrition suggests that public health care workers do not intend to separate from service in the short term. However, the levels of job satisfaction are at best neutral; which does not make for a motivated workforce in the long run even with dedicated staff. It is important for all levels of the public health care system to work on dedicated job satisfaction strategies. The levels of salary related dissatisfaction are very high in the public health care system; therefore, due thought must be given to how a combination of financial and non-financial incentives can be provided that would allow health care workers to feel better compensated, incentivized, and motivated to perform at a higher level continuously.

2. Background

2.1 Introduction

In the recent decade, Pakistan has made progress in improving the basic health outcomes of its population, especially on outcome indicators related to the MDGs. For example, the IMR declined from 90 per 1,000 live births in 1998/99 to about 78 in 2006. Table 2.1 provides a broad perspective by comparing Pakistan with a global GDP per capita income 'peer group'. There are still significant challenges. Utilization of ANC remains poor compared to the peer group, the MMR is still high, and Pakistan has a serious TB epidemic on its hands. Government health expenditure on health is low as a percentage of GDP or of total government spending, compared to the peer group.

Table 2.1 Comparative statistics on basic health and health financing indicators

Outcomes	Source*	Pakistan		Comparable income group ¹	
		Value	Year of data	Value	Year of data
Pregnant women who received more than one antenatal care visit (%)	UNICEF/PDHS	61	2006	86.1	2006
Mortality rate, infant (per 1,000 live births)	PDHS/WDI	78	2006	40.7	2007
Maternal mortality ratio (per 100,000 births)	PDHS/WDI	276	2006	319.3	2005
TB prevalence, all forms (per 100,000 population)	WHO	223	2007	212.7	2007
DTP3 immunization coverage: one-year-olds (%)	WHO (PDHS)	83 (58.5)	2007 (2006)	88.4	2007
Health expenditures					
Total expenditure on health as % of GDP	WHO	2	2006	6.1	2006
Per capita total expenditure on health at average exchange rate (US\$)		14	2005	106.9	2006
Public (government) spending on health as % of total health expenditure (THE)		32.2	2006	57.1	2006
Donor spending on health as % of total health spending	National Health Accounts	1.9	2006	11.1	2006
Out-of-pocket expenditure as % of private expenditure on health	Pakistan 2005-06	97.5	2006	85.6	2006
Out-of-pocket expenditure as % of total expenditure on health (THE)		64.4	2006	37.5	2006
Private expenditure on health as % of total expenditure on health (THE)		66	2006	42.9	2006
Infrastructure & health workers					
Number of hospital beds (per 10,000 population)	WHO	12	2005	15.7	2005
Percentage of births attended by skilled health personnel	PDHS/WDI	38.8	2007	75.2	2007
Physicians (density per 1,000 population)	WDI	0.8	2005	1.3	2005
Nursing and midwifery personnel density (per 1,000 population)	WHO	0.4	2007	3.5	2007

* WDI refers to World Development Indicators (World Bank, 2009). PDHS: Pakistan Demographic Health Survey 2005-2006. WHO: World Health Statistics, 2008, 2009 ¹ Lower middle income. Data: www.healthsystems2020.org

There is still significant unmet demand for health care in the country. With the example of maternal health care, the Pakistan Demographic and Health Survey (PDHS) for 2006-07 indicated that while there has been an increase in the number of women who make prenatal care visits during their pregnancy, the value still equals 28 percent of pregnancies. Only 34 percent of births take place in a health facility – of which 11 percent occur in a public facility and 23 percent in a private facility. Less than two-fifths (39 percent) of births occurred with the assistance of a skilled medical practitioner (e.g., doctor, nurse, midwife, LHV).

The bias seen in maternal care in favor of the privately provided health care also shows in the national health expenditure data, as summarized in Table 2.1. Out-of-pocket expenditure dominates as a source of health financing, accounting for 66 percent of all spending on health.

There is a significant need for the public health sector to increase its role in providing quality essential health services to reduce the burden of out-of-pocket expenditure for the low socioeconomic status population, and to help meet the unmet demand for health services. One of the assumed constraints on the ability of the public health sector to scale-up such provision will be the number of public health care workers, their distribution, and their capabilities.

It will be essential for the public system to carefully gauge the status of human resources for health in the system, to understand its distribution, and the patterns of its growth. The public health care system must retain its staff at the minimum; but given the need for health care in the country, there may even have to be an increase. These issues are the focus of this assessment. The preliminary results of this assessment, focused on the public sector for numbers and distribution, and both public and private sectors for job satisfaction/work environment, are presented in the following chapters of this report.

2.2 Human Resources for Health in Pakistan and this Report

According to registration data from the Pakistan Medical and Dental Council (PMDC), the certification body for doctors and dentists in the country, there were 150,064 such individuals registered with basic or postgraduate qualifications at the end of 2009. This amounts to a ratio of 0.9 doctors and dentists per 1,000 citizens. This is an increase on the ratio of 0.8 from 2005, but still below the level in the peer group (Table 2.1). It is generally believed, though not confirmed, that a large number of doctors and dentists work in the private sector. This raises questions about the access to quality health care for that part of the population that cannot afford out-of-pocket (fee) financed health services from the private sector. About 70 percent of Pakistan's population is still rural.

The Government of Pakistan is aware of the need to serve rural, remote, and underprivileged parts of the population, especially with essential and preventive health services for which there might be substantial lack of provision in the private fee-based sector. A new National Health Policy is currently in draft stage, which will include a

vision for the role HRH strategy can play in helping to meet the country's goals for improving health care services for all Pakistanis. In addition, the current HRH assessment will serve as evidence for a new HRH strategy to be developed and implemented by the Ministry of Health in 2010.

These actions follow the developments in the health sector of the recent past. With the roll-out of the Essential Health Services Package (EHSP) and strengthening of primary health care under the National Health Policy of 2001, the Government of Pakistan is taking action to improve the health of its citizens. For example, given a need to serve rural and remote areas with community and outreach health services, Pakistan created the Lady Health Worker (LHW) program in 1998, which is federally managed and has rolled out to most parts of the country. The recent National Commission for Human Development (NCHD) pilot in Punjab province worked in areas where LHWs were not initially deployed to strengthen the BHUs, hire LHWs, and put in place LHW-supervisors, among other measures (Amjad 2009). Such interventions show that proactive human resources for health (HRH) policy can be aligned with the overall thrust of the national health policy, especially through targeted activities.

Such a HRH policy and strategy must be based on accurate data about the current HRH situation. Current information about the numbers, distribution, skill mix, and performance of the health workforce in Pakistan is very imprecise. There are almost no data concerning the private sector, though it provides the majority of primary care. As a basis for future action, the MOH requested a careful HRH Assessments in Pakistan, focusing on both the public and private sector. With the assistance of the TACMIL project and WHO, the MOH conducted data collection for such an assessment. This report analyzes and presents the findings from these data. The assessments gathered information using three separate instruments and techniques, specifically on:

- Numbers and distribution of providers by cadre in the four large provinces, as well as attrition
- Work environment and job satisfaction of health workers
- Overall country climate for HRH management, focusing on the four provinces

For the rest of this chapter, we describe the methodology for data collection and data analysis. Table 2 captures the major steps in the launch of the study.

Table 2.2 Major steps in the launch of the assessment

August 2009	Operational Planning
August-September 2009	Study Design
September 2009	Data Collector Recruitment
October 2009	Data Collector Training
October 2009	Pilot Data Collection
October-November 2009	Data Collection
November-December 2009	Data Entry
December 2009	Data Cleaning
December 2009	Data Analysis
December 2009	Report Writing

2.3 Sampling, Data Collection and Analysis

Area one: Objective: To assess in the public and private health sectors of the country the status (number and distribution) of the front line health workforce.

The data collection for this area of the assessment was conducted in the public & private sector, as well as rural and urban locations of four provinces of Pakistan as well as in certain 'vertical programs' at the federal level. The data collection units in the provinces were both MOH offices at the province and district level, as well as health facilities. Across these levels, the population of interest to the study was all those people who are engaged in actions whose primary intent is to enhance health.

Sampling: The data and distribution questionnaire (Annex D) was administered at the federal, provincial, district, and health care facility level in the following manner. The sampling plan was cross-sectional in nature and was implemented using a stratified methodology for the purpose of selection of sampled health care institutions. For the facility-level survey in each province, the first level of stratification was the district, then the type of facility. A total of four districts were selected per province, which would ensure adequate representation for all the provinces and their specific HRH contexts.

Table 2.3 Sixteen sampled districts for the assessment

Punjab	Sindh	KPK	Balochistan
Faisalabad	Larkana	Abbotabad	Quetta
Jhelum	Badin	Swabi	Sibi
Khanewal	Naushero Feroz	Charsada	Ziarat
Vehari	Mirpurkhas	Karak	Killa Saifullah

A fixed number of facilities of the type from the district were randomly selected from the district-level sampling frame (Table 2.4). In case of the DHQ (District Headquarters Hospitals), the type was sampled with certainty as there was only one in each sampled district. Further details on the final health facility sample are provided in Chapter 3.

Table 2.4 Sampled facilities for 'questionnaire I' (Annex D) per district and overall

Public Sector (planned / *actual)	Per District	16 Districts
DHQ	1	16
THQ	1	16
MCH Centre	1	16
Dispensary	1	16
RHC	2	32
BHU	16	256
Total:	22	352 (*349)
Private Sector (planned / *actual)		
(Urban 70% & Rural 30%)		
>5 Beds Hospitals (Urban)	8	128 (*89)
Total	44	480 (*438)

Public sector: In addition to data from the health facility, verification data were collected at higher levels (federal, provincial, district) through the same questionnaire.

- At the federal level the data of HRH were collected from only the vertical programs, focusing on the HRH workforce exclusively on the pay roll of such programs.
- In the four selected provinces, data were collected in the following order:
 - o Provincial level – Data on health workers in various cadres for all districts, i.e., a consolidated report of the province’s total human resources for health, were collected from the provincial health department.
 - o Provincial level – Segregated data for the sampled districts were also collected.
 - o District level – Consolidated data of sampled districts were collected at the EDO office & would be cross verified with the provincial data of that district.
 - o District level – Segregated data of the sampled health facilities would be taken at EDO office and would be cross-verified with the facility level data.

Private sector: For the private sector, the sampling approach was slightly different. Only private hospitals were included, since private clinics in the formal sector were considered to have very little by way of staff beyond the doctor/owner and a nurse (with the possible addition of an administrative clerk). Therefore, extending the survey to such clinics was considered infeasible given the resources for this assessment. There was no sampling frame for private sector hospitals in the sampled districts. Therefore, the district level supervisor for the assessment was given the direction to sample the appropriate number of private hospitals based on a local list and communicate the names of sampled facilities to the central study team. However, in most districts, the appropriate number of private hospitals meeting the criteria could not be found. Only a total of 89 private hospitals could be sampled as per criteria across the 16 districts compared to an expectation of 128.

The data and distribution survey (Questionnaire 1, Annex D) enumerates the health workers in the facility/level according to the cadre, gender, age distribution, sanctioned/filled/vacant positions, and job type (contractual/permanent). The questionnaire also covers the issue of attrition rate by collecting data of the health care personnel who have resigned/long leaves, the number of pensioners, and deceased personnel in the last five years.

Area 2: Objective: to assess in both public and private health sectors of the country the level of job satisfaction among all cadres of health care providers and their views on the adequacy of the work environment.

Sampling: the sampling strategy was similar to the one described above for Area 1; except here seven private sector *clinics* were added in each district; to be sampled from local lists by the district level coordinator. The primary focus would be the health care worker, across both clinical, support, and administrative staff. In the public sector the data were collected at the health care facility through a scaled questionnaire. At the federal government the job satisfaction levels were assessed at Ministry of health. At the provincial government level, job satisfaction was assessed of the provincial department

of health, including the Director-General of Health's (DG's) office. The types of cadre included in the survey by facility type are described in Chapter 4.

Private sector: Here the data were collected solely at the district level through scaled questionnaire. Both the rural and urban locations were covered. The job satisfaction and work environment indicators were assessed from two types of health care facilities: 229 private clinics (urban and rural), and 89 private hospitals/maternity homes.

Area 3: Objective: To assess in both public and private health sectors of the country the situation of human resource management at managerial/supervisory levels.

Sampling: This instrument was an interview for senior managers, which would be applied at the public & private health sectors at federal and provincial levels. The population of the study would be all managerial level personnel, especially those who are engaged in health policy development and implementation process. Within the public sector the Secretary of Health and the DG-Health offices would be assessed, with interviews focused on the stages of the human resource management (HRM) plan and its implementation across various aspects of HRM. In the private sector, one private hospital would be selected in each province, with a maximum of 100 beds.

Data collection and data entry quality: Before data collection occurred, the instruments were field tested in the following locations:

- Questionnaire 2: CDA Medical Centre, G-9 Markaz, Islamabad
- Questionnaires 1 & 2 : RHC Tarlai, Islamabad
- Questionnaires 2 & 3: DHQ Hospital Rawalpindi
- Questionnaire 1: DHO Office Islamabad
- Questionnaire 3: Ali Medical Centre, F-8 Markaz Islamabad
- Questionnaire 3: Federal Ministry of Health, Islamabad

Comprehensive data quality checks were performed during data collection, before data was entered, as well as after entry. Major objectives of the quality check were to reduce the number of non respondents at point of collection; to prevent and correct errors; to avoid common causes of misreporting; and to ensure supervision and team interaction in the field.

Training was carried out in three stages. The first stage was a Master Training Workshop in Islamabad. Here the participants trained were the four provincial focal persons, eight nominated master trainers, two survey coordinators, and two data managers. In addition the representatives of USAID and WHO were also present. The second stage was the provision and supervision of Provincial Trainings. Finally, there was the monitoring and supervision of the data collection process, i.e., the survey.

In order to reduce the number of non-respondents, the following actions were proposed and made mandatory to be taken by the Survey Team;

- Introductory letter to all concerned prior to initiation of the field activity.
- An ID card was assigned to each enumerator.

- Interviewing techniques were part of enumerators' training at the province level.
- Only verbal consent was taken from the respondents.
- Connection between the district and provincial focal person was established in order to address any discrepancies that may arise during the survey.

In order to avoid common causes of misreporting it was decided that the data collectors in each province would be provided micro-plans by their respective provincial focal persons. These would include the number and location of health care facilities to be visited on daily basis. Full detail of the enumerator with their contact details will be provided to each supervisory tier. Error correction and prevention was handled by rechecking of the data entry by the federal data team in Islamabad.

Survey Monitoring: A 'central monitoring cell' was based in the HSSPU, Health Services Academy, Islamabad comprising of the core team members to oversee the process of data collection, supervise provincial focal persons/survey coordinators and directly monitor survey enumerators to resolve issues at grass root level. Data collection was regularly monitored on daily basis, to assess the progress and implementation of the survey plan, as provided by the respective provincial focal persons. In addition to the provinces, the federal enumerators (carrying out the implementation of Questionnaires 1 & 2 in the federal MOH and vertical programs) were also monitored.

The core team was in contact with the data collectors, survey coordinators and the focal persons continuously. The status of dispatched questionnaires was assessed and counter checked with the data entry team. Problems identified during the review of the questionnaires received were discussed with the concerned team on daily basis and therefore errors were minimized and corrected in time.

The data entry team was also being supervised in parallel along with the data collectors. The data entry team was instructed to flag questionnaires with the following discrepancies and report to the survey coordinators & the concerned team

- Incomplete questionnaires
- Questionnaires with errors in response
- Unfilled questionnaires

Instruction were issued to the data entry team supervisors to collect the faulty questioners twice per day and communicate with the survey enumerates at 12.00 pm and at 4.00 pm daily to resolve the issues and correct faults in the questioners. In addition the flagged questioners were sent back to be refilled by the survey enumerators. The data entry was successfully completed in the 1st week of December 2009.

Data analysis: Data were cleaned and validated in Islamabad, before being transferred to TACMIL staff based in Bethesda, Maryland (USA). These data were originally entered into SPSS software (™ SPSS Inc.), and converted to the Stata version 9 format (™ Stata Corp.) for analysis. Data analysis was then conducted in Stata. Further analysis and charting was also conducted in Microsoft Excel (™ Microsoft Corp).

3. Stock of Front Line Public Sector Health Workers in Pakistan

3.1 Survey of Health Facilities

As described in Chapter 2, we conducted a survey of the number of health workers in public sector facilities in four provinces of Pakistan as well as at the federal level. In this chapter, we present the results of our findings for these four provinces and the federal level; and extrapolate to the remaining provinces in order to give an estimate of the totals for Pakistan. This preliminary report focuses on the public sector only. In a future report, we will estimate the number and distribution of health workers in private sector hospitals and maternity homes. A future report will also discuss the urban/rural issues.

Table 3.1 below describes the sample of public sector facilities from which we have data using questionnaire I in Annex D. A total of 349 facilities were sampled, across six facility types. All of these facilities also had data collected from the district health office (EDO) on their health workers for cross-checking, giving us two data points for most facilities. In addition, consolidated data on health workers was collected from the federal level (vertical programs), and from the provincial and district level health offices of the MOH. The federal vertical programs, the provincial health departments, and the district health offices are listed in Table A.1 in Annex A.

Table 3.1. Number of health facilities sampled by public sector facility type

Province	DHQ	THQ	RHC	BHU	Dispensary	MCH	Total
Balochistan	3	2	10	59	13	5	92
KPK	4	3	6	61	4	5	83
Punjab	4	4	8	62	4	4	86
Sindh	4	4	8	44	24	4	88
Total	15	13	32	226	45	18	349

DHQ: District Headquarters Hospital; THQ: Tehsil Headquarters Hospital; RHC: Rural Health Center; BHU: Basic Health Unit; MCH: Maternal Child Health Center

Most of the facilities sampled were rural; mostly as a result of the oversampling of Basic Health Units (BHUs) that are predominantly rural (as are the Rural Health Centers or RHCs). In contrast most sampled hospitals (DHQs and THQs) were in urban centers.

Table 3.2. Number of health facilities sampled by public facility type & location

Facility type	Urban	Rural	Total
DHQ	15	0	15
THQ	9	4	13
RHC	2	30	32
BHU	25	201	226
Dispensary	4	41	45
MCH Center	13	5	18
Total	68	281	349

There were a large number of Basic Health Units (BHUs) in the sample. A total of 28 hospitals across DHQ and THQ levels were sampled. The oversampling of BHUs is rationalized as the BHU is the most numerous type of public health facility in Pakistan. Table 3.3 below gives the sampling percentages – the number sampled by type of facility, expressed as a percentage of the total in the province of the type of health facility. Overall, we sampled 4.8 percent of the BHUs in Pakistan; which is still lower than the sampling rate for RHCs. We did not sample TB Clinics or SHC/First Aid Posts. However, we adjust for this in the extrapolation, which will be described later.

Table 3.3. Sampling rate based on total number of public facilities of the type

	Balochistan	KPK	Punjab	Sindh	Overall
Hospital*	5.1%	3.5%	2.6%	2.4%	3%
RHC	14.3%	6.5%	2.7%	7.6%	5.7%
BHU	11.3%	6.5%	2.5%	5.7%	4.8%
Dispensary	2.3%	0.7%	0.3%	1.1%	0.9%
MCH Center	5.4%	3.4%	0.8%	2.6%	2.0%

* Sampled types were DHQ and THQ. Overall number includes other types of hospitals.

The rest of the chapter is organized as follows. We first motivate our methodology to estimate the total number of health workers using an extrapolation from sample averages. In this, we discuss the numbers of ‘on record’ staff obtained from the federal vertical programs and the provincial health departments. In this preliminary report, we do not present the estimated total health workers for the sampled and un-sampled districts. In the subsequent sections we present our results for the estimated number of total health workers (across all cadres) in Pakistan, across both the sampled and un-sampled provinces and the federal vertical programs, and focus specifically on doctors and nurses. In another section, we discuss these estimates as a ratio to population. Thereafter, the chapter concludes with a section discussing the attrition rates over five years in the sampled cadres; and a section with a projection of the numbers of doctors in Pakistan based on assumptions surrounding the absorption of new registrations in medicine and dentistry, as well as the annual attrition rate. The overall conclusions from this chapter are summarized in the final section.

3.2 Estimating the Total Number of Health Workers in Pakistan

In our review of records at the vertical program offices at the federal level and at the four provincial health departments (Table A.1, Annex A), we were able to procure the total health workers ‘on the books’ at these offices. It would be assumed that these are fair estimates of the total health workers in these provinces and programs. However, after analysis of the results from the record review (presented in Table 3.4) we realized that these totals were prone to discrepancies and omissions:

- The treatment of ‘specialists’ differed between provincial health department offices. While in Punjab, all dentists were specialists, in all the other provinces, these were separate from general dentists.
- Vertical program health workers were possibly under-counted.

- Community Health Workers (including LWHs) were overestimated, leading to almost a 50 percent share of public sector HRH. This was possibly because federally funded LHWs were repeated in the provincial books. All LHWs belong to the National LHW Program, which has exact counts of the overall number. While there are very small numbers of male CHWs in the provinces, not affiliated to a federal program, this was not clear from the record review.
- Finally, we suspected that doctors in the public sector were under-counted. The results did not match our expectations of the total number in these provinces.

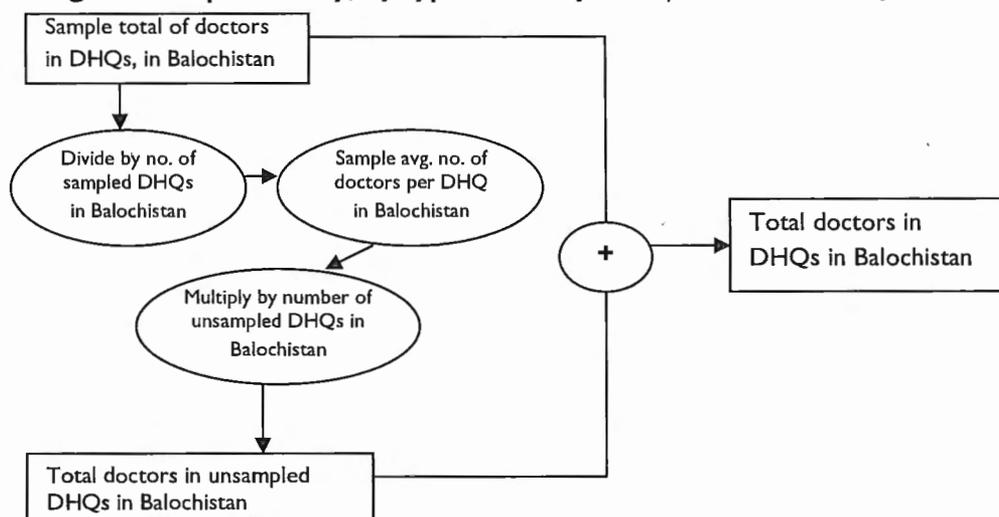
Table 3.4. Total HRH on record at provincial health departments and federal (program) MOH offices, 2009

Health Department	Doctors	Dentists	Special doctors	Special dentists	Nurses	Para-medics	Support staff	Managers	CHW*	VP HR*	Others	Admin.
Balochistan	1,941	56	45	11	1,749	6,461	1,547	0	0	0	0	6
KPK	4,650	257	1,564	52	4,521	9,035	18,350	322	0	0	1,442	1,674
Punjab	2,547	0	601	231	7,120	8,754	1,253	97	0	0	5,434	0
Sindh	8,603	352	338	0	3,400	6,702	15,974	137	0	0	12	1,207
Federal	17	0	6	0	5	25	126	43	101,152**	55	0	131
Total	17,758	665	2,554	294	16,795	30,977	37,250	599	101,152	55	6,888	3,018

* CHW: Community Health Worker. VP HR: Vertical Program Human Resource. ** National LHW program

Also, the records review does not help establish any sample averages by facility, and hence would not help us in understanding the total HRH in the un-sampled areas of Pakistan. Given the data quality issues above, as well as the need to estimate the totals for un-sampled areas for a country-level perspective, we carried out an extrapolation analysis. This analysis has several steps to prepare the data and to calculate the sample averages needed. Given the possibility for over-estimation, we conducted the extrapolation using four different estimates of the sample average of cadre per facility. The process involves iterative calculation of such averages by cadre and type of facility, for each province. Figure 1 below describes the process with an example.

Fig. 1 Process map for projecting health workers in a province based on sample average of staff per facility, by type of facility. Example: Doctors in DHQs in Balochistan



For calculating the basic building block of the extrapolation, i.e., the sample average of the number of health workers in a particular cadre, per type of facility, in a particular province (Fig. 1), we used two types of responses in the survey. The first, based on question 14 in Questionnaire I (Annex D), asked facilities to provide 'total staff' across gender and age categories. The second, based on question 15 in Questionnaire I, asked facilities to provide 'total staff in place' from the positions sanctioned, including contracted. We would expect these two numbers to tally, but in many facilities, they did not. Further, some public facilities answered one but not the other. Given that we average these values across the facility type in a province, biases could be introduced due to any non-random pattern in such lack of response or variation in response. Based on such caution, we conducted the extrapolation separately using both 'total staff' (Q. 14) and 'total in place' (Q. 15). Also, for each facility, when conducting the calculation whether using Q.14 or Q.15, we calculated the average using numbers of staff from the direct facility survey, as well as the numbers for the facility from the district office.

However, some facilities did not report any staff, or the district offices showed no staff, for the cadres in the questionnaire vis-à-vis Q.14 or Q.15. A decision to include such facilities in the calculation of averages could be merited in one view of the extrapolation. In this view, such facilities with zero staff reported for either Q.14 or Q.15 represent facilities where no one was present on the day of the survey to give staff counts, or the facility did not exist in the district records. This lack of an ability to find data on the facility may be indicative of a variety of issues – the facility not functioning properly, or it being unstaffed. Given that facilities were selected randomly within their stratification, they are representative of the un-sampled population of facilities. In this view, the average from the sample, inclusive of the 'problem' facilities, can be used as-is. The effect of inclusion will be to reduce the numerical value of averages from a second view (below); and as a result reduce the estimate of total health workers by cadre.

The second view holds that the 'unstaffed' or absent facilities with missing data for all cadres as per Q.14 or Q.15, are unique to the survey, and do not represent any wider problem that might occur in the general population of facilities. In this view, these facilities should be deleted before calculation of the averages for extrapolation. The effect of the deletion is to increase the numerical value of these averages from the first view above, and hence increase the overall estimate of health workers by cadre.

Based on this there are at least four estimates possible of the sample average of the number of staff in a cadre per facility, per province, that can be used in extrapolation. Tables A.2-A.3 in Annex A detail two of these estimates. As this implies, we conducted four separate estimations (not including analysis of the data from the record review, shown in Table 3.4). In the discussion below, we present the minimum, median, and maximum across these five estimates for the four sampled provinces; and for the three un-sampled geographies (ICT, AJK, and Northern Areas-Gilgit-Baltistan), we present medians etc. across four estimates. Only the median of the estimates – across four or five estimates as appropriate – is used for calculating ratios of health workers to population, or for other further analysis.

3.3 Total Number of Public Sector Health Workers in Pakistan

A total of twelve cadres of health workers, spanning all types of health functions at the facility level and including the vertical programs at the federal level, were surveyed in this assessment. These cadres are listed in Table 3.4 above. Table 3.5 presents the minimum, median, and maximum of the estimated total human resources for health across these twelve cadres, by province. Recall that for Balochistan, KPK, Punjab, and Sindh, we have five estimates; while for the 'extrapolated' (un-sampled) areas of the Islamabad Capital Territory (ICT), Azad Jammu Kashmir (AJK) and the Northern Areas (Gilgit-Baltistan) we have only four estimates. As such the Pakistan level figure across the seven areas (including ICT) and the federal vertical programs can only have a total of four estimates. This pattern follows in the subsequent sections for doctors and nurses. As a corollary, we should not sum the minimums, medians, and maximums in Table 3.5 for the provinces to yield the Pakistan-level estimate.

Table 3.5. Estimated total public sector health workers by province, 2009

Province/Area	Min.	Median	Max.
Balochistan	11,816	14,538	14,833
KPK	48,825	55,646	109,963
Punjab	40,518	91,696	118,717
Sindh	57,257	95,263	120,829
ICT	1,497	1,712	2,370
AJK	7,547	12,931	20,431
Northern Areas	5,735	7,267	8,686
Pakistan*	380,628	417,288	448,362

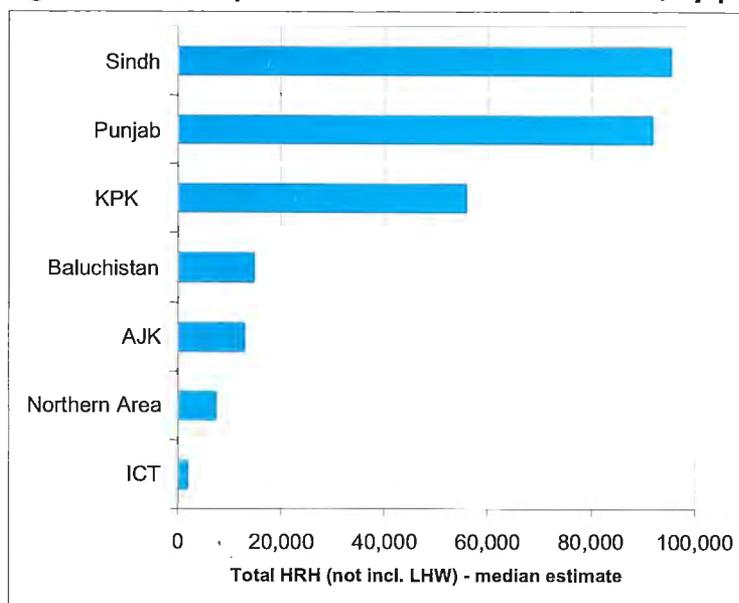
* This is not the sum of the individual minimums/medians/maximums for the seven areas; & it also includes Federal.

The total provincial HRH figures as per Table 3.5 easily outstrip the numbers from the analysis of records in the four provinces and the federal vertical programs. The three un-sampled areas do not contribute as much to the total, but are still significant. Overall, as per the median estimate, 417,288 front-line health workers across job functions are estimated for Pakistan. Front line implies the following omission:

- Estimates are based on facility-level averages for health workers. These do not incorporate planning, supervisory, training, and budgetary staff in federal, provincial, and district health offices. These may be a substantial number, though small in comparison to the numbers of front-line health workers.

In discussing the provinces/areas, we must exclude the LHWs as they are considered federally deployed in our analysis. The province/area totals do include male CHWs. As per Fig. 2 (next page), Punjab, which is the most populous province, has only the second-largest number of front-line public sector health workers following Sindh, which is the second most populous province. After this discrepancy, the results thereafter follow the order of population ranking. In Section 3.6, we examine the adequacy of these values at a population level for the four main provinces in our study.

Fig. 2 Estimated public sector HRH* in Pakistan, by province/area, 2009



Source: Median estimates * For included staff cadres, see Annex A or the questionnaire in Annex D.

3.4 Total Number of Public Sector Doctors in Pakistan

From the total front-line public sector health workers, we separated doctors for specific analysis. Table 3.6 shows the minimums, medians, and maximums for doctors, for both general practitioners and specialists, across the four to five estimates.

Table 3.6. Estimated public sector doctors (GPs and specialists) by province/area, 2009

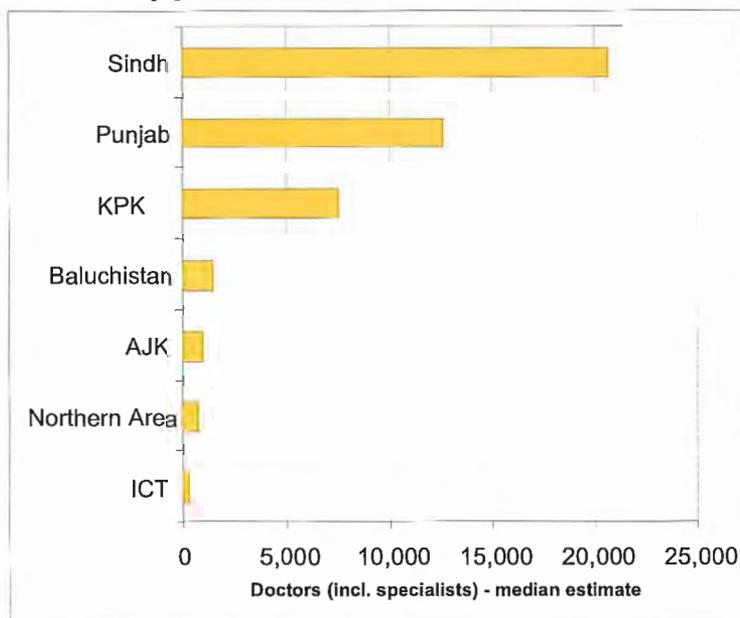
Province/Area	Min.	Median	Max.
Balochistan	1,269	1,409	1,986
KPK	6,214	7,518	7,977
Punjab	3,148	12,601	17,878
Sindh	8,941	20,639	25,421
ICT	263	287	442
AJK	736	987	1,275
Northern Areas	543	741	890
Pakistan*	43,362	46,153	53,831

* This is not the sum of the individual minimums/medians/maximums for the seven areas; & it also includes Federal.

Our median estimate for Pakistan is 46,153 public sector (front line) doctors. Our results can be compared to the PMDC records. These records span the public and private sector and include doctors who maintain registration but may not be in clinical practice. The PMDC records as of November 30, 2009, show 139,194 doctors registered in Pakistan (basic degree or GPs as well as post-graduate specializations, not inclusive of LSMF). This may be a preliminary indication that there are more doctors in

private practice than there are in the public sector; though one must be wary as the numbers in Table 3.6 do not include doctors in public-sector management, training, or supervisory roles. However, the inclusion of such excluded doctors may not change the relative positions of the public and private sector.

Fig. 3 Estimated front-line public sector doctors (general and specialists) in Pakistan, by province/area, 2009



Source: Median estimates.

From our analysis, Sindh has the most public sector front line doctors (Fig. 3) though it did not have the most health workers. It is followed by Punjab, after which the provinces follow the order of population. However, as per the PMDC records across sectors, Sindh (56,474) has fewer registered doctors than Punjab (57,350) overall.

3.5 Total Number of Public Sector Nurses in Pakistan

Table 3.6 shows the minimums, medians, and maximums for nurses, including midwives and lady health visitors (LHVs). Based on our median estimate, nurses are in fact slightly outnumbered by doctors in Pakistan, though the ratio of nurses to doctors (GPs and specialists) is above one in all provinces except Sindh. However, doctors are also assisted by paramedics, LHWs, and certain CHWs. Including all of these staff under a category of ‘ancillary’ clinical staff, the ratio of such staff to doctors in Pakistan using the ‘total in place’ average-based estimate is nearly 10:1. However, paramedics, LHWs and CHWs do not replace the skilled care that a trained nurse can provide, or the specific training in birthing received by a midwife. It is not expected that paramedics, LHWs, or CHWs have job functions that approximate those of a nurse.

The ratio of nurses to doctors is the highest in Punjab and the Northern Areas, at 1.41 and 1.4 respectively. In 1993, the World Bank’s *World Development Report: Investing in*

Health' suggested that as a rule of thumb, the ratio of nurses to doctors should be at least 2:1, with 4:1 considered more cost-effective (WHO, 2009). This is given a proper assignment of tasks between doctors and nurses, with the former providing clinical supervision and direct care in the case of complex cases, and the latter providing the essential public health and clinical care services.

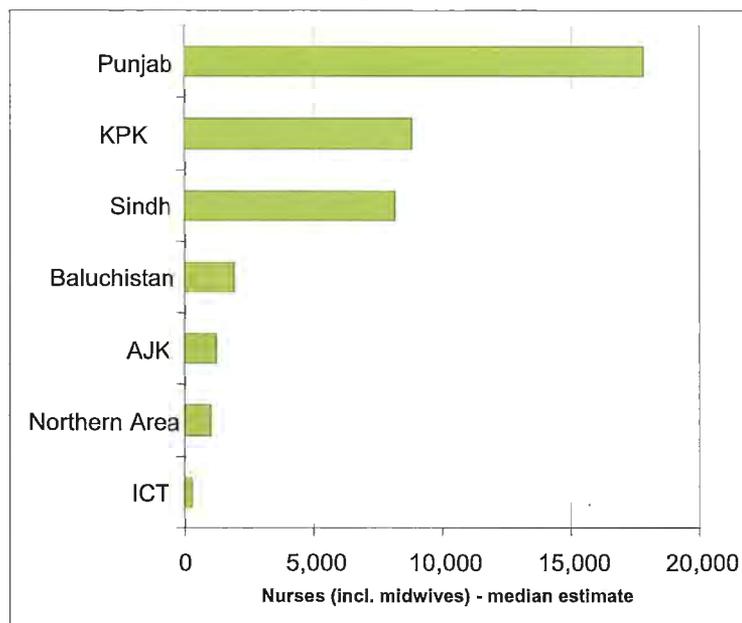
Table 3.7. Estimated public sector nurses (incl. midwives, LHV) by province/area, 2009

Province/Area	Min.	Median	Max.
Balochistan	1,723	1,892	1,975
KPK	4,521	8,783	10,781
Punjab	7,120	17,773	20,695
Sindh	3,400	8,169	8,831
ICT	255	318	402
AJK	978	1,246	1,634
Northern Areas	947	1,021	1,047
Pakistan*	35,189	41,032	42,497

* This is not the sum of the individual minimums/medians/maximums for the seven areas; & it also includes Federal.

According to our analysis, Pakistan appears to suffer a significant nursing shortage in the public sector, with a maldistribution across provinces. The shortage is particularly pronounced in Sindh, where there may not be adequate nurses to assist doctors (though this is slightly tempered by the fact that Sindh has more public sector doctors than other provinces, even after controlling for population). Punjab and the KPK have the highest totals of nurses in Fig. 4. The order thereafter follows population.

Fig. 4 Estimated total public sector nurses (including midwives and LHV) in Pakistan, by province/area, 2009



Source: Median estimates.

3.6 Stock of Public Sector Health Workers as a Population Ratio

We have reported total stocks of front line health workers in the public sector in Pakistan by province. It is difficult to understand the adequacy of the total HRH stock figure compared to the health need. One proxy for adequacy is the HRH stock as a population ratio at the province level, which serves in the absence of other measures of the adequacy of the front line health worker number.

Table 3.8. Estimated public sector doctors and nursing staff per 1000, 2009

Province/Area	Doctors (GPs, specialists)/1000			Nursing staff/1000		
	Min.	Median	Max.	Min.	Median	Max.
Balochistan	0.15	0.17	0.24	0.21	0.23	0.24
KPK	0.28	0.33	0.35	0.20	0.39	0.48
Punjab	0.03	0.13	0.19	0.08	0.19	0.22
Sindh	0.23	0.53	0.66	0.09	0.21	0.23
ICT	0.26	0.28	0.43	0.21	0.23	0.24
AJK	0.23	0.30	0.39	0.36	0.42	0.48
Northern Area	0.30	0.41	0.49	0.15	0.19	0.22
Pakistan	0.26	0.27	0.32	0.21	0.24	0.25

Source: Estimates. Population figures based on projection. See Annex A for sources.

There are no international norms which specify adequacy of the total stock of health workers. The Joint Learning Initiative (JLI) for Human Resources for Health (2004) did not take a position on this, as is appropriate given that the context varies by the country and its epidemiological/disease condition. Quoting the same *World Development Report*, the JLI suggested that 0.1 doctors per 1,000 is a benchmark, though without empirical justification (JLI 2004). Against this benchmark, Pakistan appears reasonably well-equipped with public sector doctors, and this does not even account for the large number of doctors in the private sector (we consider nurses separately later). However, there is a need to gauge adequacy given regional variation in health need and population.

3.7 Attrition in Front Line Public Sector Health Workers

For some years there has been discussion on the attrition of doctors in Pakistan and whether there exists a process of out-migration which reduces the existing stock of experienced doctors, both GPs and specialists, in the country; as well as a parallel move from the public to private sector, which reduces the stock in public facilities. One source suggests that as many as 1,700 doctors are lost from the pool of practicing doctors per year in Pakistan (Talati & Pappas 2006). That study also suggests that there is a net emigration of 900 to 1,275 doctors per year after accounting for the returnees.

The attrition question can also be asked of nurses, where the reasons for separation might be different, but the ultimate effect of depleting the front line health worker stock of experienced professionals is the same. Health facilities in our sample were asked to

report on the total attrition across four causes in the last five year period (2004-2009), as can be seen in Q.16 of Questionnaire I (Annex D).

Our data from the sampled facilities shows that attrition is not a significant issue except for dentists in the KPK. Even the five-year total of attrition across resignations, long-leaves, retirement, and deaths does not cross 4 percent of the annual stock (using as base the median stock for 2009) in most provinces for the cadres in Table 3.9. A more detailed view of the five-year attrition rates can be found in Table A.9 in Annex A, which presents the rates across all the twelve cadres. The facilities in Sindh did not complete Q.16 on attrition (Questionnaire I, Annex D), and hence Sindh is absent from Table 3.9.

Table 3.9 Five-year attrition as percentage of total staff in place, by cadre and province (using 2009 stock as base)

Province	Doctors (Incl. Specialists)	Dentists (Incl. Specialists)	Nurses etc.	CHW
Balochistan	0.5%	0%	3.6%	0.4%
KPK	3.2%	19.8%	1%	0.1%
Punjab	6.6%	7%	1.6%	0.7%

However, this does not mean that vigilance on this issue can be relaxed. As Table 3.10 shows, the voluntary part of attrition is the primary reason for doctors (GPs and specialists considered separately) and nurses leaving front line public service. Later in this report in Chapter 4, we consider the intention to remain in service explicitly and find that the potential for retention is fairly high in the public sector. Therefore, the high rate of voluntary attrition is unexplained. However, since the overall rate of attrition is low, our estimates from the facility survey generally fit the expectations from the front line health worker survey in Chapter 4.

Table 3.10: Resigned or 'long leave' as a percentage of the sum of five-year attrition due to all reasons

	Doctors	Dentists	Specialist doctors	Specialist dentists	Nurses etc.
KPK	58%	50%	47%	50%	50%
Punjab	88%	75%	62%	N.A.	35%

3.8 Projected Stock of Public Sector Doctors over Time

The same source quoted above (Talati & Pappas 2006) estimated that if Pakistan were to require one doctor per 1,000 population based on its health needs, and their estimate of emigration-related losses held till 2010, then Pakistan would face a shortage of 73,000 doctors across the public and private sectors in that year. The shortages would increase if health needs were higher.

We also investigated this issue, using similar data on new registrations of doctors and dentists (generalists and specialists) from the Pakistan Medical and Dental Council to calculate the annual new registrations. The raw data for 18 months and the calculated

annual value are shown in Table 3.11. We then conducted a projection of doctors and their distribution across provinces using the method discussed in Box. 3.1 below.

Table. 3.11 Annual registrations at the Pakistan Medical and Dental Council
(Baseline and endpoint data: June 30th 2007 to November 30th 2009)

	12 months*	18 months
Doctors (MBBS)	4,233	9,878
Dentists (BDS)	763	1,780
Specialists (PG MBBS)	1,539	3,590
Specialist dentists (PG BDS)	70	163

*Estimate. Acronyms: MBBS: Bachelor of medicine and surgery. BDS: Bachelor of Dental Surgery. PG: Postgraduate.

Box 3.1 Projection scenario: 'Inequitable distribution'

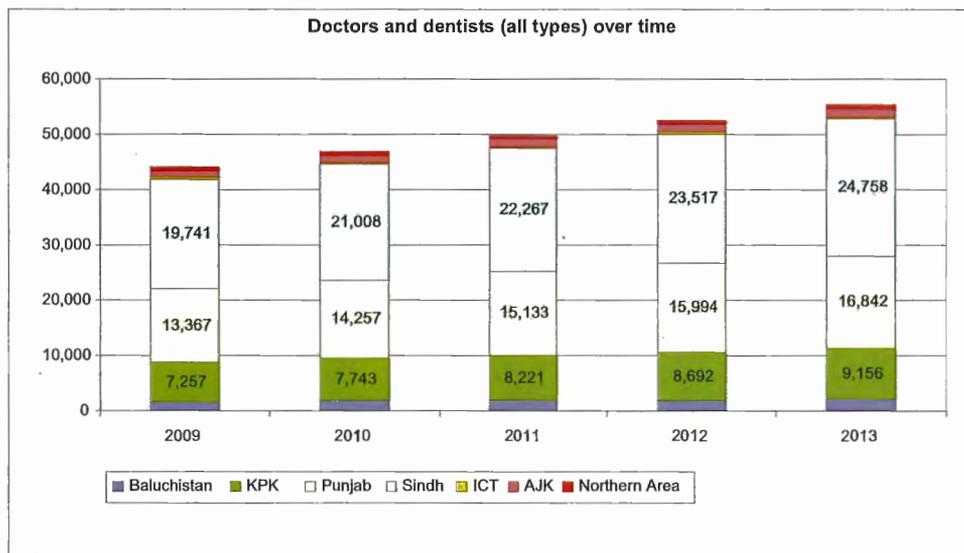
Focus: Doctors & dentists (general and specialist)
Objective: Project numbers of doctors and dentists, adjusting for attrition and new registrations absorbed
Period: 2009-2013

Assumptions

- Public sector absorbs 50% of new registrations for doctors and dentists.
- Annual Sindh attrition rates = average of annual rates in Balochistan, KPK, and Punjab
- Absorption of new registrations are split 75:25 in favor of Punjab and Sindh (group 1) vs. the five other areas (group 2: Balochistan, KPK, AJK, ICT, and Northern Areas)
- Within a group, the new registrations are split based on the share in the total group year 2009 stock (e.g., Punjab and Sindh share 75% of new doctors, and they split this based on their current share of the sum of doctors in Punjab and Sindh)
- Assume annual attrition rates and registrations are fixed over the period 2009-2013

Our projection model is realistic in the sense it assumes that the absorption of new registered doctors and dentists will be inequitably distributed across the provinces and areas (Punjab and Sindh have the largest share of medical colleges, universities). It is also realistic in expecting that 50 percent of the new registrations will go to the public sector, with the other half going to the private sector (or to other countries), despite the public sector being larger in size. Given the projection scenario, Fig. 8 below depicts the change in the stock of doctors and dentists (general and specialists combined).

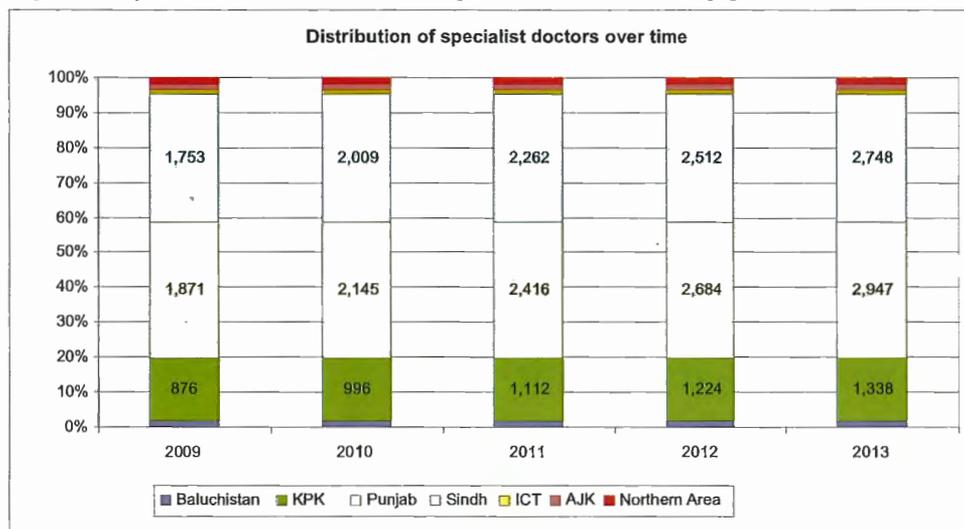
Fig. 5 Projected doctors and dentists, based on inequitable distribution of new registrations, and calculated rate of attrition; by province/area 2009-2013



Source: 'Total in place' estimate.

The overall stock of doctors and dentists based on our projection increases from 45,782 to 57,152, an increase of 25 percent on the 2009 stock in the four years. The stock in Balochistan grows fastest, at 27 percent, and KPK/AJK the slowest, at 23 percent. The relative distributions remain stable, even with higher attrition rates in KPK. Fig. 9 shows the distribution in terms of percent of the total per annum for specialists.

Fig. 6 Projected distributions of specialist doctors by province/area 2009-2013



Source: 'Total in place' estimate.

3.9 Chapter Conclusions

We analyzed the results of a survey of public health facilities as well as provincial, district, and federal (vertical programs) offices. The intention of the survey was to capture the number and distribution of front line health workers across twelve cadres in four provinces of Pakistan, with representation across rural and urban areas. Additionally, data was collected in private hospitals, which we will analyze in a future report. In this chapter, we focused on the results using the lenses of the facility type and the province. The lenses of location (urban vs. rural) and district are also very important will merit investigation in a future version of this report.

We analyzed the results from a review of records held on the number of health workers in the province at the health department office in Balochistan, KPK, Punjab, and Sindh. Based on our understanding of the actual situation for the health workforce, and some discrepancies and undercounts of the stocks of various key cadres, we decided to conduct an 'extrapolation' analysis using four separate estimates of the sample averages of health workers by cadre per facility type in each province. These extrapolations were aggregated to give an estimate of the total stock by cadre of front line public sector health workers per province, including both sampled and un-sampled (ICT, AJK, and Northern Areas) provinces/areas. We also included the federal workers in vertical programs in our final estimates.

Our conclusions from this chapter are presented below.

- The median estimate for 2009 is of 417,288 front-line public sector health workers, which does not include provincial, district, or federal staff at MOH offices involved in planning, budgeting, training, or research.
- The median estimate of doctors, both GPs and specialists (not including dentists) in Pakistan for 2009 is 46,153, which compares with a separate estimate of 74,000 doctors in Pakistan in 2005 across public and private sectors (Talati & Pappas 2006). Sindh has the highest estimated number of doctors even though it did not have the highest total of health workers, followed by Punjab. Our opinion is that Pakistan is relatively well-supplied with front-line doctors (GPs and specialists), dentists, and support staff compared to well-known international norms. However, there are regional variations. Punjab appears to have far fewer doctors than indicated by its population and health need; whereas Sindh has far too many.
- Pakistan appears to suffer a significant nursing shortage, with a maldistribution across provinces. The shortage is particularly pronounced in Sindh, where they may not be adequate nurses to assist doctors. Punjab and the KPK have the highest totals of nurses.
- Other estimates of total stock for cadres (detailed in Annex A) indicate that there are 2.1 managers and administrative staff for every 100 health workers of

all other cadres. This is a very low managerial and administrative ratio for a country with the health care delivery complexity that Pakistan faces.

- Attrition in doctors or nurses does not appear to be significant, except for dentists in KPK. Projections of the stock show a moderate rise of 25% in the stock of doctors and dentists in Pakistan over 2009-2013.

4. Job Satisfaction and Work Environment

4.1 Survey of Healthcare Workers

As a part of this HRH assessment, a survey was conducted with 3,549 health care workers across public and private health facilities in Pakistan. This was one of the largest surveys of health care workers conducted in the country, in order to understand the realities of their work conditions, motivation and job satisfaction, and the adequacy of their equipment and instruments.

As discussed in the methodology section of Chapter 2, the survey was conducted in the four provinces included in this assessment, and included both rural and urban settings. The categories and distribution therein of the sample of health care workers are more fully described in Annex B, Table B.1. A summary of the sampled health workers by type of health facility and sector is presented below in Tables 4.1-4.2.

Table 4.1. Number of health workers sampled by sector and facility type

Sector	Facility Type										Total
	TH	DHQ	THQ	RHC	BHU	Disp.	MCH Center	Pvt. Hospital	Pvt. Clinic	N/A	
Public	149	444	210	303	1,099	196	69			45	2,515
Private								620	391	18	1,029

TH: Teaching Hospital; DHQ: District Headquarters Hospital; THQ: Tehsil Headquarters Hospital; RHC: Rural Health Center; BHU: Basic Health Unit; Disp.: Dispensary; MCH Center: Maternal Child Health Center; Pvt.: Private

About 40 percent of the health workers from the private sector; and the rest from the public sector. In addition, 48 percent of the overall sample of health workers were from rural areas, and 52 percent from urban areas (Annex B, Table B.1), allowing for a healthy mix of perspectives from across the health system.

Table 4.2. Number of health workers sampled by province and sector

Province	Sector		
	Public	Private	Total
Federal	24	0	24
Balochistan	495	111	606
KPK	601	292	893
Punjab	686	324	1,010
Sindh	709	302	1,011
Total	2,515	1,029	3,544

In terms of regional representation, the two most populous provinces had a large share of the final sample (Table XX), but compared to its share of the overall population, Punjab was under-sampled, and Balochistan, Sindh, and KPK were over-sampled. A total of 24 federal-level MOH employees were also surveyed in Islamabad.

4.2 Job Satisfaction

It is imperative that health workers be satisfied and motivated in their jobs so that they deliver optimum performance and high-quality health care. Dissatisfied workers may be prone to separating from their facilities, or from service itself. Given the gap in meeting health care demand as well as the densities of health care workers to population as discussed in Chapter 3, it is very important that Pakistan should retain all health care workers in their positions and build on their experience. Also, de-motivated workers may not be able to provide health care which meets guidelines, which can mean poor outcomes for a patient. In some cases, this may well be the dividing line between clinical success and failure.

Each health worker was asked 32 questions on job satisfaction. The response to each question was scored as follows: 1= Agree, 2= somewhat agree, 3= Neutral, 4 = somewhat disagree, and 5= Disagree. As per this scoring pattern, a lower score is associated with agreement, and higher scores with increasing levels of disagreement. Scores in the middle signify a lack of strong opinion or neutrality on the issue. The individual questions were grouped by the aspect they covered into several composite indices, shown in Table 4.3 below. The scores on the individual questions and the grouping scheme for the composite indices are described in Annex B, in Table B.2 and Box B.1 respectively. The detailed results on these composite indices of job satisfaction, across different categories of health workers, are also provided in Annex B, Table B.3.

Comparing public and private sector health workers: In this section we compare levels of job satisfaction by the sector of the health facility.

Table 4.3. Scores on composite job satisfaction indices (positive), by sector
Lower score is better

Index number	Positive aspect of job satisfaction	Public	Private
Index 1	Recruitment / Career Development / Skills & Abilities	2.5	2.5
Index 2	Benefits & Grievances	3.3	2.6
Index 3	Salary (positive)	3.8	2.7
Index 4	Motivation, Recognition & Respect	2.4	2
Index 5	Professional Facilitation	2.4	2
Index 6	Work Load (positive)	3	2.2
Index 7	Retention (positive)	1.9	1.7

Table 4.3 focuses on the results related to 'positive' aspects, where a lower score indicating higher agreement, would be better in terms of job satisfaction of the health workers. The public sector health workers show a lower level of job satisfaction in almost every aspect, except for Index 1 (recruitment, career development, and skills and abilities). The differences are particularly stark for Indices 2, 3, and 6. The public sector has to do better to improve the levels of job satisfaction related to the handling of benefits and grievances, salary levels and general compensation, and on the level of work that the health workers are expected to handle.

Table 4.4. Scores on composite job satisfaction indices (negative), by sector

Higher score is better

Index number	Negative aspect of job satisfaction	Public	Private
Index 3a	Salary (negative)	3.5	3.4
Index 6a	Work Load (negative)	3.2	3.2
Index 7a	Retention (negative)	3.3	3

On certain negative aspects of job satisfaction, where the question related to an aspect which health workers would want to minimize, there was less difference between the responses from public and private sector workers (Table 4.4). Public sector workers were less prone to statements indicating an intention to leave service (Index 7a), compared to private sector workers, who were on average neutral. This, along with the favorable scores on Index 7, suggests that retention in the medium term is not a significant problem for the public sector, even if there are other aspects of job satisfaction that the public sector can improve on.

A note of caution should be extended in interpreting results from Tables 4.3 and 4.4. While the public sector sample includes a wide cross-section of facility types, from tertiary and district level hospitals (TH and DHQ) to basic health units (BHU), the private sector sample is concentrated in hospitals and clinics. Therefore, while the public sector job conditions span a wide range of environments, the private sector facility set is narrower. The reader's attention is also drawn to the 95% confidence intervals on the values in Tables 4.3 and 4.4, as presented in Annex B, Table B.4-B.5.

Comparing cadres of health workers in the public sector: Does job satisfaction vary significantly by cadre of the health worker? We investigate this in Tables 4.5-4.6 below. By limiting this analysis to the public sector, we avoid biasing the interpretation due to differences across the sectors. Values of specific interest are italicized.

Table 4.5. Scores on composite job satisfaction indices (positive), by public sector cadre

Lower score is better

	General doctor	Specialist doctor	General dentist	Specialist dentist	Nurse or midwife	Para-medics	CHW	Managers	Support staff	Clerical staff	Other	Total
Index 1	2.2	2.8	2.5	2.5	2.2	2.5	2.4	2	2.8	2.7	2.5	2.5
Index 2	3.3	3.5	3.8	3.5	3.2	3.3	3.6	3	3.2	3.2	3	3.3
Index 3	3.6	4	4	4	3.6	3.8	4.1	3.9	3.6	4.1	4.1	3.8
Index 4	2.2	2.7	2.6	2.1	2.4	2.4	2.2	2	2.5	2.8	2.2	2.4
Index 5	2.2	3	2.7	2.4	2.4	2.3	2.2	2.3	2.4	2.3	2.5	2.4
Index 6	2.9	3.2	3.1	3.3	2.9	2.9	2.9	3.1	3	3.2	3.3	3
Index 7	2.1	2.2	1.9	1.7	1.8	1.8	1.9	1.9	1.7	2.1	2	1.9
Average	2.6	3.1	2.9	2.8	2.6	2.7	2.8	2.6	2.7	2.9	2.8	2.7
N	353	94	44	10	416	596	210	83	554	56	99	2,515

N indicates the total number of public health workers in this sampled category; CHW: Community Health Worker

There were significant levels of dissatisfaction related to salary and compensation among specialist doctors and dentists, as well as clerical staff. At the other end of the job spectrum, community health workers were also considerably dissatisfied with their salary levels and aspects of compensation. Nurses, paramedics and support staff were the most likely to agree on the positive retention questions as indicated by the composite indices, which indicates their intention to stay with their organizations.

Table 4.6. Scores on composite job satisfaction indices (negative), by public sector cadre
Higher score is better

	General doctor	Specialist doctor	General dentist	Specialist dentist	Nurse or midwife	Para-medics	CHW	Managers	Support staff	Clerical staff	Other	Total PS
Index 3a	3.2	2	2.5	2.6	3.9	3.5	4.1	3.4	3.7	4.2	3.7	3.5
Index 6a	3.3	3.1	3.2	3.2	3.2	3.1	3.1	3.2	3.3	3.2	2.9	3.2
Index 7a	3.2	3	3	2.8	3.6	3.2	3.2	3.4	3.5	3.2	3.2	3.3
Average	3.2	2.7	2.9	2.9	3.6	3.3	3.5	3.3	3.5	3.5	3.3	3.4
N	353	94	44	10	416	596	210	83	554	56	99	2,515

N = total sampled public health workers in the category; CHW: Community Health Worker; PS: public sector

For negative aspects of job satisfaction, we saw more dissatisfaction among the specialist doctors and dentists (the specialist doctors returned a significant score on salary-related dissatisfaction) than other cadres. Nursing/paramedic, administrative, and support staff were all less dissatisfied on the aspects we investigated than doctors and dentists.

Overall, we did not see significant differences in general job satisfaction across the cadres, though there are some aspects on which there is crucial difference between certain groups of cadres (e.g. dentist/doctors vs. support/administrative staff). The general direction of the public sector scores in Table 4.5-4.6 was towards neutrality, with the health workers neither agreeing nor disagreeing with the questions related to positive aspects of job satisfaction. The lack of disagreement with the positive questions or definitive agreement with negative questions does not mean that staffs are motivated and satisfied. It can indicate that staffs are not yet fully invested in their roles and organizations. It takes more certainty and more definitive satisfaction to build a strong organization, which is what the MOH should strive towards.

Geographical comparisons (provinces): Table 4.7 compares provinces on the indices.

Table 4.7. Scores on composite job satisfaction indices (positive), by province
Lower score is better

	Federal	Balochistan	KPK	Punjab	Sindh	Total
Index 1	2.4	2.5	2.6	2.3	2.5	2.5
Index 2	3.1	3.6	3.1	2.6	3.2	3.1
Index 3	4.2	3.9	3.6	3.3	3.2	3.5
Index 4	2.7	2.4	2.4	2.1	2.3	2.3
Index 5	2.3	2.3	2.7	2	2.1	2.3
Index 6	3.4	3	3.1	2.4	2.6	2.7
Index 7	2.2	1.7	2.1	1.5	1.9	1.8
Average	2.9	2.8	2.8	2.3	2.6	2.6
Total N	24	611	893	1,010	1,011	3,549

The provincial comparison (including the federal level) across all health workers, public and private, indicates some subtle differences across the geographies. The federal workers, who are all public sector, on averaged showed little agreement with positive aspects of salary and compensation (Index 3), but contradictorily, also indicated a lack of agreement with negative aspects of the same (Index 3a, Table 4.8). The workers in Punjab (public and private), were the most satisfied across all seven indices in Table 4.7, with an average score of 2.3. Particularly, the health workers in Punjab indicated the strongest agreement of all provinces with the positive questions on retention (Index 7).

Table 4.8. Scores on composite job satisfaction indices (negative), by province
Higher score is better

	Federal	Balochistan	KPK	Punjab	Sindh	Total
Index 3a	4.1	3.4	3.4	3.6	3.5	3.5
Index 6a	3.1	3	3.1	3.2	3.4	3.2
Index 7a	3.3	3.1	3.1	3.6	3.1	3.2
Average	3.5	3.2	3.2	3.5	3.3	3.3
Total N	24	611	893	1,010	1,011	3,549

N = sampled number of public health workers in the category

Other distinctions and comparisons: Across the entire sample (public and private), Tables B.3 and B.4 in Annex B provide comparisons for age, gender, location (urban/rural), BPS cadres for federal and provincial health workers, job type (regular/contractual), and years of service. There were no significant differences across the composite indicators of job satisfaction based on age or gender. Male workers were slightly less dissatisfied with their salary and compensation (Index 3a) than female workers. Urban workers were inclined to think more positively about their workload than rural workers (Index 6). The BPS categories at federal or provincial levels were not related to any distinct patterns of differences in job satisfaction. Regular employees were surprisingly less satisfied on salary (Indices 3 and 3a), motivation/recognition (Index 4), and professional facilitation (Index 5), compared to their contractual colleagues. Finally, increasing number of years of service whether in the current position or in the current facility, was associated with a slight improvement in aspects of retention (Indices 7, 7a).

4.3 Salary-related Satisfaction and Work Choice

Before moving to a discussion of the work environment, we specifically focus on some aspects of salary-related satisfaction, and investigate whether these are correlated to choices governing switching sectors (from public to private or vice-versa) or working part-time. We also look at the possible links between salary-related satisfaction and satisfaction with the organization in general. In all of these analyses, we consider the public and private sector employees separately. Again, the sampled public sector employees represent a wider set of working conditions than those from the private sector, and hence the results should be interpreted with caution. Box 4.1 lists the questions we investigated in detail. All of the responses varied across Agree-Somewhat agree-Neutral-Somewhat disagree-Disagree. Below, we group 'Agree/Somewhat agree' as 'Agree', and similarly 'somewhat disagree/Disagree' as 'Disagree'.

Box 4.1 Salary-related satisfaction and work choice questions (Table B.3, Annex B)

Salary-related Satisfaction Indicators	
8.	I am satisfied with the benefits package offered by this organization or department
9.	My salary is sufficient to meet my personal/family expenses
10.	My salary level is fair for the job hours I work
11.	I get the same salary as compared to the market based person with the same qualifications.
57.	I work part time since my salary is not sufficient to meet all expenses.
Work Choice Indicators	
62.	I would like to switch my sector (public/private)
63.	Are you working in another organization/clinic/health care facility after working hours?
Overall Satisfaction Indicator	
25.	Considering everything, I am satisfied working for this organization

Table 4.9 shows the results. Column B shows the split from within the sub-group of the sample by sector that fit the criteria of Column A (i.e., either 'Disagreed' or 'Agreed').

Table 4.9. Comparing salary-related satisfaction and work choice, by sector

Sector	Column A	B. Of those in Column A.		
	% Disagree (of all)	% Agree	% Agree	% Disagree
	8. Satisfied with benefits package	62. Change sector	63. Work elsewhere after hours	25. Satisfied working for organization
Public	64%	36%	27%	80%
Private	27%	69%	33%	88%
	9. Salary is sufficient to need	62. Change sector	63. Work elsewhere after hours	25. Satisfied working for organization
Public	75%	36%	26%	83%
Private	37%	68%	36%	89%
	10. Salary is fair for work	62. Change sector	63. Work elsewhere after hours	25. Satisfied working for organization
Public	63%	38%	26%	80%
Private	28%	72%	35%	87%
	11. Salary same as market	62. Change sector	63. Work elsewhere after hours	25. Satisfied working for organization
Public	58%	37%	28%	80%
Private	36%	60%	31%	91%
	25. Satisfied working for organization	62. Change sector	63. Work elsewhere after hours	
Public	12%	58%	23%	
Private	3%	72%	56%	
	% Agree (of all)	% Agree	% Agree	% Disagree
	57. Salary means need to work part time	62. Change sector	63. Work elsewhere after hours	25. Satisfied working for organization
Public	61%	41%	56%	82%
Private	56%	56%	66%	92%
	62. % Agree: Change sector (of all)			
Public	34%			
Private	53%			
	63. % Agree: Work elsewhere after hours (of all)			
Public	26%			
Private	34%			

The results of Table 4.9 can be interpreted as follows. Using the example of '9. Salary is sufficient to need', our results show that 75 percent of public sector employees disagreed with the position; instead they felt the salaries were not sufficient to their need. Of these 75 percent of the total, only 36 percent wanted to change their sector, i.e., look for a job in the private sector. The total percentage of public sector workers in the sample who want to change their sector is presented separately in Table 4.9, i.e., 34 percent overall.

Interpreting the results from Table 4.9, it appears that while there is considerable salary-related dissatisfaction in the public sector, and at levels significantly higher than the private sector; these do not necessarily translate into a choice or desire to work elsewhere either full-time or part-time. The low levels of agreement with the questions related to part-time work or sector switching may be related to some response bias in our interviews with the public sector employees, because of the context of the overall HRH assessment despite anonymity granted to the respondents. However, we believe there is evidence for a lack of salary-related 'push' factors for attrition in the public sector. For the employees dissatisfied with salary, the overall dissatisfaction with working for their organization was quite high: above 80% for most of the salary-related questions. Here, private sector employees reacted most strongly to a salary not tied to the market (91 percent were dissatisfied with their organization if salary was not tied).

It is interesting that though the overall salary-related dissatisfaction rates are lower for the private sector, the 'push' from such dissatisfaction is much stronger in the sector than in the public sector. For example 9. Salary is sufficient to need', only 37 percent of private sector employees disagreed; but of those that did disagree, 68 percent (compared to 36 percent in the public sector) would be willing to change sectors. We caution that this cannot be read as an indication that private sector employees are more dissatisfied. But there is some indication that sector loyalty may be weaker in the private facilities. The need to work part-time is higher in the public sector though the numbers admitting to working after hours as a proportion is lower than in the private sector. This suggests we cannot rule out some response bias in our public sector sample.

4.4 Work Environment

Section 4.2 summarized the results for job satisfaction by exploring aspects such as salary, benefits, motivation, recognition, and retention. This section focuses on the work environment, addressing general issues such as organizational culture and administrative facilitation. The health worker's satisfaction with such aspects of the work environment indirectly impinges on job satisfaction and motivation; but the 34 questions that were on work environment fielded in this survey also address other crucial issues which relate to whether health workers can deliver their assigned health-related functions, for example:

- The adequacy of equipment and infrastructure for carrying out work functions
- The security of the workplace
- Provisions for climate control and sanitation, etc.

The responses on these 34 questions therefore go beyond the motivation of health workers. They touch on whether the health facilities in the sample, which are representative of their respective type of facility and sector, are properly equipped and built to perform the mandated functions. Many of these also address patient comfort when in the facility. As such, the importance of this section of the survey cannot be underestimated.

The response to the questions on work environment were scored using the same pattern as those on job satisfaction, with a lower score associated with agreement, and higher scores with increasing levels of disagreement. The individual questions were grouped by the aspect they covered into several composite indices, shown in Table 4.10 below. The scores on the individual questions and the grouping scheme for the composite indices are described in Annex B, in Table B.3 and Box B.1 respectively. Index 13 (Table 4.10) was a conceptually cumulative question posed to the health worker: ‘keeping in view all the factors mentioned above, the overall working environment of the organization is satisfactory’. The detailed results on these composite indices and Index 13 are provided in Annex B, Table B.6.

Comparing public and private sector health workers: Table 4.10 compares the results on the work environment indices using the filter of sector. The private sector – according to the responses of the sampled private health workers – outperforms the public sector on every index. The differences are particularly sharp for infrastructure (Index 8), machinery and equipment (Index 10), and administrative facilitation (Index 12). It is not surprising that the health workers in the private sector were also more satisfied overall with the positive aspects of their work environment (Index 13).

Table 4.10. Scores on composite work environment indices, by sector

Positive: Lower score is better

Index number	Positive aspect of the work environment	Public	Private
Index 8	Infrastructure	2.8	1.6
Index 9	Logistics and Supplies	3	2.5
Index 10	Machinery and Equipment	2.5	1.4
Index 11	Organizational Culture (positive)	2.6	2.3
Index 12	Administrative Facilitation	3.5	2.9
Index 13	Work Environment (cumulative question, positive)	1.8	1.3

Negative: Higher score is better

Index number	Negative aspect of the work environment	Public	Private
Index 11a	Organizational Culture (negative)	3	3.4

Comparing across types of public health facilities: Unlike in our analysis of job satisfaction above, we focus on the *type* of public sector health facility next, with the expectation of revealing whether there are significant differences across types of facilities in resources, or in how they provide work environments appropriate to the cadres of health workers they employ. The focus on facility type rather than cadre seems appropriate if we consider that all staff in a facility, regardless of cadre, generally faces a similar work

environment, at least on the aspects we consider. However, we also explicitly consider variation in the responses on work environment by cadre in Annex B (Tables B.6-B.7).

Table 4.11. Scores on composite work environment indices, by public facility type

	Teaching Hospital	DHQ	THQ	RHC	BHU	Dispensary	MCH Center	N/A	Total Pub. Sec
<i>Positive: Lower score is better</i>									
Index 8	2.3	2.2	2.3	3	3	3.3	3.1	2.5	2.8
Index 9	1.9	2.4	2.1	2.9	3.4	3.9	3.6	3.4	3
Index 10	1.7	2.2	2.3	2.7	2.6	3	2.5	2.3	2.5
Index 11	2.7	2.7	2.5	2.6	2.5	2.6	2.5	3.1	2.6
Index 12	3	3.2	3.3	3.8	3.6	3.5	3.5	3.4	3.5
Index 13	1.7	1.9	1.7	1.9	1.8	1.9	1.7	2.6	1.8
Avg. (8-12)	2.3	2.5	2.5	3	3	3.2	3	2.9	2.8
<i>Negative: Higher score is better</i>									
Index 11a	3	3	2.8	2.7	3	3.6	3.1	2.8	3
N	149	444	210	303	1,099	196	69	45	2,515

Avg. = Average; DHQ: District Headquarters (hospital); THQ: Tehsil Headquarters (hospital); RHC: Rural Health Center; BHU: Basic Health Unit; N/A: Facility type not available (public sector)

In Table 4.11, the positive aspects of work environment grow stronger with the size of the public sector health facility, as demonstrated by the average of scores on Indices 8-12, though this shows less strongly via the cumulative Index 13. The smallest facilities – dispensaries and basic health units – face the largest constraints in terms of logistics and supplies (Index 9), in the opinion of the sampled health workers from such facilities. Somewhat unsurprisingly, teaching hospitals were the best resourced with supplies and logistics (Index 9) as well as machinery and equipment (Index 10). Given the size of such facilities, dispensary health workers felt they were not slowed down by organizational culture (whether due to paper work or bureaucracies), as per their scores on Index 11a. Rural health center staff felt this constraint the most strongly with a score of 2.7.

Geographical comparisons (provinces): Table 4.12 compares provinces on the various work environment indices, using responses from across public and private sector workers.

Table 4.12. Scores on composite work environment indices, by province

	Federal	Balochistan	KPK	Punjab	Sindh	Total
<i>Positive: Lower score is better</i>						
Index 8	2	3	2.6	2	2.3	2.4
Index 9	3.5	3.3	3.1	2.3	2.7	2.8
Index 10	1.7	2.9	2.5	1.6	2	2.2
Index 11	3	2.8	2.7	2.2	2.4	2.5
Index 12	2.8	3.9	3.6	3	3.1	3.4
Index 13	2	2	2	1.3	1.6	1.7
Avg. (8-12)	2.6	3.2	2.9	2.2	2.5	2.7
<i>Negative: Higher score is better</i>						
Index 11a	2.5	3.1	2.8	3.1	3.3	3.1
N	24	611	893	1,010	1,011	3,549

Avg. = Average; N = sampled number of public health workers in the category

The larger provinces (Punjab, Sindh) had better scores for supplies and logistics (Index 9) and machinery and equipment (Index 10), compared to Balochistan or KPK. The score on administrative facilitation (Index 12) was particularly poor for Balochistan. This composite index captures responses related to clean drinking water, transport, security, food, and uniforms for the health workers at the facility. Punjab and Sindh also performed significantly better on the cumulative indicator (Index 13). The score achieved by Punjab, the most populous provinces, mirrors the high performance of the province on job satisfaction, as per the response of sampled health workers (Section 4.2). Separately, the Federal workers felt most bogged down by the negative aspects of organizational culture (Index 11a).

Other distinctions and comparisons: As for job satisfaction related composite indices, Tables B.6 and B.7 in Annex B provide work environment related comparisons across age, gender, location (urban/rural), BPS cadres for federal and provincial health workers, job type (regular/contractual), and years of service. No significant differences were seen in the responses for work environment across age or gender sub-categories; or for the years of service and BPS categories. This would be as expected; the workers in the same facilities would face similar work environments and would not differ significantly in their opinions on these matters. There were significant differences between urban and rural facilities in the work environment, which merits a summary table to show the distinctions (Table 4.13 below). Except for organizational culture (Index 11), the urban facilities outperform the rural facilities on all positive aspects of work environment, including the cumulative indicator of Index 13. Particularly large differences arise in the indices related to resources and structures (Indices 8-10).

Table 4.13. Scores on composite work environment indices, by location

Positive: Lower score is better

Index number	Positive aspect of the work environment	Urban	Rural
Index 8	Infrastructure	2	2.9
Index 9	Logistics and Supplies	2.5	3.3
Index 10	Machinery and Equipment	1.8	2.5
Index 11	Organizational Culture (positive)	2.5	2.5
Index 12	Administrative Facilitation	3.1	3.6
Index 13	Work Environment (cumulative question, positive)	1.6	1.8

Negative: Higher score is better

Index number	Negative aspect of the work environment	Urban	Rural
Index 11a	Organizational Culture (negative)	3.2	3

4.5 Chapter Conclusions

The role of job satisfaction and the work environment on retention and recruitment is increasingly recognized (McAuliffe et al. 2009). Health workers are no different from other types of workers in needing to feel well-compensated for their efforts to the extent they can meet their personal needs, while also being compensated such that they

feel recognized and respected. Organizations that take a holistic view of compensation and reward will likely have workers that feel motivated and energized to their role and hence perform to the fullest of their ability. Such organizations will attract more new workers and retain existing workers.

Health workers are also likely to be individuals strongly guided by a professional conscience. As such, financial incentives will not be the most significant predictors of motivation or performance, which has been demonstrated in field studies (Dielemann et al. 2003; Franco et al. 2000). But they may still feel demotivated because the organization they are attached to hasn't equipped their facility with the right equipment and supplies, or provided the basic infrastructure in which to perform their work safely and comfortably (Mathauer & Imhof 2006). Therefore, the positive aspects of the work environment must also be maintained and if possible, improved.

In Pakistan, the gap in provision of essential health services discussed previously requires that the public sector be able to deploy more health workers, and retain the health workers it already possesses. As such, the job satisfaction and work environment issues facing the public sector health workforce are of high importance.

We surveyed a sample of 3,549 health workers across the public and private sectors with questions related to job satisfaction and the work environment. In the former area, questions posed related to both financial (salary and compensation) as well as non-financial aspects of reward and motivation. In our survey, work environment related to organizational culture, administrative facilitation, as well as the adequacy of material, equipment, and infrastructure related to the physical environment in which the health workers performed their job functions.

Our results for **job satisfaction** indicate that in general, public sector health workers are neither satisfied nor dissatisfied, but are broadly neutral. A lack of dissatisfaction is not in itself a positive. There were some clear results as well. Based on specific related questions, there is an indication that public health workers across the cadres do not intend to separate. Scores on the positive and negative aspects of retention were in the appropriately healthy ranges. In this respect there was no marked difference between the public and private health sector. Some specific findings:

- Health workers from Punjab (public and private), had the best job satisfaction scores, comparing across provinces and the Federal MOH.
- Regular employees were less satisfied on salary, motivation and recognition, and professional facilitation; compared to their contractual colleagues.
- Increasing number of years of service whether in current position or in current facility, was associated with an improvement in aspects of retention.

While there is considerable **salary-related dissatisfaction** in the public sector, and at levels significantly higher than the private sector; these do not necessarily translate into a choice or desire to work elsewhere either full-time or part-time. We believe there is evidence for a lack of salary-related 'push' factors for attrition in the public sector. For

the employees dissatisfied with salary, the overall dissatisfaction with working for their organization was quite high.

It is interesting that though the overall salary-related dissatisfaction rates are lower for the private sector, the 'push' from such dissatisfaction is much stronger in the sector than in the public sector.

On **work environment**, startling differences appear between the conditions public sector health workers face vs. their private sector counterparts. The private sector outstrips the public sector on all aspects of the work environment based on analysis of the responses of the health workers. The differences are particularly sharp for facility-level infrastructure, machinery and equipment, and administrative facilitation. The adequacy of these three aspects is a necessity for proper health care delivered through the public sector facilities, and this is an aspect which requires drastic improvement. The larger provinces (Punjab and Sindh) had better scores for supplies and logistics, and machinery and equipment, compared to Balochistan or KPK. The score on administrative facilitation (related to the adequacy of facility amenities, uniform, security, and transport) was particularly poor for Balochistan. Overall, considering both the job satisfaction as well as the work environment analysis, there is an indication of a pattern of under-resourced provinces, compared to certain provinces with more satisfied and better resourced health workers (Punjab). Other findings:

- Work environment improved with the size of a public sector health facility. The smallest facilities – dispensaries and basic health units – face the largest constraints in terms of logistics and supplies. Teaching and DHQ hospitals were the best resourced facilities.
- The trend across provinces was echoed in the significant differences between urban and rural health facilities in the reported work environment, considering both public and private facilities. Urban health facilities outperform the rural facilities on almost all aspects of work environment. Particularly large differences arise related to resources (supplies, equipment) and adequacy of infrastructure.

5. Human Resource Management and Policy

5.1 Survey of Public and Private Sector HRH Managers

Questionnaire 3 in Annex D was used as the basis for an interview with senior managers from the public & private health sectors, at federal and provincial levels. Within the public sector, in each province a senior manager from the Secretary of Health and the Director General-Health offices were interviewed. In the private sector, a senior manager from a private hospital was interviewed in each province.

The interviews focused on the stages of the human resource management (HRM) plan and its implementation across various aspects of HRM. The areas are outlined in Table 5.1 below. The main areas were *HR Management Capacity*, *HR Data*, *Personnel Policy and Practice*, *Performance Management* and *Training*, shown in Table 5.1.

Table 5.1. Components of HRM examined in the interviews

HRM Capacity 1. HRM Budget 2. HRM Staff 3. HR Planning	Performance Management 17. Job Descriptions/SOPs 18. Staff Supervision 19. Monetary and non-monetary incentives for performance 20. Evaluation
HR Data 4. Employee Data 5. Computerization of HR data 6. Personnel Files	Training 21. C P D for (generalized cadres) 22. C P D for Management and Leadership Development 23. C P D For Health Professionals 24. Links to External Pre-service Training
Personnel Policy & Practice 7. Job Classification System 8. Compensation and Benefits System 9. Recruitment Hiring, transfer, and Promotion 10. Employee Orientation 12. Service Code Manual 13. Gender Specific Harassment 14. Discipline, Termination, and Grievances Procedures 15. Labor Law Compliance 16. Registration, Certification, and Licensure 24. Links to External Pre-service Training	

On each of the 24 components within the five areas (listed in Table 5.1), the respondents were asked to rate the stage their organization had achieved, and indicate the level of policy development, from 'no policy developed' to 'more than five years of experience in the particular policy area related to the component. The four stages of achievement varied from the first stage (coded as 1) where achievement was minimal, to fairly advanced achievement. For example, for the component '8. Compensation and Benefits System', achievement stage 1 would be 'No formal system exists to determine the salary and benefits provided to each job classification'. For the same component, the advanced stage of achievement (coded as 4) would be 'A formal system exists and is used consistently. It is also used to determine salary upgrades and merit awards'. The

full listing of the components and the subjective stages of achievement are provided with Questionnaire 3 in Annex D. The ratings entered by the interviewees are provided in Annex C, listed by province and interviewee type.

Given the volume of the response data in Table C.1 (Annex C), we wanted to analyze and present the results from the interviews in a more compact, policy-relevant way. In the next sections we select from the responses those that fall into several categories of interest, grouped by the five main areas of HRM. These categories related to matches of the response on the stage of achievement and the levels of policy develop. For the sake of illustrating this, consider that an organization represented by the interviewee could be a 'positive deviant': with a high stage of achievement and yet no policy development or very recent experience with the policies.

For each of the five HRM areas, we capture the categories of 'Early Stage' (low achievement, no or recent policy experience), 'Negative Deviants' (low achievement, yet long-term policy implementation). We consider the Positive Deviants (advanced stage/recent experience) and 'Medium Stage/No Policy or Recent Experience' cases. Within each area, we consider all the specific components before making a judgment for the organization. Full data are available in Annex C.

5.2 Human Resource Management Capacity

In a pattern we see repeated for the four other HRM areas, one response from the public sector in Sindh, and a private hospital each from the Federal area and Balochistan were found to be in an early stage of development of budgets, plans, and staffing plans. More of concern was the fact that both the Secretary and the DG's office in KPK confirmed that the province office had yet to make significant strides in this area, despite extensive (five or more years) of policy implementation experience. In this category were also one response from the public sector in Punjab, as well as private hospital from Punjab.

Table 5.2 Categories of response for HRM Capacity

Low Stage Achievement & No Policy/Recent Experience (Early Stage)	Low Stage Achievement & Extensive Experience (Negative Deviance)
<ul style="list-style-type: none"> ○ Sindh ○ Federal Private ○ Balochistan Private 	<ul style="list-style-type: none"> ○ Punjab ○ Punjab Private ○ KPK ○ KPK Private
Advanced Stage Achievement & Recent Experience (Positive Deviance)	Medium Stage Achievement and No Policy/Recent Experience
<ul style="list-style-type: none"> ○ Sindh Private 	<ul style="list-style-type: none"> ○ Balochistan

5.3 Human Resource Data

In the area of HR data management, we see the same pattern as for HRM Capacity above for the categories of Early Stage and Negative Deviance. However, one public sector response from Balochistan was able to affirm Positive Deviance in the area of employee data management; though for ‘computerization & personnel files’, the province reverted to the more usual ‘Medium stage/No policy or recent experience’.

Table 5.3 Categories of response for HR Data

Low Stage Achievement & No Policy/Recent Experience (Early Stage)	Low Stage Achievement & Extensive Experience (Negative Deviance)
<ul style="list-style-type: none"> ○ Sindh ○ Federal Private ○ Balochistan Pvt. 	<ul style="list-style-type: none"> ○ Punjab ○ Punjab (Private) ○ KPK ○ KPK Private
Advanced Stage Achievement & Recent Experience (Positive Deviance)	Medium Stage Achievement and No Policy/Recent Experience
<ul style="list-style-type: none"> ○ Sindh Private ○ Employee data: Balochistan 	<ul style="list-style-type: none"> ○ Computerization, Personnel Files: Balochistan

5.4 Personnel Policy and Practice

In the area of Personnel Policy and Practice, we see the same pattern as for HRM Capacity and HR Data above for the categories of Early Stage and Negative Deviance. There is also no change in the scoring found for the lone private facility from Sindh (Positive Deviance), and one of the Balochistan public sector interviewees (Medium stage/No policy – recent experience).

Table 5.4 Categories of response for Personnel Policy and Practice

Low Stage Achievement & No Policy/Recent Experience (Early Stage)	Low Stage Achievement & Extensive Experience (Negative Deviance)
<ul style="list-style-type: none"> ○ Sindh ○ Federal Private ○ Balochistan Pvt. 	<ul style="list-style-type: none"> ○ Punjab ○ Punjab Private ○ KPK ○ KPK Private
Advanced Stage Achievement & Recent Experience (Positive Deviance)	Medium Stage Achievement and No Policy/Recent Experience
<ul style="list-style-type: none"> ○ Sindh Private 	<ul style="list-style-type: none"> ○ Balochistan

5.5 Performance Management and Training

In the area of Performance Management, we see the same pattern as for HRM Capacity above for the categories of Early Stage, Negative Deviance, Positive Deviance, and the 'Medium Stage/No policy-recent experience' as for the prior areas.

Table 5.5 Categories of response for HRM Capacity

Low Stage Achievement & No Policy/Recent Experience (Early Stage)	Low Stage Achievement & Extensive Experience (Negative Deviance)
<ul style="list-style-type: none"> o Sindh o Federal Private o Balochistan Pvt. 	<ul style="list-style-type: none"> o Punjab o Punjab (Private) o KPK o KPK Private
Advanced Stage Achievement & Recent Experience	Medium Stage Achievement and No Policy/Recent Experience
<ul style="list-style-type: none"> o Sindh Private 	<ul style="list-style-type: none"> o Balochistan

5.6 Chapter Conclusions

The responses from our sample of interviewees in management positions related to HRH indicate that provinces are at different levels of achievement in developing HRM capacity and systems; and this achievement is over varying levels of policy experience, from no policies developed to extensive experience of more than five years. Across the responses, the KPK appears to be of particular concern. Both the interviewees from the KPK Secretary and DG's offices returned responses which indicate that despite several years of experience with policy implementation, the province has not been able to achieve more than low levels in all of the five areas of HRM capacity and systems. Some similar concern attaches to Punjab, where one of the public sector interviewees was consistent in placing the province in the Negative Deviance category through their choices for the stage code and the policy development/timeframe code, though this office contrasted with the responses from the other interviewee on most of the 24 components.

The private facility managers interviewed had varying levels of achievement across the five areas, with the private hospital interviewed in Sindh reporting the strongest achievement with recent policy implementation experience. Among the other private facilities, the private hospital from Punjab also reported strong achievement on some of the components, for example, putting in place an Oracle-based hospital information system for employee data (component 4). There is much that the public sector needs to do to catch up on HRM capacity and systems, especially in KPK and Punjab.

6. Conclusions and Recommendations

There has been a view for some time that the resource of public sector health workers for health in Pakistan has not seen adequate and appropriate strategic planning, especially with a thought towards Pakistan's long-term health-related needs. Such planning is now direly needed in the context of the country's changing political, social, and health environment. The time is opportune as a new National Health Policy is being drafted, which will give new direction to the health sector.

As the Medium-term Development Framework (MTDF) for Pakistan notes (Chapter 7: Health), the problem in health service delivery in the country has not been the unavailability of physical health facilities, but rather their poor utilization and inability to yield the desired health outcomes. Equipping the health facilities with adequate, well-trained, and motivated health workers is the first step in improving utilization and quality of care. Ensuring that at a province/area level the right numbers of front line public health workers are assigned to rural and remote areas is also required, especially to meet the needs of the population that cannot turn to any other form of service delivery but the public sector. The MTDF also notes that with an effective referral system in place, strengthening the primary (or first level) health care will be a priority. For this, any gap of human resources at such primary/first level health care facilities must be met for citizens to access the care they need where they live. The public sector health system remains the main source of curative and preventive care for a majority of Pakistan, of whom 70 percent live in rural areas.

This study has been an original and necessary step in equipping health policymakers and planners in Pakistan with the right data to make decisions and inform a new strategic plan for Human Resources for Health that can tie to the vision in the new National Health Policy. If there is to be policy discussion and action over the gap in health worker supply in the public sector; then is important that we know *how health workers are distributed* in the public sector across Pakistan, i.e., across provinces and areas; and how various cadres number in the whole, in terms of population and health need, and in proportion to each other (e.g., nurse to doctor ratios).

If there is to be a policy direction and action over improving utilization and quality of public health care services, then it is important we assess the *job satisfaction and motivation* of front line public health care workers. In Chapter 4, we discussed results from the literature on developing country HRH that stress how important it is for public organizations to motivate their workers, and provide them with a work environment that can allow them to deliver their job functions to the fullest of their ability.

The right number and distribution of motivated public sector health workers, provided with the right work environment; is a necessary goal to strive for. However, to sustain such a system in an operational sense, Pakistan also needs a functioning *Human Resources for Health Management System* (HRHMS) at every level of the public health

system. This study provides summary data on this issue, collected from senior managers in the public system across four provinces.

Where does the private health sector fit in, and how shall we incorporate the health workers in this sector into strategic thinking? The private sector provides curative health services to many Pakistanis, especially in urban and peri-urban areas. Its reach in rural and remote areas is limited, but its role in the overall health system cannot be discounted – both because in terms of absorbing and retaining health workers, it competes with the public sector for the limited pool of such resources; but also because it can partner with the public sector in innovative public-private partnerships to further the overall outcomes; as has already been piloted in some cases in Pakistan. For both reasons, getting an adequate assessment of the number and distribution; job satisfaction and work environment; and human resource management system in the private health sector is of importance.

However, in this report we have only addressed the latter two aspects in regard to the private sector. Lack of a sampling frame (overall list of private health facilities) prevented us from estimating the number and distribution of private health workers across cadres; though we sampled such data from private hospitals in our survey. In previous chapters, we were able to compare the public and private sector on job satisfaction and work environment; as well as HRHMS. This may help us address some of the competition and partnership issues we raise above. We discuss the unanswered questions in the next steps section below. First, we turn to the main conclusions from our assessment.

Numbers and distribution of front line public health workers in Pakistan

We analyzed the results of a survey of public health facilities as well as provincial, district, and federal (vertical programs) offices. The intention of the survey was to capture the number and distribution of front line health workers across twelve cadres in four provinces of Pakistan, with representation across rural and urban areas. Based on an 'extrapolation' analysis using four separate estimates of the sample averages of health workers by cadre per facility type in each province, we arrived at median estimates of the total stock by cadre of front line public sector health workers per province, including both sampled (Balochistan, KPK, Punjab, and Sindh) and un-sampled (ICT, AJK, and Northern Areas) areas. We also included the federal workers in vertical programs in our final estimates.

Our conclusions are as follows.

- The median estimate for 2009 is of 417,288 front-line public sector health workers, which does not include provincial, district, or federal staff at MOH offices involved in planning, budgeting, training, or research.
- The median estimate of doctors, both GPs and specialists (not including dentists) in Pakistan for 2009 is 46,153, which compares with a separate estimate of 74,000 doctors in Pakistan in 2005 across public and private sectors (Talati & Pappas 2006). Sindh has the highest estimated number of doctors even though it did not have the highest total of health workers, followed by Punjab. Our opinion is that Pakistan is

relatively well-supplied with front-line doctors (GPs and specialists), dentists, and support staff compared to well-known international norms. However, there are regional variations. Punjab appears to have far fewer doctors than indicated by its population and health need; whereas Sindh has far too many.

- Pakistan may be suffering a nursing shortage, exacerbated by a maldistribution of such staff across provinces. The shortage is particularly pronounced in Sindh, where they may not be adequate nurses to assist doctors. In contrast, KPK had high numbers of nursing staff both as a total and as a ratio to population.
- Other estimates of total stock for cadres indicate that there are 2.1 managers and administrative staff for every 100 health workers of all other cadres. This is a very low managerial and administrative ratio for a country with the health care delivery complexity that Pakistan faces.
- Attrition in doctors or nurses does not appear to be significant, except for dentists in KPK. Projections of the stock show a rise of 25% in the stock of doctors and dentists in Pakistan over 2009-2013.

Job Satisfaction and Work Environment for Public and Private Health Workers

The role of job satisfaction and the work environment on retention and recruitment is increasingly recognized. Health workers are also likely to be individuals strongly guided by a professional conscience. They may feel demotivated because the organization they are attached to hasn't equipped their facility with the right equipment and supplies, or provided the basic infrastructure in which to perform their work safely and comfortably. Therefore, the positive aspects of the work environment must also be maintained and if possible, improved.

We surveyed a sample of 3,549 health workers across the public and private sectors with questions related to job satisfaction and the work environment. In the former area, questions posed related to both financial (salary and compensation) as well as non-financial aspects of reward and motivation. In our survey, work environment related to organizational culture, administrative facilitation, as well as the adequacy of material, equipment, and infrastructure related to the physical environment in which the health workers performed their job functions.

Our results for job satisfaction indicate that in general, public sector health workers are neither satisfied nor dissatisfied, but are broadly neutral. A lack of dissatisfaction is not in itself a positive. There were some clear results as well. Based on specific related questions, there is an indication that public health workers across the cadres do not intend to separate. Scores on the positive and negative aspects of retention were in the appropriately healthy ranges. In this respect there was no marked difference between the public and private health sector. Some specific findings:

- Health workers from Punjab (public and private), had the best job satisfaction scores, comparing across provinces and the Federal MOH.

- Regular employees were less satisfied on salary, motivation and recognition, and professional facilitation; compared to their contractual colleagues.
- Increasing number of years of service whether in current position or in current facility, was associated with an improvement in aspects of retention.

While there is considerable salary-related dissatisfaction in the public sector, and at levels significantly higher than the private sector; these do not necessarily translate into a choice or desire to work elsewhere either full-time or part-time. We believe there is evidence for a lack of salary-related 'push' factors for attrition in the public sector. For the employees dissatisfied with salary, the overall dissatisfaction with working for their organization was quite high. Though the overall salary-related dissatisfaction rates are lower for the private sector, the 'push' from such dissatisfaction is much stronger in the sector than in the public sector.

For work environment, there were large differences between the conditions public sector health workers face vs. their private sector counterparts. The private sector outstrips the public sector on all aspects of the work environment based on analysis of the responses of the health workers. The differences are particularly sharp for facility-level infrastructure, machinery and equipment, and administrative facilitation. The larger provinces (Punjab and Sindh) had better scores for supplies and logistics, and machinery and equipment, compared to Balochistan or KPK. The score on administrative facilitation (related to the adequacy of facility amenities, uniform, security, and transport) was particularly poor for Balochistan.

Overall, considering both the job satisfaction as well as the work environment analysis, there is an indication of a pattern of under-resourced provinces, compared to certain provinces with more satisfied and better resourced health workers (Punjab). Other specific findings:

- Work environment improved with the size of a public sector health facility. The smallest facilities – dispensaries and basic health units – face the largest constraints in terms of logistics and supplies. Teaching and DHQ hospitals were the best resourced facilities.
- The trend across provinces was echoed in the significant differences between urban and rural health facilities in the reported work environment, considering both public and private facilities. Urban health facilities outperform the rural facilities on almost all aspects of work environment. Particularly large differences arise related to resources (supplies, equipment) and adequacy of infrastructure.

Status of Human Resources Management in the Health Sector in Pakistan

The responses from our sample of interviewees in management positions related to HRH indicate that provinces are at different levels of achievement in developing HRM capacity and systems; and this achievement is over varying levels of policy experience, from no policies developed to extensive experience of more than five years. Across the responses, the KPK appears to be of particular concern. Both the interviewees from the

KPK Secretary and DG's offices returned responses which indicate that despite several years of experience with policy implementation, the province has not been able to achieve more than low levels in all of the five areas of HRM capacity and systems. Some similar concern attaches to Punjab, where one of the public sector interviewees was consistent in placing the province in the Negative Deviance category through their choices for the stage code and the policy development/timeframe code, though this office contrasted with the responses from the other interviewee on most of the 24 components.

The private facility managers interviewed had varying levels of achievement across the five areas, with the private hospital interviewed in Sindh reporting the strongest achievement with recent policy implementation experience. Among the other private facilities, the private hospital from Punjab also reported strong achievement on some of the components, for example, putting in place an Oracle-based hospital information system for employee data (component 4). There is much that the public sector needs to do to catch up on HRM capacity and systems, especially in KPK and Punjab.

Discussion and Next Steps

Our assessment shows that Pakistan has a maldistribution of front line public health sector, especially in terms of the number of nursing staff that are available in provinces and areas; the numbers of managerial staff that can effectively supervise and direct the clinical staff. In overall numbers, Punjab and Sindh, the most populous provinces, do have the most front line public health workers; but for Punjab, it does not appear that the number is appropriate for its health needs given the data from this assessment as well as the recent Pakistan Demographic and Health Survey.

The public health sector is not facing a severe crisis in the retention of its health workers; however, compared to the private sector, it is failing in providing an appropriate working environment to the front line public health workers. This has severe consequences for ongoing quality of care, utilization, and eventually, the motivation of even the most dedicated of staff.

We propose the following next steps:

- We recommend that further policy-oriented studies, including those that can be performed with the data collected for this assessment, be carried out to inform whether the numbers of staff indicated as present in the provinces and areas of Pakistan are adequate for health needs at a sub-provincial level. This may require comparing numbers of staff cadres at the district level in various levels of facilities (first-level or primary vs. secondary/hospitals) against the catchment populations.
- An assessment should be conducted which focuses on the nursing staff levels at the provincial level and how such levels can be matched to the need; especially in the provinces and areas we have identified as facing the severest gap. A national Nursing Policy will be developed; which may require the involvement of various provincial and federal stakeholders, e.g., the Pakistan Nursing Council.

- There are several developments in the primary/first level health care system in Pakistan which can benefit from alignment with a new National HRH Strategy. Namely, these are the Executive District Officer for Health, the Punjab Rural Support Program (public-private partnership), and the National Commission for Human Development (NCHD) models. We recommend that the scaling up of any of these models align with the findings of this report and generally incorporate thinking on how the ‘base of the pyramid’ health care workers, especially in BHUs and RHCs, can be strengthened through training, and then deployed appropriately. The LHW model was one example of such thinking; in the future new interventions in this sphere will involve the community in shouldering some of the responsibility of health care delivery, aided by better-trained and motivated CHWs and LHWs deployed from the BHUs and RHCs in the communities.
- Our findings indicated that the smallest facilities had the poorest working environment. No satisfactory strategy focused on improving primary/first level health care can ignore this aspect. We therefore suggest that provincial and district authorities conduct their own spot checks on the working environment at BHUs and RHCs in their care, and federal authorities work with the lower levels to ensure proper budgets and technical knowledge can be made available to improve these working environments.
- This assessment has been a ‘dipstick’ survey of the number and distribution of front line public health care workers. We had to rely on an estimation methodology as the counts of health workers kept at EDO and provincial health department offices was not found completely reliable. For better policymaking in the future, it is imperative that human resource information systems – such as the implementation and maintenance of HRH databases of sanctioned, vacant, and filled posts – across the levels of the public health care system be strengthened.
- Our job satisfaction survey, as well as our data on attrition suggests that public health care workers do not intend to separate from service in the short term. However, the levels of job satisfaction are at best neutral; which does not make for a motivated workforce in the long run even with dedicated staff. It is important for all levels of the public health care system to work on dedicated job satisfaction strategies. The levels of salary related dissatisfaction are very high in the public health care system; therefore, due thought must be given to how a combination of financial and non-financial incentives can be provided that would allow health care workers to feel better compensated, incentivized, and motivated to perform at a higher level continuously.

References

Amjad, S. (2009). *Review and Assessment of Various Primary Health Care Models in Pakistan*. Technical Assistance for Capacity Building in Midwifery, Information and Logistics (TACMIL) Health Project: Islamabad.

Dielemann M., P. Viet Cuong, L. Vu Anh, T. Martineau. (2003). "Identifying factors for job motivation of rural health workers in North Viet Nam" *Human Resources for Health* 2003: 1:1-10.

Franco L.M., S. Bennett, R. Kanfer, P. Stubblebine. (2000). "Health Worker Motivation in Jordan and Georgia: A Synthesis of the Results" Major Applied Research 5, Technical Paper 3. Bethesda, Maryland: Partnership for Health Reform Project; 2000.

Joint Learning Initiative. (2004). *Human Resources for Health: Overcoming the Crisis*.

Mathauer I., I. Imhoff. (2006). "Health worker motivation in Africa: the role of non-financial incentives and human resource management tools" *Human Resources for Health* 2006: 4(24), Online at <http://www.human-resources-health.com/content/4/1/24> accessed 12/21/09

McAuliffe E., C. Bowie, O. Manafa, F. Maseko, M. MacLachlan, D. Hevey, C. Normand, M. Chirwa. (2009). "Measuring and managing the work environment of the mid-level provider – the neglected human resource" *Human Resources for Health* 2009: 7(13). Online at: <http://www.human-resources-health.com/content/7/1/13>, accessed 12/21/09

National Institute of Population Studies (NIPS) [Pakistan], and Macro International Inc. (2008). *Pakistan Demographic and Health Survey 2006-07*. Islamabad, Pakistan: National Institute of Population Studies and Macro International Inc.

Talati J.J., G. Pappas. (2006). "Migration, Medical Education, and Health Care: A View from Pakistan" *Academic Medicine* 2006;81(12 Suppl.):S55–S62.

World Health Organization. (2009). "Nursing and Midwifery: Frequently Asked Questions" Online at www.searo.who.int/EN/Section1243/Section2167/Section2173.htm

Annex A Health Workers – Numbers and Distribution

Table A.1: MOH offices surveyed for workforce records

Federal level	
	Expanded Program for Immunization
	Maternal & Child National Hospital
	National AIDS Control Program
	National Control Program for Malaria
	National Program For Avian Influenza
	National Program for Control of Blindness
	National Program for LHW
	National TB Control Program
	National Hepatitis Control Program
	Nutrition Wing
Province level MOH offices	
Balochistan	Health Department Balochistan
Balochistan	Health Department QSF
KPK	Health Department KPK
Punjab	Health Department Punjab
Sindh	Health Department Sindh
Lower/District level MOH offices	
Balochistan	EDO Office Killa Saifullah
Balochistan	EDO Office Sibi
Balochistan	EDO Office Quetta
Balochistan	EDO Office Zairat
Balochistan	District Killa Saifullah
Balochistan	District Quetta
Balochistan	District Sibi
Balochistan	District Ziarat
KPK	EDO Office Abbotabad
KPK	EDO Office Charsada
KPK	EDO Office Swabi
KPK	EDO Office Karak
KPK	District Abbottabad
KPK	District Charshadha
KPK	District Karak
KPK	District Swabi
Punjab	EDO Office Faisalabad
Punjab	EDO Office Jhelum
Punjab	EDO Office Khanewal
Punjab	EDO Office Vehari
Sindh	EDO Office Mirpur Khas
Sindh	EDO Office Naushero Feroze
Sindh	EDO Office Badin
Sindh	EDO Office Larkana

Table A.2: Sample average of health workers per facility, by cadre and facility type, and by province.

Computed based on reported 'Total staff in place' (Q.15 in questionnaire I, Annex D)

	Doctors	Special Dentists	Special doctors	Special dentists	Nurses	Paramedics	Support staff	Managers	CHW	V P HR	Others	Admin
Balochistan												
DHQ	5.4	1.6	3.0	0.2	10.8	13.0	25.2	1.0	0.6	0.4	0.6	0.8
THQ	5.3	0.8			2.8	15.8	6.8		16.3	0.3		
RHU	2.1	0.9	0.1		1.9	8.3	10.1	0.1	5.1	0.9	0.2	0.2
BHU	0.9				1.2	2.2	2.2		2.2	0.6	0.1	
Dispensary	0.3				0.8	1.8	1.7		0.3	0.5		
MCH center	0.3				1.7	0.3	1.8		3.8	0.4	0.2	
KPK												
DHQ	34.3	0.9	7.9	5.9	70.6	83.0	113.0	0.6	14.6	0.4	12.7	14.3
THQ	11.1	0.8	0.1	0.1	8.8	39.4	52.0	0.1	150.4		61.4	1.5
RHU	7.2	1.0	0.6	0.1	5.4	25.6	32.1	0.1	89.1	0.5	35.2	0.9
BHC	2.3	0.1	0.2	0.1	2.3	8.7	11.2	0.1	35.6	0.1	11.9	0.3
Dispensary					0.3	1.4	2.1		4.3			
MCH center	0.4	0.1			1.2	0.7	3.4		18.7	0.2		
Punjab												
DHQ	41.1	1.8	11.0	0.6	47.0	31.1	104.6	2.0	12.0		1.9	7.0
THQ	11.0	1.0	3.4	0.3	14.1	19.9	33.0	1.0	68.4		1.9	0.7
RHU	1.9	0.9			9.3	9.1	15.3	0.4	16.5	0.1	1.1	0.6
BHC	1.0				1.9	2.0	2.9		16.9		1.4	0.1
Dispensary	0.5				0.8	1.5	1.4		16.4		0.8	
MCH center	0.1				1.6	0.4	1.4		14.9			
Sindh												
DHQ	77.9	2.3	10.6	0.1	28.4	50.7	195.7	5.6	16.6		0.6	
THQ	13.8	1.5	1.5	0.1	5.8	20.6	30.3	2.4	18.8		2.0	13.5
RHU	4.2	0.6	0.3		2.3	8.8	12.0	0.5	23.1	0.3	0.2	0.6
BHC	1.5				0.9	1.8	3.7		12.3		0.2	
Dispensary	1.1				0.5	1.3	1.6		2.3			
MCH center	1.5		0.1		2.8	1.4	3.9		4.0			

Values equal to zero or less than 0.1 are not shown.

Table A.3: Sample average of health workers per facility, by cadre and facility type, and by province.

Computed based on reported 'Total staff' (Q.14 in questionnaire I, Annex D)

	Doctors	Special Dentists	Special doctors	Special dentists	Nurses	Paramedics	Support staff	Managers	CHW	V P HR	Others	Admin
Balochistan												
DHQ	9.0	1.0	3.8	0.2	7.2	11.4	23.0	0.6	5.8	1.2	1.2	1.2
THQ	4.0	1.0			2.3	13.3	6.8		16.0	0.3		
RHU	2.2	0.7	0.1		2.3	8.3	10.0	0.2	4.2	1.0	0.4	0.1
BHU	0.7				1.0	1.7	2.0		0.7	0.4		
Dispensary	0.3				1.0	1.6	1.4		0.1	0.5		
MCH center	0.2				1.4	0.1	1.6			0.4		
KPK												
DHQ	40.6	1.7	22.7		72.6	80.4	122.1	0.9	21.7	1.1	13.3	14.4
THQ	4.9	0.4	1.1		3.6	7.3	11.8		23.8			0.3
RHU	2.1	0.8	0.3		1.3	6.2	8.6	0.1	33.3	0.4	0.1	0.1
BHC	0.7	0.1	0.1	0.8	1.0	2.3	3.1	0.1	14.8	0.1	0.1	0.1
Dispensary	0.1				0.4	1.5	2.3		7.1			
MCH center	0.4	0.1			1.0	0.9	3.4	0.1	18.7	0.2		
Punjab												
DHQ	42.1	1.4	11.3	0.4	41.6	29.6	100.5	2.9	15.4		2.9	7.6
THQ	8.9	0.8	4.0		12.0	16.0	33.9	1.0	62.8		1.4	0.6
RHU	1.5	0.7			7.1	7.1	12.3	0.4	11.0	0.1	1.1	0.8
BHC	0.8				1.6	1.8	2.3		12.4	0.2	1.0	0.2
Dispensary	0.4				0.5	1.0	1.3		10.5		0.1	
MCH center	0.1				1.0	0.3	1.4		8.4	4.5		
Sindh												
DHQ	84.6	2.7	42.4	5.1	38.1	88.9	304.0	7.0	21.0		1.0	15.4
THQ	14.6	1.1	1.3		5.0	22.3	27.0	2.3	25.5		2.0	1.1
RHU	4.2	0.4	0.4		2.2	9.3	12.9	4.1	27.3		0.1	0.3
BHC	1.8				0.9	1.9	3.9	0.1	15.2		0.1	
Dispensary	1.3				0.6	1.9	2.7		5.3			
MCH center	2.4		0.3		2.5	3.1	4.3		4.1			

Values equal to zero or less than 0.1 are not shown.

Table A.4. Comparing the average number of doctors and nurses in sampled hospitals, across Tables A.2 and Tables A.3

	Total in Place Doctors	Q.14 Total Doctors	Total in Place Nurses	Q.14 Total Nurses
Balochistan				
DHQ	5.4	9	10.8	7.2
THQ	5.3	4	2.8	2.3
KPK				
DHQ	34.3	40.6	70.6	72.6
THQ	11.1	4.9	8.8	3.6
Punjab				
DHQ	41.1	42.1	47	41.6
THQ	11	8.9	14.1	12
Sindh				
DHQ	77.9	84.6	28.4	38.1
THQ	13.8	14.6	5.8	5

Table A.5. Total number of public facilities by type and province vs. sampled

Sampled facility types	Balochistan		KPK		Punjab		Sindh		4 Provinces	
	Total	Sampled	Total	Sampled	Total	Sampled	Total	Sampled	Total	Sampled
Other hospitals	2	None	122	None	144	None	216	None	9	None
DHQ hospitals	23	5	24	7	36	8	23	7	216	28
THQ hospitals	73	4	56	8	127	7	95	8	716	28
RHC	70	20	92	14	291	16	105	16	558	66
BHU	520	116	942	124	2,452	126	770	88	4,684	454
Dispensary	567	24	565	8	1,508	8	2113	48	4,753	88
MCH Center	93	10	145	9	515	8	151	8	904	35
Un-sampled Facility Types										
T.B. Clinics	23	None	30	None	54	None	186	None	293	None
SHC/FAP	9	None	31	None	570	None	2	None	612	None
Total Hospitals	98	9	202	15	307	16	334	16	941	56

Table A.6. Total population by province in Pakistan, as used in calculations, 2009

	Population
Balochistan*	8,347,782
KPK*	22,559,044
Punjab*	93,601,169
Sindh*	38,700,892
ICT*	1,023,766
AJK**	3,271,000
Northern Area***	1,800,000
Pakistan minus FATA	169,303,653

* Source: Extrapolated from growth in Pakistan population, 1998 Census to 2009 value (GoP, Dept. of Statistics)

** Government of AJK (www.ajk.gov.pk) *** Estimate (Wikipedia)

Table A.7: Estimates of total public sector health workers in Pakistan*, 2009

* Not including FATA

Projection using sample averages of 'Total Staff' (Q.14)		Doctors	Dentists	Nurses	Paramedics	Male CHW / LHW	Support Staff & Others	Managers & Admin	VP HR	TOTAL
	Baluchistan	1,269	145	1,723	3,633	1,379	3,737	64	684	12,634
KPK	7,183	1,101	8,042	11,432	632	18,599	1,534	302	48,825	
Punjab	11,489	538	14,407	15,019	1,174	33,907	2,465	3,001	82,002	
Sindh	25,421	1,293	8,831	23,511	341	57,149	4,264	17	120,829	
ICT	263	11	255	248	15	634	50	21	1,497	
AJK	736	230	978	1,892	176	3,303	139	92	7,547	
Northern Area	810	42	947	1,402	48	2,298	170	19	5,735	
Federal	23	0	5	25	101,152	126	174	55	101,560	
Pakistan	47,194	3,361	35,189	57,163	104,917	119,753	8,860	4,191	380,628	

Projection using sample averages of 'Total Staff' (Q.14) - ii (Averages recalculated after removing facilities with no data)		Doctors	Dentists	Nurses	Paramedics	Male CHW / LHW	Support Staff & Others	Managers & Admin	VP HR	TOTAL
	Baluchistan	1,463	169	1,975	4,187	1,682	4,227	65	770	14,538
KPK	7,869	1,233	8,783	12,758	719	20,689	1,761	339	54,150	
Punjab	17,878	762	20,695	20,916	1,518	49,004	3,953	3,991	118,717	
Sindh	24,447	1,291	8,203	21,872	375	45,451	3,573	20	105,233	
ICT	442	17	402	373	19	999	90	28	2,370	
AJK	819	259	1,092	2,126	198	3,710	159	103	8,465	
Northern Area	890	48	1,038	1,580	55	2,581	196	22	6,411	
Federal	23	0	5	25	101,152	126	174	55	101,560	
Pakistan	53,831	3,778	42,193	63,838	105,719	126,786	9,971	5,328	411,444	

Projection using sample averages of 'Total In Place' (Q.15)		Doctors	Dentists	Nurses	Paramedics	Male CHW / LHW	Support Staff & Others	Managers & Admin	VP HR	TOTAL
	Baluchistan	1,405	158	1,892	4,333	2,090	4,182	67	672	14,799
KPK	7,977	583	9,994	23,175	633	53,864	1,851	217	98,294	
Punjab	12,601	785	17,773	18,295	1,343	38,946	1,878	75	91,696	
Sindh	19,254	707	7,497	16,295	414	41,246	4,140	61	89,615	
ICT	274	16	306	297	17	697	42	1	1,648	
AJK	1,155	132	1,401	4,056	229	10,154	184	86	17,397	
Northern Area	673	63	1,003	2,013	60	4,112	188	11	8,123	
Federal	23	0	5	25	101,152	126	174	55	101,560	
Pakistan	43,362	2,443	39,871	68,489	105,938	153,326	8,524	1,177	423,131	

Projection using sample averages of 'Total In Place' (Q.15) - ii, (Averages recalculated after removing facilities with no data)		Doctors	Dentists	Nurses	Paramedics	Male CHW / CHW	Support Staff & Others	Managers & Admin	VP HR	TOTAL
	Balochistan	1,409	158	1,897	4,342	2,095	4,191	67	674	14,833
KPK	7,518	648	10,781	26,164	753	61,885	1,960	255	109,963	
Punjab	13,404	820	18,633	18,825	1,364	40,716	2,014	76	95,851	
Sindh	20,639	761	8,169	18,021	484	43,911	3,207	71	95,263	
ICT	300	17	331	313	17	751	46	1	1,776	
AJK	1,275	152	1,634	4,752	278	12,027	206	106	20,431	
Northern Area	543	66	1,047	2,193	70	4,561	193	12	8,686	
Federal	23	0	5	25	101,152	126	174	55	101,560	
Pakistan	45,112	2,621	42,497	74,635	106,213	168,168	7,868	1,249	448,362	

Table A.8: Total public sector health workers as a ratio of population in Pakistan (per 1,000), 2009

	Doctors Incl. Sp.	Dentists Incl. Sp.	Nurses, MW, LHV	Paramedics	Support staff & others	Managers and admin.	CHW	V P HR	Total HRH
	Calculation using 'Total Staff' (Q.14, Questionnaire I, Annex D)								
Balochistan	0.15	0.02	0.21	0.44	0.17	0.45	0.01	0.08	1.51
KPK	0.32	0.05	0.36	0.51	0.03	0.82	0.07	0.01	2.16
Punjab	0.12	0.01	0.15	0.16	0.01	0.36	0.03	0.03	0.88
Sindh	0.66	0.03	0.23	0.61	0.01	1.48	0.11	0.00	3.12
ICT	0.26	0.01	0.25	0.24	0.01	0.62	0.05	0.02	1.46
AJK	0.23	0.07	0.30	0.58	0.05	1.01	0.04	0.03	2.31
Northern Area	0.45	0.02	0.53	0.78	0.03	1.28	0.09	0.01	3.19
<i>Pakistan</i>	<i>0.28</i>	<i>0.02</i>	<i>0.21</i>	<i>0.34</i>	<i>0.62</i>	<i>0.71</i>	<i>0.05</i>	<i>0.02</i>	<i>2.25</i>
Calculation using 'Total in Place' (Q.15, Questionnaire I, Annex D)									
Balochistan	0.17	0.02	0.23	0.52	0.25	0.50	0.01	0.08	1.77
KPK	0.35	0.03	0.44	1.03	0.03	2.39	0.08	0.01	4.36
Punjab	0.13	0.01	0.19	0.20	0.01	0.42	0.02	0.00	0.98
Sindh	0.50	0.02	0.19	0.42	0.01	1.07	0.11	0.00	2.32
ICT	0.27	0.02	0.30	0.29	0.02	0.68	0.04	0.00	1.61
AJK	0.35	0.04	0.43	1.24	0.07	3.10	0.06	0.03	5.32
Northern Area	0.37	0.04	0.56	1.12	0.03	2.28	0.10	0.01	4.51
<i>Pakistan</i>	<i>0.26</i>	<i>0.01</i>	<i>0.24</i>	<i>0.40</i>	<i>0.63</i>	<i>0.91</i>	<i>0.05</i>	<i>0.01</i>	<i>2.50</i>

Table A.9: Total public sector doctors*, nurses*, and all HRH* as a ratio of population in Pakistan (per 1,000), 2009 *Minimum/median/maximum across four estimates*

	Doctors*/1000			Nurses/1000			Total HRH/1000		
	Min.	Median	Max.	Min.	Median	Max.	Min.	Median	Max.
Balochistan	0.15	0.17	0.24	0.21	0.23	0.24	1.42	1.74	1.78
KPK	0.28	0.33	0.35	0.20	0.39	0.48	2.16	2.47	4.87
Punjab	0.03	0.13	0.19	0.08	0.19	0.22	0.43	0.98	1.27
Sindh	0.23	0.53	0.66	0.09	0.21	0.23	1.48	2.46	3.12
ICT	0.26	0.28	0.43	0.21	0.23	0.24	1.46	1.67	2.31
AJK	0.23	0.30	0.39	0.36	0.42	0.48	2.31	3.95	6.25
Northern Area	0.30	0.41	0.49	0.15	0.19	0.22	3.19	4.04	4.83
<i>Pakistan</i>	<i>0.26</i>	<i>0.27</i>	<i>0.32</i>	<i>0.21</i>	<i>0.24</i>	<i>0.25</i>	<i>2.25</i>	<i>2.46</i>	<i>2.65</i>

* Doctors include GPs and specialists. Nurses include midwives and LHVs. HRH includes cadres grouped as in Table A.7

Table A.10: Total reported attrition over five years (Q.16) as a percentage of 'Total in Place' (Q.15, questionnaire I, Annex D)*

	Doctors	Dentists	Special doctors	Special dentists	Nurses	Parame-dics	Support staff	Managers	CHW	V P HRH	Others	Admin. staff
Balochistan	0.5%	0%	0%	0%	3.6%	1%	2.6%	0%	0.4%	0%	0%	14.3%
KPK	1.8%	23.1%	13.3%	17.3%	1%	0.9%	2.3%	64.3%	0.1%	36%	0.7%	6.3%
Punjab	6.7%	8.3%	6.3%	0%	1.6%	1.6%	3.6%	3%	0.7%	0%	0%	0%

* Sindh province facilities did not complete the attrition section.

Table A.11: Resigned or 'Long Leave' (Q.16) as a percentage of the sum of attrition over five years due to all reasons (Q.16, questionnaire I, Annex D)*

	Doctors	Dentists	Special doctors	Special dentists	Nurses	Parame-dics	Support staff	Managers	CHW	V P HRH	Others	Admin. staff
Balochistan		100%			0%	33%	24%		100%			0%
KPK	58%	50%	47%	50%	50%	40%	21%	50%	50%	50%	39%	64%
Punjab	88%	75%	62%		35%	38%	8%	0%	100%			

* Sindh province facilities did not complete the attrition section.

Annex B Job Satisfaction and Work Environment

Table B.1: Description of the sample of health workers included in the job satisfaction/work environment survey

Respondent Information	No.	Percent
Gender		
Female	1,138	32.1
Male	2,411	67.9
Age group		
Less than 30	786	22.2
30 to 45	1,893	53.4
Above 45	815	23.0
No information	54	1.5
Job category		
Specialist dentists	14	0.4
General dentist	51	1.4
Clerical staff	59	1.7
Other	119	3.4
Managers	129	3.6
Specialist doctor	174	4.9
Community health worker	211	6.0
Nurse & midwifery	555	15.6
General doctor	611	17.2
Support staff	735	20.7
Paramedic	891	25.1
Location of health facility		
Rural	1,689	47.6
Urban	1,860	52.4
Sector of health facility		
Private	1,029	29.0
Public	2,515	70.9
Level of health facility		
MCH center	69	1.9
Teaching hospital	149	4.2
Dispensary	196	5.5
THQ	210	5.9
RHC	303	8.5
DHQ	444	12.5
N/A	1,079	30.4
BHU	1,099	31.0
Cadres as per BPS (for federal employees)		
BPS 1-10	56	1.6
BPS 11-16	17	0.5
BPS 17-19	15	0.4
BPS 20-22	4	0.1
N/A	3,455	97.4
Cadres as per BPS (for provincial employees)		
BPS 1-10	1,177	33.2
BPS 11-16	191	5.4

Respondent Information	No.	Percent
BPS 17-18	383	10.8
BPS 19-20	71	2.0
N/A	1,726	48.6
Job type		
Regular	2,162	60.9
Contract	750	21.1
N/A	637	18.0
Years in current profession		
Less than 5 years	752	21.2
5 -10 years	826	23.3
More than 10 years	1,924	54.2
N/A	47	1.3
Years at current facility		
More than 1 years	758	21.4
2 - 5 years	955	26.9
More than 5 years	1,716	48.4
N/A	120	3.4
Number of postings in the last 2 years		
None	2,846	80.2
1	341	9.6
2	93	2.6
3	1	0.0
+ 3	47	1.3
N/A	221	6.2
Postings affected my career		
Positively	283	8.0
Negatively	65	1.8
Not affected	139	3.9
N/A	3,062	86.3

Table B.2: Mean number of postings in the last 2 years by employee characteristics

Employee characteristics	Number of postings in the last 2 yrs	
	Mean	95% CI
Gender		
Female	1.5	1.4-1.6
Male	1.8	1.7-1.9
Location of health facility		
Urban	1.2	1.2-1.2
Rural	1.2	1.2-1.3
Sector of health facility		
Public	1.3	1.2-1.3
Private	1.1	1.1-1.1
Job category		
Community health worker	1.2	1.1-1.2
General doctor	1.2	1.2-1.2
General dentist	1.3	1.1-1.5
Managers	1.4	1.2-1.5
Nurse & midwifery	1.2	1.2-1.3
Paramedic	1.2	1.2-1.3
Specialist doctor	1.3	1.2-1.4
Specialist dentists	1.3	0.7-1.9
Support staff	1.2	1.1-1.2
Clerical staff	1.3	1-1.5
Other	1.2	1.1-1.2
Cadres as per BPS (for federal employees)		
BPS 1-10	1.4	1.1-1.6
BPS 11-16	1.5	0.9-2.0
BPS 17-19	1.3	1.0-1.6
BPS 20-22	2.5	0.9-4.1
Cadres as per BPS (for provincial employees)		
BPS 1-10	1.4	1.1-1.6
BPS 11-16	1.5	0.9-2.0
BPS 17-18	1.3	1.0-1.6
BPS 19-20	2.5	0.9-4.1

Table B.3: Job Satisfaction and work environment – all indicators and overall results

Indicators by Category	Agree (%)	Somewhat agree (%)	Neutral (%)	Somewhat disagree (%)	Disagree (%)
Satisfaction with job					
1. This job is a good fit for my qualifications and skill level	77.8	11.6	1.4	1.8	7.5
2. I have opportunities for career advancement within my current organization or department	36.7	13.6	8.4	5.1	36.1
3. I have attended training with the support of my organization or department	47.7	8.2	5.8	2.5	35.9
4. There is a fair and transparent mechanism for promotions	37.9	10.6	17.5	5.5	28.5
5. Organization has formal grievances procedures to address my problems	53.8	15.4	6.7	4.9	19.3
6. Accommodations in this area are adequate or I am satisfied with the house rent I get from my organization	30.2	9.6	7.8	5.8	46.6
7. Organization provides me health benefits (medical cover & insurance)	28.4	10.3	5.4	4.3	51.6
8. I am satisfied with the benefits package offered by this organization or department	24.3	14.7	6.4	7.9	46.8
9. My salary is sufficient to meet my personal/family expenses	17.1	15.1	3.6	8.2	56.0
10. My salary level is fair for the job hours I work	24.7	15.5	6.3	10.7	42.8
11. I get the same salary as compared to the market based person with the same qualifications	24.5	11.9	11.7	7.5	44.5
12. I have input on the important decisions that affect our facility	46.6	14.4	12.5	4.2	22.4
13. My immediate supervisor treats me with respect	86.2	7.2	2.7	0.8	3.1
14. If I do my job well I will be rewarded (monetary & non monetary)	34.8	11.0	6.9	3.8	43.5
15. I have a written job description	51.0	6.5	6.4	2.5	33.7
16. I have the supplies, equipment, and other logistics I need to do my job	55.6	18.6	5.4	5.3	15.0
17. I am satisfied with the feedback I receive on my performance from my supervisor	66.7	14.3	5.7	2.1	11.2
18. The organization takes specific measures to protect my health.	30.9	13.8	6.3	5.7	43.3
19. There is no interference in my job	77.9	7.8	2.0	2.4	10.0
20. Due to appropriate work load, I can spend time with my family	53.1	20.2	7.0	6.2	13.4
21. Morning, evening and night shifts are fairly scheduled (not applicable at non-shift settings)	50.7	8.7	11.9	4.4	24.4
22. There is flexibility in the working hours	51.5	17.4	5.1	4.7	21.4
23. I get paid for the hours I work in addition to the mixed working hours	15.9	4.7	7.0	2.8	69.8
24. If I have an option, I would remain in my current job for the next 24 months	64.3	9.5	4.4	2.3	19.5
25. Considering everything, I am satisfied working for this organization	67.5	20.2	2.9	3.7	5.7
Satisfaction with work environment					
26. In case of electricity failure, the facility has sufficient alternative arrangement (e.g. generators, UPS etc)	45.0	2.9	1.1	2.3	48.7
27. The condition of furniture in my organization is satisfactory	48.1	23.6	3.6	6.8	18.0

Indicators by Category	Agree (%)	Somewhat agree (%)	Neutral (%)	Somewhat disagree (%)	Disagree (%)
28. In the summer the temperature at my work place is at comfortable level	39.3	17.0	4.5	5.5	33.6
29. In the winter the temperature at my work place is at comfortable level	42.9	17.6	4.4	6.3	28.8
30. The water supply is adequate for our facility.	63.5	9.7	1.4	4.4	21.1
31. The toilets in the facility are clean	64.4	10.8	2.1	4.1	18.6
32. There are separate toilets arrangements for males and females	67.1	4.0	2.1	2.1	24.8
33. The medicines/drugs/surgical supplies are available to meet the patients' needs	51.3	20.8	4.6	7.2	16.2
34. Basic communication equipment is present for the level of my organization/facility	57.5	10.4	3.1	3.0	26.0
35. Basic communication equipments are functional for the level of my organization/facility	57.5	8.8	3.5	3.2	27.0
36. Required numbers of ambulances in the facility are available.	28.6	6.3	2.5	3.3	59.3
37. Required numbers of ambulances in the facility are functional.	31.0	5.7	2.9	3.1	57.2
38. Required machinery and equipment for the level of my facility is available.	50.3	20.4	5.4	6.3	17.7
39. Required machinery and equipment for the level of my facility is functional.	56.1	15.4	5.2	6.3	17.1
40. Staff vacancies are generated and filled via transparent mechanism	37.2	10.5	20.9	4.5	26.9
41. Working environment is cordial and friendly	86.9	8.2	1.4	1.0	2.6
42. Organization arranges in-house seminars to upgrade our knowledge	25.4	9.5	7.7	4.4	53.0
43. Organization recognizes achievements through annual functions/ awards	9.3	5.0	6.5	3.9	75.2
44. There is no racial and gender discrimination within the organization	80.6	4.2	1.9	1.6	11.7
45. There are no racial/verbal abuses and harassment in the organization	81.9	4.5	1.6	1.7	10.3
46. Clean drinking water in the facility is adequate	59.4	10.3	1.3	4.3	24.8
47. Organization offers pick and drop facility/allowance	9.5	2.0	3.1	2.7	82.6
48. Public transport is easily accessible	64.8	10.6	2.6	4.9	17.2
49. Organization has comprehensive security measures	25.6	10.3	5.9	6.1	52.1
50. Cafeteria is present within premises	13.8	3.2	3.8	1.7	77.4
51. Organization provides uniforms every year/allowance	18.6	3.5	4.9	3.3	69.8
52. Parking for employees is sufficient	51.3	10.9	4.8	3.7	29.3
53. Organization has computerized data management system	24.2	5.0	5.3	2.8	62.7
54. Organization offers child care facilities for female employees	11.5	2.7	6.5	3.1	76.2
55. Overall environment of the premises is neat & clean	60.4	19.7	3.8	6.0	10.1

Indicators by Category	Agree (%)	Somewhat agree (%)	Neutral (%)	Somewhat disagree (%)	Disagree (%)
56. Keeping in view all the factors mentions above the overall working environment of the organization is satisfactory	61.6	23.9	4.1	5.5	5.0
Negative work experiences					
57. I work part time since my salary is not sufficient to meet all expenses	30.7	5.2	4.1	3.3	56.7
58. The workload for my job is too much	40.9	22.5	10.3	6.5	19.9
59. The workload for my job is too little	8.6	11.3	11.6	10.4	58.2
60. If I have an option, I would like to work in another country for better earning	52.0	6.0	2.3	2.5	37.2
61. If I have an option, I would like to work in another organization.	38.0	8.5	5.1	3.1	45.3
62. I would like to switch my sector (public/private)	33.6	5.7	8.3	2.2	50.2
63. Are you working in another organization/clinic/HCF after your working hours	24.3	3.9	0.8	1.7	69.4
64. Paper work at clerical level slows down the progress of work	31.1	14.4	17.4	6.0	31.1
65. Red tape at managerial level slows down the progress of work	23.5	10.9	21.6	4.9	39.0

Box B.1 Definition of composite indices used in Tables B.4 – B.7, based on Table B.3

<p>Job Satisfaction</p> <p>Index 1: Recruitment / Career Development / Skills & Abilities = Average of indicators 1 – 4 Index 2: Benefits & Grievances = Average of indicators 5 – 8 Index 3: Salary (positive) = Average of indicators 9 – 11 Index 4: Motivation, Recognition & Respect = Average of indicators 12 – 14 Index 5: Professional Facilitation = Average of indicators 15 – 19 Index 6: Work Load (positive) = Average of indicators 20 – 23 Index 7: Retention (positive) = Average of indicators 24 – 25</p> <p>Index 3a: Salary (negative) = Indicator 57 Index 6a. Work Load (negative) = Average of indicators 58 – 59 Index 7a. Retention (negative) = Average of indicators 60 – 63</p>
<p>Work Environment</p> <p>Index 8. Infrastructure = Average of indicators 26 – 32 Index 9. Logistics & Supplies = Average of indicators 33 – 37 Index 10. Machinery and Equipment = Average of indicators 38 – 39 Index 11. Organizational Culture (positive) = Average of indicators 40 – 45 Index 12. Administrative Facilitation = Average of indicators 46 – 55</p> <p>Index 13. Work environment (positive, cumulative) = Indicator 56</p> <p>Index 11a. Organizational Culture (negative) = Average of indicators 64- 65</p>

Table B.4: Composite indices on job satisfaction (positive indicators, see Box B.1)
Lower score is better for job satisfaction

Employee Characteristics	Mean Score on Job Satisfaction Composite Indices and 95% Confidence Intervals of the Score													
	Index 1	95% CI	Index 2	95% CI	Index 3	95% CI	Index 4	95% CI	Index 5	95% CI	Index 6	95% CI	Index 7	95% CI
Gender														
Female	2.3	2.3-2.4	3.2	3.1-3.2	3.5	3.4-3.6	2.3	2.2-2.3	2.2	2.2-2.3	2.7	2.6-2.8	1.8	1.7-1.8
Male	2.5	2.5-2.6	3.1	3.0-3.1	3.5	3.4-3.5	2.3	2.2-2.3	2.3	2.2-2.3	2.8	2.7-2.8	1.8	1.8-1.9
Age group														
Less than 30	2.4	2.4-2.5	3.0	2.9-3.1	3.3	3.2-3.4	2.1	2.1-2.2	2.1	2.1-2.2	2.6	2.5-2.7	1.9	1.8-2.0
30 to 45	2.5	2.4-2.5	3.2	3.1-3.2	3.6	3.5-3.6	2.3	2.3-2.4	2.3	2.2-2.3	2.8	2.7-2.9	1.8	1.7-1.8
Above 45	2.5	2.4-2.6	3.1	3.0-3.2	3.4	3.3-3.5	2.3	2.3-2.4	2.3	2.2-2.4	2.8	2.7-2.9	1.8	1.7-1.9
Job category														
Community health worker	2.4	2.2-2.5	3.6	3.4-3.7	4.1	4-4.2	2.2	2.1-2.4	2.2	2.1-2.3	2.9	2.7-3.1	1.9	1.8-2.1
General doctor	2.3	2.2-2.3	3.1	3-3.2	3.2	3.1-3.3	2.2	2.1-2.3	2.2	2.1-2.2	2.7	2.6-2.8	1.9	1.8-2.0
General dentist	2.5	2.2-2.7	3.7	3.3-4	3.7	3.3-4	2.5	2.2-2.8	2.6	2.3-2.9	2.9	2.6-3.2	1.9	1.6-2.2
Managers	2.0	1.9-2.2	2.8	2.6-3	3.3	3.1-3.6	2.0	1.8-2.1	2.1	1.9-2.3	2.9	2.6-3.2	1.7	1.6-1.9
Nurse & midwifery	2.2	2.2-2.3	3.0	2.9-3.1	3.4	3.3-3.5	2.3	2.2-2.4	2.2	2.2-2.3	2.6	2.6-3.1	1.8	1.7-1.8
Paramedic	2.5	2.4-2.5	3.1	3-3.2	3.5	3.4-3.6	2.2	2.2-2.3	2.2	2.1-2.3	2.7	2.5-2.7	1.8	1.7-1.9
Specialist doctor	2.8	2.6-3.0	3.3	3.1-3.5	3.5	3.1-3.6	2.4	2.3-2.6	2.6	2.4-2.8	2.8	2.6-2.8	1.9	1.7-2.1
Specialist dentists	2.4	1.6-3.1	3.3	2.5-4	3.3	2.4-4.2	2	1.6-2.4	2	1.4-2.6	2.8	2.6-3	1.5	1.1-1.9
Support staff	2.8	2.8-2.9	3.1	3.0-3.2	3.5	3.4-3.6	2.4	2.3-2.5	2.3	2.3-2.4	2.8	2.1-3.4	1.7	1.6-1.8
Clerical staff	2.7	2.3-3.0	3.1	2.9-3.4	4	3.7-4.3	2.8	2.6-3.0	2.3	2-2.5	3.1	2.7-2.9	2.1	1.8-2.4
Other	2.5	2.3-2.7	2.9	2.7-3.2	3.9	3.6-4.1	2.2	2.1-2.5	2.5	2.3-2.7	3.2	2.9-3.5	1.9	1.7-2.2
Location of health facility														
Urban	2.5	2.5-2.6	3	2.9-3.0	3.3	3.2-3.4	2.3	2.2-2.3	2.2	2.1-2.2	2.6	2.5-2.6	1.8	1.7-1.8
Rural	2.4	2.4-2.5	3.3	3.2-3.3	3.6	3.6-3.7	2.3	2.2-2.3	2.3	2.3-2.4	3	3.0-3.1	1.9	1.8-1.9
Sector of health facility														
Public	2.5	2.4-2.5	3.3	3.2-3.3	3.8	3.7-3.8	2.4	2.3-2.4	2.4	2.3-2.4	3.0	2.9-3.0	1.9	1.8-1.9
Private	2.5	2.5-2.6	2.6	2.5-2.7	2.7	2.6-2.8	2.0	2.0-2.1	2	2.0-2.0	2.2	2.2-2.3	1.7	1.7-1.8
Cadres as per BPS (for federal employees)														
BPS 1-10	2.8	2.6-3.1	2.9	2.6-3.1	3.9	3.6-4.2	2.5	2.2-2.7	2.2	2-2.5	2.7	2.4-3.1	1.7	1.5-2.0
BPS 11-16	2.3	1.7-2.8	3.7	3.2-4.2	4.1	3.5-4.8	2.9	2.3-3.4	2.7	2.2-3.2	3.9	3.2-4.5	2.4	1.7-3.0
BPS 17-19	2.1	1.7-2.6	3.0	2.4-3.6	3.6	2.9-4.4	2.2	1.8-2.7	2.4	1.8-3	4.0	3.3-4.6	1.9	1.4-2.5
BPS 20-22 (Note N=4)	2.0	1.1-2.9	3.5	2.6-4.4	5.0	5.0-5.0	2.3	1.2-3.5	2.2	0.6-3.7	3.4	2.1-4.7	1.4	0.6-2.1
Cadres as per BPS (for provincial employees)														
BPS 1-10	2.6	2.5-2.6	3.2	3.1-3.3	3.8	3.7-3.9	2.4	2.4-2.5	2.4	2.3-2.4	3.0	2.9-3.0	1.7	1.6-1.8
BPS 11-16	2.3	2.2-2.5	2.9	2.8-3.1	3.6	3.4-3.7	2.5	2.4-2.7	2.4	2.2-2.5	2.9	2.7-3.1	2.0	1.8-2.2
BPS 17-18	2.3	2.2-2.4	3.2	3.1-3.3	3.8	3.7-3.9	2.3	2.2-2.4	2.4	2.3-2.5	2.9	2.8-3.1	2.0	1.9-2.1
BPS 19-20	2.4	2.2-2.7	3.4	3.1-3.7	3.9	3.6-4.2	2.4	2.2-2.7	2.7	2.4-3.0	3.1	2.9-3.4	2.0	1.8-2.3
Job type														
Regular	2.5	2.4-2.5	3.2	3.1-3.2	3.7	3.7-3.8	2.4	2.4-2.4	2.4	2.3-2.4	2.9	2.8-2.9	1.8	1.8-1.9

Employee Characteristics	Mean Score on Job Satisfaction Composite Indices and 95% Confidence Intervals of the Score													
	Index 1	95% CI	Index 2	95% CI	Index 3	95% CI	Index 4	95% CI	Index 5	95% CI	Index 6	95% CI	Index 7	95% CI
Contract	2.4	2.3-2.5	3	2.9-3.1	3.3	3.2-3.4	2	2.0-2.1	2	2.0-2.1	2.7	2.6-2.7	1.8	1.8-1.9
Years in current position														
Less than 5 years	2.5	2.4-2.5	3.1	3.0-3.1	3.4	3.3-3.5	2.2	2.1-2.2	2.2	2.1-2.3	2.8	2.7-2.9	2.0	1.9-2.1
5 -10 years	2.4	2.3-2.5	3.1	3-3.2	3.5	3.4-3.6	2.3	2.2-2.3	2.3	2.2-2.3	2.8	2.7-2.9	1.9	1.8-2.0
More than 10 years	2.5	2.5-2.5	3.1	3.1-3.2	3.5	3.4-3.6	2.3	2.3-2.3	2.3	2.2-2.3	2.7	2.7-2.8	1.7	1.7-1.8
Years at current facility														
More than 1 year	2.4	2.3-2.5	3.1	3-3.2	3.4	3.3-3.5	2.2	2.1-2.2	2.3	2.2-2.3	2.8	2.7-2.9	2.0	1.9-2.1
2 - 5 years	2.4	2.3-2.4	3.1	3-3.2	3.6	3.5-3.7	2.3	2.2-2.4	2.3	2.2-2.3	2.7	2.7-2.8	1.8	1.7-1.9
More than 5 years	2.6	2.5-2.6	3.1	3-3.1	3.4	3.4-3.5	2.3	2.3-2.4	2.2	2.2-2.3	2.7	2.7-2.8	1.7	1.7-1.8

Table B.5: Composite indices on job satisfaction (negative indicators, see Box B.1)
Higher score is better for job satisfaction

Employee Characteristics	Mean Score on Job Satisfaction Composite Indices and 95% Confidence Intervals of the Score					
	Index 3a	95% CI	Index 6a	95% CI	Index 7a	95% CI
Gender						
Female	3.9	3.8-4.0	3.2	3.2-3.3	3.5	3.4-3.5
Male	3.3	3.3-3.4	3.2	3.2-3.2	3.1	3.1-3.2
Age group						
Less than 30	3.8	3.7-4.0	3.2	3.2-3.3	3.0	2.9-3.1
30 to 45	3.4	3.4-3.5	3.2	3.1-3.2	3.2	3.2-3.3
Above 45	3.3	3.1-3.4	3.2	3.2-3.3	3.4	3.4-3.5
Job category						
Community health worker	4.1	3.9-4.3	3.1	3.0-3.2	3.2	3.1-3.4
General doctor	3.1	3.0-3.3	3.2	3.2-3.3	3.2	3.1-3.3
General dentist	2.4	1.9-2.9	3.2	3.0-3.5	2.9	2.6-3.3
Managers	3.4	3.1-3.8	3.2	3.1-3.4	3.5	3.3-3.7
Nurse & midwifery	3.8	3.7-4.0	3.2	3.2-3.3	3.4	3.4-3.6
Paramedic	3.5	3.4-3.6	3.2	3.1-3.2	3.0	3.0-3.1
Specialist doctor	2.2	2.0-2.5	3.1	2.9-3.2	3.1	2.9-3.3
Specialist dentists	2.8	1.7-3.8	3.5	2.9-4.0	3.2	2.4-3.9
Support staff	3.7	3.5-3.8	3.3	3.2-3.4	3.3	3.2-3.4
Clerical staff	4.2	3.8-4.6	3.2	3.1-3.4	3.2	2.9-3.5
Other	3.5	3.2-3.9	2.9	2.7-3.1	3.2	3.0-3.4
Location of health facility						
Urban	3.4	3.3-3.5	3.2	3.2-3.3	3.2	3.2-3.3
Rural	3.6	3.5-3.7	3.2	3.1-3.2	3.3	3.2-3.3
Sector of health facility						
Public	3.5	3.5-3.6	3.2	3.2-3.2	3.3	3.3-3.4
Private	3.4	3.3-3.5	3.2	3.1-3.2	3.0	2.9-3.0
Cadres as per BPS (for federal employees)						
BPS 1-10	3.5	3.0-4.0	3.2	2.9-3.5	3.5	3.2-3.8
BPS 11-16	3.2	2.3-4.2	3.3	2.9-3.7	2.7	2.2-3.2
BPS 17-19	3.7	2.7-4.6	3.4	2.9-3.8	3.4	2.9-4.0
BPS 20-22 (Note N=4)	2.0	0.2-3.8	3.0	3.0-3.0	3.8	1.7-5.8
Cadres as per BPS (for provincial employees)						
BPS 1-10	3.6	3.5-3.7	3.2	3.2-3.3	3.4	3.4-3.5
BPS 11-16	3.7	3.4-3.9	3.1	3.0-3.3	3.4	3.2-3.5
BPS 17-18	2.9	2.7-3.1	3.1	3.0-3.2	3.2	3.1-3.4
BPS 19-20	2.4	2.0-2.9	3.1	2.9-3.3	3.3	3.0-3.5
Job type						
Regular	3.4	3.3-3.5	3.2	3.1-3.2	3.3	3.3-3.4

Employee Characteristics	Mean Score on Job Satisfaction Composite Indices and 95% Confidence Intervals of the Score					
	Index 3a	95% CI	Index 6a	95% CI	Index 7a	95% CI
Contract	3.9	3.8-4.0	3.3	3.2-3.3	3.2	3.1-3.3
Years in current position						
Less than 5 years	3.8	3.7-3.9	3.2	3.1-3.3	3.1	3.0-3.2
5 - 10 years	3.4	3.3-3.6	3.2	3.1-3.2	3.1	3.0-3.1
More than 10 years	3.4	3.3-3.5	3.2	3.2-3.3	3.4	3.3-3.4
Years at current facility						
More than 1 year	3.5	3.4-3.7	3.3	3.2-3.3	3.1	3.0-3.2
2 - 5 years	3.5	3.4-3.6	3.2	3.2-3.3	3.2	3.1-3.3
More than 5 years	3.5	3.4-3.5	3.2	3.1-3.2	3.3	3.3-3.4

Table B.6: Composite indices on work environment (positive indicators, see Box B.1)
Lower score is better for work environment quality

Employee Characteristics	Mean Score on Work Environment Composite Indices and 95% Confidence Interval of the Score											
	Index 8	95% CI	Index 9	95% CI	Index 10	95% CI	Index 11	95% CI	Index 12	95% CI	Index 13	95% CI
Gender												
Female	2.6	2.5-2.6	2.9	2.9-3.0	2.2	2.1-2.3	2.4	2.4-2.5	3.4	3.3-3.4	1.7	1.6-1.7
Male	2.4	2.3-2.4	2.8	2.7-2.8	2.1	2.1-2.2	2.5	2.5-2.6	3.3	3.3-3.4	1.7	1.6-1.7
Age group												
Less than 30	2.3	2.2-2.4	2.9	2.8-2.9	2	1.9-2.1	2.4	2.4-2.5	3.3	3.2-3.4	1.7	1.6-1.7
30 to 45	2.5	2.4-2.5	2.9	2.8-2.9	2.3	2.2-2.3	2.5	2.5-2.6	3.4	3.3-3.4	1.7	1.6-1.8
Above 45	2.4	2.3-2.4	2.7	2.7-2.8	2.1	2.0-2.2	2.5	2.4-2.5	3.4	3.3-3.4	1.7	1.6-1.7
Job category												
Community health worker	2.8	2.7-3.0	3	2.8-3.2	2.3	2.1-2.5	2.2	2.1-2.3	3.4	3.3-3.6	1.8	1.6-1.9
General doctor	2.3	2.2-2.4	2.7	2.6-2.8	2	1.9-2.1	2.4	2.3-2.5	3.3	3.2-3.3	1.6	1.5-1.7
General dentist	2.8	2.5-3.1	2.8	2.4-3.1	2.8	2.3-3.2	2.7	2.4-2.9	3.6	3.3-3.8	2.1	1.7-2.4
Managers	1.7	1.5-1.8	2.1	1.9-2.3	1.6	1.4-1.8	2.1	2.0-2.2	2.8	2.7-3.0	1.5	1.3-1.6
Nurse & midwifery	2.5	2.4-2.6	2.9	2.8-3.0	2.2	2.0-2.3	2.5	2.4-2.6	3.4	3.3-3.4	1.6	1.6-1.7
Paramedic	2.5	2.4-2.5	2.9	2.8-3.0	2.2	2.1-2.3	2.6	2.5-2.6	3.5	3.4-3.5	1.7	1.6-1.8
Specialist doctor	2.1	1.9-2.2	2.6	2.4-2.7	2.1	1.9-2.3	2.5	2.4-2.7	3.2	3.0-3.4	1.8	1.6-2.0
Specialist dentists	2	1.3-2.7	3	2.3-3.7	2.1	1.3-2.9	2.6	2.2-3.0	3.1	2.5-3.7	1.9	1.1-2.6
Support staff	2.5	2.4-2.6	3.1	3-3.2	2.4	2.3-2.5	2.6	2.6-2.7	3.4	3.3-3.5	1.7	1.6-1.7
Clerical staff	2.2	2.0-2.4	2.4	2.0-2.7	1.7	1.4-2.0	2.9	2.7-3.0	3.1	2.9-3.3	1.9	1.5-2.2
Other	2.6	2.3-2.8	2.8	2.5-3.1	2.4	2.1-2.8	2.7	2.5-2.9	3.4	3.2-3.6	1.9	1.7-2.2
Location of health facility												
Urban	2	1.9-2.0	2.5	2.4-2.5	1.8	1.8-1.9	2.5	2.5-2.6	3.1	3.1-3.2	1.6	1.5-1.6
Rural	2.9	2.9-3.0	3.3	3.2-3.3	2.5	2.5-2.6	2.5	2.4-2.5	3.6	3.6-3.7	1.8	1.8-1.9
Sector of health facility												
Public	2.8	2.7-2.8	3	2.9-3.0	2.5	2.4-2.5	2.6	2.5-2.6	3.5	3.5-3.5	1.8	1.8-1.9
Private	1.6	1.5-1.6	2.5	2.4-2.6	1.4	1.4-1.5	2.3	2.3-2.4	2.9	2.9-3.0	1.3	1.3-1.4
Cadres as per BPS (for federal employees)												
BPS I-10	2.3	2.0-2.6	2.6	2.3-2.9	2.1	1.7-2.6	2.6	2.4-2.8	3.3	3.1-3.5	1.8	1.5-2.2
BPS 11-16	2.7	2.2-3.3	3.8	2.8-4.9	2.4	1.6-3.3	3.2	2.8-3.7	3.4	2.8-4.0	2.1	1.4-2.7
BPS 17-19	2.5	1.9-3.0	2.4	1.7-3.1	1.8	1.1-2.6	2.6	2.1-3.0	3.2	2.7-3.6	1.5	1.1-2.0
BPS 20-22 (Note N=4)	2.1	0.4-3.7	2.6	-5.0-10.2	1.7	0.2-3.1	2.4	2.0-2.8	3	1.9-4.1	1.5	0.6-2.4
Cadres as per BPS (for provincial employees)												
BPS I-10	2.8	2.8-2.9	3.1	3.0-3.2	2.6	2.5-2.7	2.6	2.5-2.6	3.6	3.6-3.7	1.8	1.7-1.8
BPS 11-16	2.6	2.5-2.8	2.7	2.5-2.9	2.2	2.0-2.4	2.7	2.5-2.8	3.4	3.2-3.5	2.0	1.8-2.1
BPS 17-19	2.6	2.4-2.7	2.7	2.6-2.8	2.4	2.3-2.6	2.6	2.5-2.6	3.5	3.4-3.6	1.9	1.8-2.0
BPS 20-22	2.2	1.9-2.5	2.4	2.1-7	2.3	1.9-2.6	2.4	2.2-2.7	3.1	2.9-3.4	2.0	1.7-2.2
Job type												
Regular	2.7	2.6-2.7	2.9	2.9-3.0	2.4	2.4-2.5	2.6	2.6-2.7	3.5	3.4-3.5	1.8	1.8-1.9

Employee Characteristics	Mean Score on Work Environment Composite Indices and 95% Confidence Interval of the Score											
	Index 8	95% CI	Index 9	95% CI	Index 10	95% CI	Index 11	95% CI	Index 12	95% CI	Index 13	95% CI
Contract	2.3	2.2-2.4	2.7	2.6-2.8	1.8	1.7-1.9	2.2	2.2-2.3	3.2	3.1-3.2	1.5	1.5-1.6
How many years have you been in this profession?												
Less than 5 years	2.4	2.3-2.5	2.9	2.8-3.0	2.2	2.0-2.3	2.5	2.4-2.5	3.3	3.3-3.4	1.7	1.7-1.8
5 -10 years	2.5	2.4-2.5	3	2.9-3.1	2.2	2.1-2.3	2.6	2.5-2.6	3.4	3.3-3.5	1.8	1.7-1.9
More than 10 years	2.4	2.4-2.5	2.8	2.7-2.8	2.1	2.1-2.2	2.5	2.4-2.5	3.4	3.3-3.4	1.6	1.6-1.7
How many years have you been at this facility?												
More than 1 year	2.4	2.3-2.5	2.9	2.8-3.0	2.2	2.1-2.3	2.5	2.4-2.6	3.4	3.3-3.4	1.8	1.7-1.9
2 - 5 years	2.4	2.4-2.5	2.9	2.8-3.0	2.2	2.1-2.3	2.5	2.5-2.6	3.4	3.3-3.4	1.7	1.6-1.7
More than 5 years	2.4	2.4-2.5	2.8	2.7-2.9	2.1	2.1-2.2	2.5	2.5-2.5	3.4	3.3-3.4	1.7	1.6-1.7

Table B.7: Composite indices on work environment (organizational culture, negative indicators, see Box B.1)

Higher score is better for organizational culture quality

Employee Characteristics	Mean Score on Organizational Culture (negative) Index and 95% Confidence Interval of the Score	
	Index I la	95% CI
Gender		
Female	3.1	3.0-3.2
Male	3.1	3.0-3.1
Age group		
Less than 30	3.2	3.1-3.3
30 to 45	3.1	3.0-3.1
Above 45	3.0	2.9-3.2
Job category		
Community health worker	2.9	2.7-3.1
General doctor	3.1	3.0-3.3
General dentist	3.1	2.6-3.5
Managers	3.1	2.8-3.3
Nurse & midwifery	3.2	3.1-3.3
Paramedic	3.1	3.0-3.2
Specialist doctor	3.1	2.8-3.3
Specialist dentists	2.5	1.6-3.4
Support staff	3.1	3.0-3.2
Clerical staff	3	2.6-3.4
Other	2.9	2.6-3.2
Location of health facility		
Urban	3.2	3.1-3.3
Rural	3.0	2.9-3.1
Sector of health facility		
Public	3.0	2.9-3.0
Private	3.4	3.3-3.5
Cadres as per BPS (for federal employees)		
BPS 1-10	3.2	2.9-3.6
BPS 11-16	2.7	1.8-3.5
BPS 17-19	2.8	2.1-3.4
BPS 20-22 (Note N=4)	3.4	0.2-6.5
Cadres as per BPS (for provincial employees)		
BPS 1-10	2.9	2.9-3.0
BPS 11-16	3.1	2.8-3.3
BPS 17-18	2.9	2.7-3.0
BPS 19-20	2.5	2.2-2.9
Job type		
Regular	3.0	2.9-3.0
Contract	3.3	3.2-3.4
Years in current position		
Less than 5 years	3.2	3.1-3.3
5 -10 years	3.0	2.9-3.1
More than 10 years	3.1	3.0-3.1
Years at current facility		
More than 1 years	3.2	3.1-3.3
2 - 5 years	3.1	3.0-3.2
More than 5 years	3.0	2.9-3.1

Annex C HRM Interview Data

Stage code definitions: From 1-4. Higher is better, though interpretation depends on Human Resource Management Component. Please refer to Questionnaire 3 in Annex D below (also for Component titles).

Policy timeframe code definitions:

5 = Not implemented

6 = Less than 5 years

7 = 5 years or more

Table. C.1 Detailed results of interviews on Human Resource Management Policy

HRM Component 1	Stage code	Policy timeframe code	HRM Component 2	Stage code	Policy timeframe code
Punjab - Secretary	4	7	Punjab - Secretary	2	7
Punjab - DG	1	7	Punjab - DG	2	7
Punjab - Private	4	7	Punjab - Private	4	7
Punjab - Private	3	7	Punjab - Private	4	7
KPK - Secretary	2	7	KPK - Secretary	3	7
KPK - DG	1	7	KPK - DG	2	7
KPK - Private	1	7	KPK - Private	2	7
Sindh - Secretary	2	6	Sindh - Secretary	1	5
Sindh - DG	2	5	Sindh - DG	3	7
Sindh - Private	4	6	Sindh - Private	4	6
Federal - Secretary	2	7	Federal - Secretary	3	7
Federal - DG	2	7	Federal - DG	2	7
Federal - Private	2	6	Federal - Private	1	5
Balochistan - DG	3	7	Balochistan - DG	2	7
Balochistan - Private	1	5	Balochistan - Private	1	5
Balochistan - Secretary	4	6	Balochistan - Secretary	3	5
HRM Component 3			HRM Component 4		
Punjab - Secretary	1	7	Punjab - Secretary	3	7
Punjab - DG	2	7	Punjab - DG	2	7
Punjab - Private	4	7	Punjab - Private	4	7
Punjab - Private	4	7	Punjab - Private	4	6
KPK - Secretary	4	7	KPK - Secretary	3	7
KPK - DG	3	7	KPK - DG	2	7
KPK - Private	4	6	KPK - Private	4	7
Sindh - Secretary	3	7	Sindh - Secretary	2	5
Sindh - DG	1	5	Sindh - DG	2	7
Sindh - Private	4	6	Sindh - Private	4	6
Federal - Secretary	2	7	Federal - Secretary	2	7
Federal - DG	2	7	Federal - DG	3	7
Federal - Private	2	6	Federal - Private	3	7
Balochistan - DG	2	7	Balochistan - DG	2	7
Balochistan - Private	1	5	Balochistan - Private	2	5
Balochistan - Secretary	3	5	Balochistan - Secretary	4	7
HRM Component 5			HRM Component 6		
Punjab - Secretary	2	6	Punjab - Secretary	3	7
Punjab - DG	2	7	Punjab - DG	3	7
Punjab - Private	4	7	Punjab - Private	4	7
Punjab - Private	3	5	Punjab - Private	4	7
KPK - Secretary	2	6	KPK - Secretary	4	7
KPK - DG	2	6	KPK - DG	4	7

KPK - Private	3	7	KPK - Private	4	7
Sindh - Secretary	3	5	Sindh - Secretary	2	5
Sindh - DG	2	6	Sindh - DG	3	7
Sindh - Private	3	6	Sindh - Private	4	6
Federal - Secretary	3	7	Federal - Secretary	2	7
Federal - DG	2	7	Federal - DG	3	7
Federal - Private	1	5	Federal - Private	4	7
Balochistan - DG	3		Balochistan - DG	3	
Balochistan - Private	1	5	Balochistan - Private	2	5
Balochistan - Secretary	4	7	Balochistan - Secretary	3	5
HRM Component 7			HRM Component 8		
Punjab - Secretary	3	7	Punjab - Secretary	2	7
Punjab - DG	3	7	Punjab - DG	2	7
Punjab - Private	4	7	Punjab - Private	4	7
Punjab - Private	4	7	Punjab - Private	4	7
KPK - Secretary	4	7	KPK - Secretary	2	7
KPK - DG	4	7	KPK - DG	1	7
KPK - Private	2	7	KPK - Private	4	7
Sindh - Secretary	3	5	Sindh - Secretary	2	
Sindh - DG	4	7	Sindh - DG	1	5
Sindh - Private	4	6	Sindh - Private	4	6
Federal - Secretary	4	7	Federal - Secretary	4	7
Federal - DG	4	5	Federal - DG	3	7
Federal - Private	4	7	Federal - Private	4	7
Balochistan - DG	3		Balochistan - DG	1	
Balochistan - Private	1	5	Balochistan - Private	2	5
Balochistan - Secretary	3	5	Balochistan - Secretary	3	5
HRM Component 9			HRM Component 10		
Punjab - Secretary	3	7	Punjab - Secretary	3	7
Punjab - DG	3	7	Punjab - DG	3	7
Punjab - Private	4	7	Punjab - Private	4	7
Punjab - Private	4	7	Punjab - Private	4	7
KPK - Secretary	4	7	KPK - Secretary	1	7
KPK - DG	4	7	KPK - DG	1	7
KPK - Private	4	7	KPK - Private	4	7
Sindh - Secretary	4		Sindh - Secretary	1	
Sindh - DG	3	7	Sindh - DG	1	5
Sindh - Private	4	6	Sindh - Private	4	6
Federal - Secretary	4	7	Federal - Secretary	1	
Federal - DG	3	7	Federal - DG	2	7
Federal - Private	2	5	Federal - Private	4	6
Balochistan - DG	4		Balochistan - DG	2	
Balochistan - Private	2	5	Balochistan - Private	1	5
Balochistan - Secretary	3	5	Balochistan - Secretary	3	5
HRM Component 11			HRM Component 12		
Punjab - Secretary	3	7	Punjab - Secretary	4	7
Punjab - DG	3	7	Punjab - DG	4	7
Punjab - Private	4	7	Punjab - Private	4	7
Punjab - Private	4	7	Punjab - Private	4	7
KPK - Secretary	1	7	KPK - Secretary	4	7
KPK - DG	1	7	KPK - DG	4	7
KPK - Private	4	7	KPK - Private	1	7
Sindh - Secretary	1		Sindh - Secretary	3	5
Sindh - DG	1	5	Sindh - DG	3	7
Sindh - Private	4	6	Sindh - Private	3	6
Federal - Secretary	1		Federal - Secretary	4	7
Federal - DG	2	7	Federal - DG	4	7
Federal - Private	4	6	Federal - Private	1	5
Balochistan - DG	2		Balochistan - DG	3	

Balochistan - Private	1	5	Balochistan - Private	1	5
Balochistan - Secretary	3	5	Balochistan - Secretary	3	5
HRM Component 13			HRM Component 14		
Punjab - Secretary	1	7	Punjab - Secretary	4	7
Punjab - DG	1	7	Punjab - DG	4	7
Punjab - Private	4	7	Punjab - Private	4	7
Punjab - Private	1	7	Punjab - Private	4	7
KPK - Secretary	2	7	KPK - Secretary	4	7
KPK - DG	1	7	KPK - DG	4	7
KPK - Private	4	7	KPK - Private	4	7
Sindh - Secretary	2	7	Sindh - Secretary	2	7
Sindh - DG	1	5	Sindh - DG	3	7
Sindh - Private	3	6	Sindh - Private	4	6
Federal - Secretary	1	7	Federal - Secretary	4	7
Federal - DG	2	6	Federal - DG	3	7
Federal - Private	1	5	Federal - Private	3	6
Balochistan - DG	1		Balochistan - DG	4	
Balochistan - Private	2	5	Balochistan - Private	1	5
Balochistan - Secretary	3	5	Balochistan - Secretary	3	5
HRM Component 15			HRM Component 16		
Punjab - Secretary	1	7	Punjab - Secretary	4	7
Punjab - DG	1	7	Punjab - DG	4	7
Punjab - Private	4	7	Punjab - Private	4	7
Punjab - Private	4	7	Punjab - Private	4	7
KPK - Secretary		7	KPK - Secretary	4	7
KPK - DG			KPK - DG	4	7
KPK - Private	4	7	KPK - Private	4	7
Sindh - Secretary	2	7	Sindh - Secretary	4	7
Sindh - DG	4	7	Sindh - DG	4	7
Sindh - Private	3	6	Sindh - Private	4	6
Federal - Secretary	2	7	Federal - Secretary	4	7
Federal - DG	1	5	Federal - DG	4	7
Federal - Private	1	5	Federal - Private	4	7
Balochistan - DG	1		Balochistan - DG	4	
Balochistan - Private	1	5	Balochistan - Private	3	5
Balochistan - Secretary	3	5	Balochistan - Secretary	3	5
HRM Component 17			HRM Component 18		
Punjab - Secretary	4	6	Punjab - Secretary	2	7
Punjab - DG	2	7	Punjab - DG	2	7
Punjab - Private	4	7	Punjab - Private	4	7
Punjab - Private	4	7	Punjab - Private	4	7
KPK - Secretary	3	7	KPK - Secretary	3	7
KPK - DG	3	7	KPK - DG	3	7
KPK - Private	4	7	KPK - Private	3	7
Sindh - Secretary	3	7	Sindh - Secretary	3	7
Sindh - DG	3		Sindh - DG	1	5
Sindh - Private	4	6	Sindh - Private	4	6
Federal - Secretary	3	7	Federal - Secretary	2	7
Federal - DG	3	7	Federal - DG	2	7
Federal - Private	4	7	Federal - Private	3	7
Balochistan - DG	3		Balochistan - DG	2	
Balochistan - Private	1	5	Balochistan - Private	2	5
Balochistan - Secretary	3	5	Balochistan - Secretary	3	5
HRM Component 19			HRM Component 20		
Punjab - Secretary	3	7	Punjab - Secretary	2	7
Punjab - DG	2	7	Punjab - DG	3	7
Punjab - Private	4	7	Punjab - Private	4	7
Punjab - Private	4	7	Punjab - Private	4	7
KPK - Secretary	2	7	KPK - Secretary	3	7

KPK - DG	2	7	KPK - DG	3	7
KPK - Private	3	7	KPK - Private	1	7
Sindh - Secretary	2	7	Sindh - Secretary	2	7
Sindh - DG	1	5	Sindh - DG	2	5
Sindh - Private	3	6	Sindh - Private	3	6
Federal - Secretary	4		Federal - Secretary	1	
Federal - DG	3	7	Federal - DG	3	7
Federal - Private	1	5	Federal - Private	2	6
Balochistan - DG	2		Balochistan - DG	1	
Balochistan - Private	2	5	Balochistan - Private	1	5
Balochistan - Secretary	3	5	Balochistan - Secretary	3	5
HRM Component 21			HRM Component 22		
Punjab - Secretary	2	7	Punjab - Secretary	3	7
Punjab - DG	2	7	Punjab - DG	2	7
Punjab - Private	4	7	Punjab - Private	4	7
Punjab - Private	4	7	Punjab - Private	1	7
KPK - Secretary	2	7	KPK - Secretary	3	5
KPK - DG	2	7	KPK - DG	3	5
KPK - Private	4	6	KPK - Private	2	7
Sindh - Secretary	3	7	Sindh - Secretary	1	7
Sindh - DG	1	5	Sindh - DG	1	5
Sindh - Private	4	6	Sindh - Private	3	6
Federal - Secretary	4	7	Federal - Secretary	4	7
Federal - DG	3	7	Federal - DG	3	7
Federal - Private	1	5	Federal - Private	1	5
Balochistan - DG	2		Balochistan - DG	2	
Balochistan - Private	1	5	Balochistan - Private	1	5
Balochistan - Secretary	3	5	Balochistan - Secretary	3	5
HRM Component 23			HRM Component 24		
Punjab - Secretary	3	7	Punjab - Secretary	3	7
Punjab - DG	2	7	Punjab - DG	2	7
Punjab - Private	4	7	Punjab - Private	1	7
Punjab - Private	4	7	Punjab - Private	4	7
KPK - Secretary	4	7	KPK - Secretary	1	7
KPK - DG	4	7	KPK - DG	1	7
KPK - Private	2	7	KPK - Private	2	7
Sindh - Secretary	1	5	Sindh - Secretary	3	7
Sindh - DG	1	5	Sindh - DG	1	5
Sindh - Private	4	6	Sindh - Private	4	6
Federal - Secretary	4	7	Federal - Secretary	1	
Federal - DG	3	7	Federal - DG	3	7
Federal - Private	1	5	Federal - Private	1	5
Balochistan - DG	2		Balochistan - DG	3	
Balochistan - Private	1	5	Balochistan - Private	1	5
Balochistan - Secretary	3	5	Balochistan - Secretary	3	5

Annex D Instruments

QUESTIONNAIRE I DATA AND DISTRIBUTION

Questionnaire ID:

WRITE THE NUMBER/NAME AS APPROPRIATE.

Q #	Question	Options	Code
1	Level	1. Federal 2. Balochistan 3. KPK 4. Punjab 5. Sindh	
2	Name of District	_____ 9. NA	
3	Name of Institution/facility	_____ 9. NA	
4	Sector	1. Public 2. Private	
5	Private	1. Hospital 2. Clinic 9. NA	
6	Location	1. Urban 2. Rural	
7	Type of Health Facility	1. Teaching hospital 2. DHQ 3. THQ 4. RHC 5. BHU 6. Dispensary 7. MCH center 9. NA	
8	Catchment's Population of the Province/District		
9	Type of Data	1. Provincial consolidated 2. Provincial segregated sampled districts 3. District consolidated district office. 4. District segregated sampled facilities only 5. Health Care Facility (direct)	
10	Name of respondent		
11	Designation of respondent		
12	Name of interviewer		
13	Date of interview		

14) Total number of human resources for health: (Federal/Province/ District/ HCF)

In the private sector applicable only for private hospitals

Job category	Total	Male	Female	Present on that day*	Age distribution		
					< 30 years	30-45 years	> 45 years
General doctors							
General dentists							
Specialist doctors							
Specialist dentists							
Nurses, LHVs, & Midwives							
Paramedics							
Support staff							
Managers							
Community health workers							
Vertical program HRH							
Others							
Administrative							

* Only applicable at HCF level through document verification.

15) Sanctioned, filled & vacant positions: (Federal/Province/ District) *

Job category	Sanctioned	Filled	Vacant	Contractual	Total in place
General doctors					
General dentists					
Specialist doctors					
Specialist dentists					
Nurses, LHVs & Midwives					
Paramedics					
Support staff					
Managers					
Community health workers					
Vertical program HRH					
Others					
Administrative					

* Not applicable for the Private sector.

16) Attrition of HRH in the last 5 years

Job category	Resigned	On long leave	Pensioners	Deceased	Total
General doctors					
General dentists					
Specialist doctors					
Specialist dentists					
Nurses, LHVs & Midwives					
Paramedics					
Support staff					
Managers					
Community health workers					
Vertical program HRH					
Others					
Administrative					

QUESTIONNAIRE 3
HUMAN RESOURCE MANAGEMENT (HRM)

Questionnaire ID:

AREA / REGIONAL IDENTIFICATION

Q#	Question	Response	Coding
1.	Level	6. Federal 7. Balochistan 8. KPK 9. Punjab 10. Sindh	
2.	Interviewee category	1. Secretary office 2. DG Office 3. Private hospital owners	
3.	Date of interview		
4.	Name of Interviewer		

HRH Assessment Instrument 3: HR Management

Instructions: For each of the HRM components in the matrix below, you will fill in the columns labeled “Current stage” and “Evidence”. In the blank box under “Current Stage,” enter the number of the stage (1-4) with the statement that best applies to the *current* stage of your organization. If only part of the statement applies, enter the number for the previous stage. In the blank box under “Evidence” please record the reasons that led you to select this box and any additional key information related to this component.

HRM Component	Stages of Human Resource Management and Their Characteristics				Current stage	Policy implementation time frame	Evidence
	1	2	3	4			
HRM Capacity							
1. HRM Budget	There is no budget allocated for HRM staff or HRM activity within the organization.	There is inadequate and irregular allocation of budget to fund an HRM position or to conduct HRM activities (e.g., training, systems development, performance planning, and evaluation).	Budget is allocated for HRM staff and related activities. Allocation is irregular and cannot be relied on for any useful long-range planning or the development of HRM systems.	Money for HRM staff and related activities is a permanent budget item, reviewed annually and adjusted if possible.		5) Not implemented 6) Less than 5 years 7) 5 years or more	
2. HRM Staff	There are no staff specifically charged with responsibilities for HRM functions.	There are HRM staffs in the organization, but they have limited experience related to this field (personnel, recruitment, management) and/or have other functions in the organization as well as HRM.	There are trained HRM staffs in the organization, but only at level to maintain basic procedures and record-keeping functions.	There are experienced HRM staffs in the organization who maintain HR functions. They participate in long-range planning for the organization.		5) Not implemented 6) Less than 5 years 7) 5 years or more	

HRH Assessment Instrument 3: HR Management

HRM Component	Stages of Human Resource Management and Their Characteristics				Current stage	Policy implementation time frame	Evidence
	1	2	3	4			
HRM Capacity (cont.)							
3. HR Planning	No annual HR Planning	Annual HR plan exists, but is not based on a formal assessment of the mission, organizational goals, staffing needs, training outputs, or existing employee data.	Annual HR plan exists, based on the organizational goals, staffing needs, trainings, and employee data, but it is not further evaluated for effectiveness.	Annual HR plan based on the organizational goals and training outputs exists. It is implemented, evaluated, and used for long-range strategic planning.		5) Not implemented 6) Less than 5 years 7) 5 years or more	
HR data							
4. Employee Data (e.g., number of staff, location, skill/education level, gender/age, year of hire, salary level)	None of this data is collected on any kind of systematic basis.	Most of this data is collected, but not maintained or kept up to date.	All this data is available and up to date, but data is not formally used in HR planning or forecasting.	All of this data is available and up to date. Systems are in place. Data is formally used in HR planning and forecasting.		5) Not implemented 6) Less than 5 years 7) 5 years or more	
5. Computerization of HR data	There are no computers or data systems available to the organization, externally or internally.	There are computers in place, but no resources to develop systems for data management.	Computers and data management systems are available, but staff not trained and data files are incomplete.	Computers and data management systems are in place and data files up to date. Staff receives trainings.		5) Not implemented 6) Less than 5 years 7) 5 years or more	
6. Personnel Files	No individual employee record exists.	Limited employee personnel files are maintained, but not regularly updated.	Personnel files for all employees are maintained and kept up to date, but there is no policy for employee access or use of this data.	Updated personnel files for all employees exist and also policies for appropriately use (e.g., confidentiality, employees access).		5) Not implemented 6) Less than 5 years 7) 5 years or more	

HRM Component	Stages of Human Resource Management and Their Characteristics				Current stage	Policy implementation time frame	Evidence
	1	2	3	4			
Personnel Policy and Practice							
7. Job Classification System (Title/qualifications for: professional, clinical, technical, support staff)	No formal system exists to classify jobs and the skills and qualification required for each classification.	There is some attempt to classify jobs, but it is uneven and incomplete.	A job classification system exists, but it is not used as basis for other HRM functions (e.g., job description, hiring, salary/benefits).	A job classification system exists and is used in a formal manner for other HR planning and staffing functions.		5) Not implemented 6) Less than 5 years 7) 5 years or more	
8. Compensation and Benefits System	No formal system exists to determine the salary and benefits provided to each job classification.	A formal system exists, but it is not used in a routine manner.	A formal system exists, is understood by all employees but not used in a consistent manner.	A formal system exists and is used consistently. It is also used to determine salary upgrades and merit awards.		5) Not implemented 6) Less than 5 years 7) 5 years or more	
9. Recruitment Hiring, transfer, and Promotion	No formal process exists for recruiting, hiring, transfer, and promotion according to job descriptions.	There are systems for recruitment and hiring, etc, but they are not followed.	There are formal systems based on established criteria, but they are not used consistently.	There are formal systems, monitored and used in all hiring, transfer, and promotion decisions.		5) Not implemented 6) Less than 5 years 7) 5 years or more	
10. Employee Orientation	There is no formal orientation program for new employees.	There is a program, but it is Not Implemented because of Constraints on regular basis.	Orientation is offered in a routine manner, but does not emphasize the mission, goals, and performance standards expected by the organization.	Orientation is offered to all new employees, emphasizes the mission, goals, & performance standards expected, & also makes people feel welcomed and valued.		5) Not implemented 6) Less than 5 years 7) 5 years or more	

HRM Component	Stages of Human Resource Management and Their Characteristics				Current stage	Policy implementation time frame	Evidence
	1	2	3	4			
Personnel Policy and Practice (cont.)							
12. Service Code Manual (e.g. organizational chart, work hours, time sheets, policy, discipline, grievances, benefits, legal travel)	No policy manual exists.	Policy manual does exist, but it is not up to date and does not include all of the relevant information.	A current policy manual does exist but it is not available to all employees and is not always used as a basis for personnel decisions.	An updated policy manual does exist and is available to all employees. It serves as a reference guide to all questions about employment in the organization and reviewed and updated regularly.		5) Not implemented 6) Less than 5 years 7) 5 years or more	
13. Gender Specific Harassment	There is no formal policy and procedures to address issues of sexual harassment.	There is a formal policy but procedures are neither defined nor practiced.	There is a formal policy, procedures are defined but not practiced.	Formal policy is in place and procedures to address sexual harassment are defined and practiced.		5) Not implemented 6) Less than 5 years 7) 5 years or more	
14. Discipline, Termination, and Grievances Procedures	No formal procedures exist.	Formal procedures do exist, but they are not clearly related to performance standards.	Formal procedures based on performance standards exist, but they are not followed in any consistent manner.	Formal procedures based on performance standard are known to all employees and used consistently.		5) Not implemented 6) Less than 5 years 7) 5 years or more	
15. Labor Law Compliance	There is no review of HRM policies to ensure compliance with local and /or national labor law.	There is some effort to review labor law, but it is not done on regular basis.	A review of the labor law is done regularly and as a formal part of the HRM function, but policy is not always adjusted to ensure compliance.	HRM policy and practice is adjusted as needed to be in compliance with local and/or national labor law.		5) Not implemented 6) Less than 5 years 7) 5 years or more	

HRM Component	Stages of Human Resource Management and Their Characteristics				Current stage	Policy implementation time frame	Evidence
	1	2	3	4			
16. Registration, Certification, and Licensure	Prospective employees are not questioned about their licensure or certification.	Prospective employees are questioned about licensure and certification, but are not required to produce proof.	Prospective employees are required to produce proof of licensure or certification.	Prospective employees are required to produce proof of licensure or certification, and they are independently verified from a secondary source (e.g., PMDC, nursing council).		5) Not implemented 6) Less than 5 years 7) 5 years or more	
Performance Management							
17. Job Descriptions/ SOPs (e.g., job title, qualifications responsibilities, supervisor)	No job descriptions are developed.	Some staffs have job descriptions, but they are not always up to date and/or are very general, lacking job responsibilities and supervision.	All staffs have job descriptions, but they are not all complete or up to date with specific duties and lines of supervision.	Complete job descriptions exists for every employee and are kept up to date through a regular process of review. Specific duties and lines of supervision are clearly stated.		5) Not implemented 6) Less than 5 years 7) 5 years or more	
18. Staff Supervision	There is no clear system of supervision. Lines of authority are unclear. Staff are not recognized for their achievements.	There are established lines of authority, but the supervisor's roles and functions are not understood and little supervision takes place. Limited staff recognition.	Supervisors understand their roles and lines of authority and meet regularly with their employees to develop work plans, evaluate, performance, and publicly recognize staff for their achievements.	Supervisors increase staff performance by assisting staff with professional development plans and encouraging them to learn new skills. Supervisors receive skill trainings periodically.		5) Not implemented 6) Less than 5 years 7) 5 years or more	

HRM Component	Stages of Human Resource Management and Their Characteristics				Current stage	Policy implementation time frame	Evidence
	1	2	3	4			
Performance Management (cont.)							
19. Monetary and non-monetary incentives for performance	There are no incentives of any kind for good performance or conduct.	Incentives are given, but infrequently. How to earn incentives is not understood by the staff.	Incentives are given with moderate frequency, but the performance targets necessary to get the incentive are not well understood by most employees.	There is a well-documented and easy-to-understand system of monetary and/or non-monetary incentives for reaching specified performance targets.		5) Not implemented 6) Less than 5 years 7) 5 years or more	
20. Evaluation (A formal performance planning and review [PP&R] system)	There is no formal performance planning and review (PP&R) system in place.	A performance planning and review system is in place, but it is informal and does not include work plans and performance objectives jointly developed with staff.	There is a formal system and supervisors are required to develop work plans and performance objectives with each employee and review performance in the past, but this is not done on consistent basis.	Supervisors and employees develop work plans jointly and performance reviews are conducted on a regular basis. Orientation sessions and a manual are provided to all staff. Reviews are used for personnel decisions.		5) Not implemented 6) Less than 5 years 7) 5 years or more	
Training							
21. CPD for (generalized cadres)	There is no established training program.	Training is offered on ad-hoc basis but it is neither based on formal process of assessing staff needs nor it is linked to the organizations key priorities and changes in the health sector and health practices.	Training is a formal component of the organization and linked to staff and organizational needs but it is neither available for all staff nor it is evaluated for results.	Trainings are a valued part of the organization and opportunities are developed for staff based on their needs and also on those of the organization.		5) Not implemented 6) Less than 5 years 7) 5 years or more	

HRM Component	Stages of Human Resource Management and Their Characteristics				Current stage	Policy implementation time frame	Evidence
	1	2	3	4			
Training (cont.)							
22. C P D for Management and Leadership Development	There is no policy or philosophy regarding the importance of the developing strong management capacity and future leaders for the organization.	There is an emphasis on developing management capacity but it is not done on regular basis.	The organization makes an effort to develop management and future leader through trainings, and also through mentoring and challenging job assignment, but participation is selective.	A plan for management and leadership development is in place and there is an opportunity for every one to participate based on performance and other established criteria.		5) Not implemented 6) Less than 5 years 7) 5 years or more	
23. C P D For Health Professionals	There is no established training program for most of the professional cadres	There is a program, but irregularly convened, and does not develop the skills of most of the cadres of HC staff	There is a formal approved training program, but is not standardized as per changing environment	There is an established training program for all the professional cadres		5) Not implemented 6) Less than 5 years 7) 5 years or more	
24. Links to External Pre-service Training	There is no formal link with the pre-service training institutions which train employees for the health sector	There is a loose relationship between the organization and pre-service training institutions, but it is not used in any formal way for workforce training and development.	The organization and pre-service training institutions work together to ensure that the curriculum is based on skills, knowledge, and attitudes required in the workplace.	The organization and pre-service training institutions also offer regular in-service training for staff in the workplace to upgrade their skills and knowledge, (e.g. management training)		5) Not implemented 6) Less than 5 years 7) 5 years or more	

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