Impact of Devolution on Health System Development

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CERTIFICATE

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It is certified that the thesis entitled: **"Impact of Devolution on Health System Development".** Has been completed by Ms. Iram Shahzadi Registration No. PIDE2015FM.PhilHE07 under my supervision. It is also certified has the thesis is based on original research work and meets all criteria and standards laid down for M. Phil degree.

The following areas have been critically monitored:-

1. Conformance to APA format.
2. Precision & Correctness of the language.
3. Literature Review is relevant and comprehensive.
4. Relevance of references with the text.
5. Methodology and Estimation techniques are appropriate.

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Candidate of M. Phil Health Economics at the Pakistan Institute of Development Economics do hereby declare that the thesis: **"Impact of Devolution on Health System Development".** Submitted by me in partial fulfillment of M. Phil Degree, is my original work, and has not been submitted or published earlier. I also solemnly declare that it shall not, in future, be submitted by me for obtaining any other degree from this or any other university or institution.

I also understand that if evidence of plagiarism is found in my thesis/dissertation at any stage, even after the award of a degree, the work may be cancelled and the degree revoked.

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List of Acronyms

AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Care
BHU	Basic Health Unit
DHIS	District Health Information System
DHQ	District Head Quarter
EHR	Electronic Health Record
EMR	Electronic Medical Record
GDDS	General Data Dissemination Strategy
GDP	Gross Domestic Product
HIA	Health Action International
HIS	Health Information System
HIV	Human Immunodeficiency Virus
HRIS	Human Resource Information System
HMIS	Health Management Information System
IMF	International Monetary Fund
KP	Khyber Pakhtunkhwa
MCHC	Mother and Child Health Care
MDG	Millennium Development Goal
MNCH	Maternal, Neonatal and Child Health
MSH	Management Sciences for Health
NAP	National Action Plan
NGO	Non-Governmental Organization
NHA	National Health Accounts
PDHS	Pakistan Demographic and Health Survey
PDS	Pakistan Demographic Survey
PHC	Primary Healthcare
PIDE	Pakistan Institute of Development Economics
PPP	Pakistan People's Party
PSLM	Pakistan Social and Living Standard Measurement

RHC	Rural Health Centre
TB	Tuberculosis
THQ	Taluka Headquarters Hospitals
THQ	Tehsil Head Quarter
WHO	World Health Organization
WHS	World Health Statistics
UK	United Kingdom
USA	United States of America

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Abstract

The health system in Pakistan is plagued with several challenges - structural fragmentation, financial resource scarcity, less developed human capital, lack of functional specificity and accessibility. Faced with a hazardous social and economic position of country forwarded by piling debt and uncertain productivity, Pakistan's position to exercise health sector reforms after devolution is quite limited. Although the 18th amendment brought room for opportunities, it should go far and bring long term transformation in the health, and socio-economic sectors. The underlying research compared the pre and post devolution health sector process. The study has discussed the parameters which concerns with various fluctuations in the health sector i.e. improved, deteriorated and stagnation. Integration of contemporary horizontal programs across provinces within the federal framework of comprehensive primary healthcare system is necessary phase. The research is based on a critical deep analysis of secondary data collected within public and private domain collected by government authorities across country in provinces. It also brings six block health care system approach to analyze pre and post devolution process on relevant indicators. Time series data paucity in health sector is unavoidable fact in Pakistan, so secondary data with gaps is deployed to analyze the 18th amendments effects across the provinces. The study results showed that certain health sectors improved during the analysis period, and simultaneously deteriorated and stayed stagnant.

CHAPTER 1

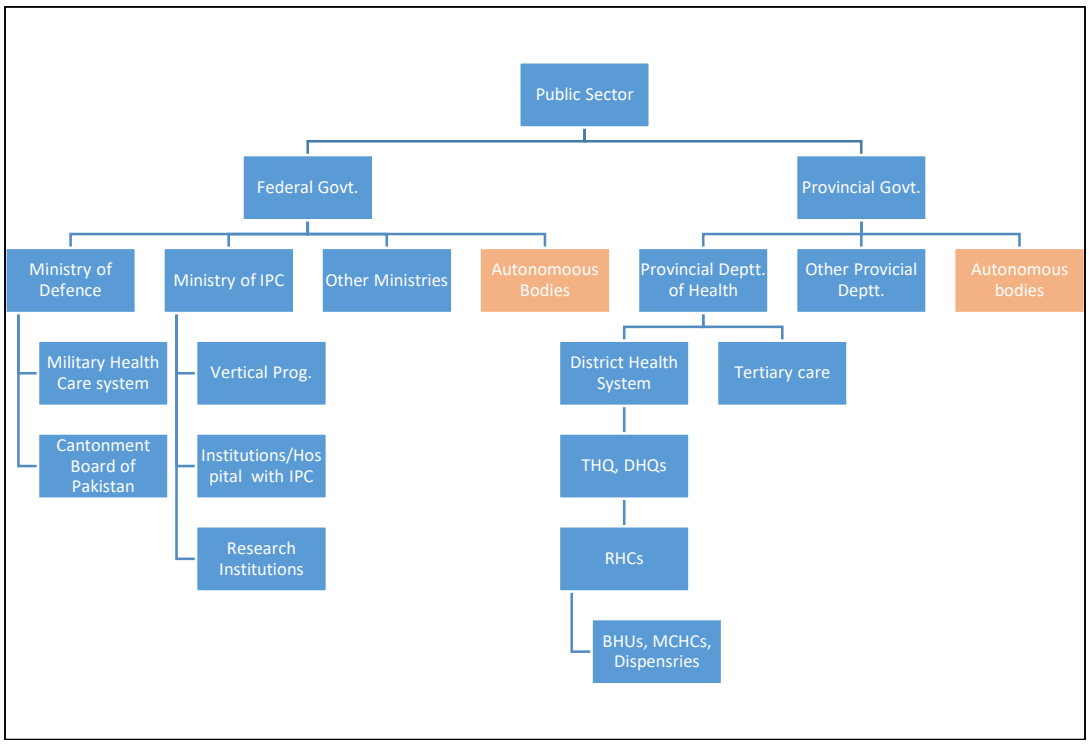
INTRODUCTION

1.1 Background and Introduction

Development literature identifies the role of human resources for the growth of the country. Leading: is the health sector followed by the education sector, these are two key fundamentals against which the level of the human development of the country is measured. It is worth noting that healthy masses work more efficiently and also engaged for more time to industrial activities.

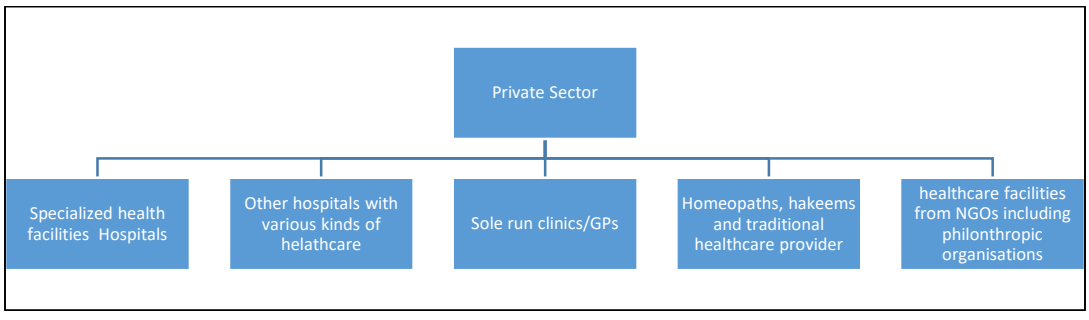
Different studies confirm the direct relation between health indicators and economic wellbeing. Better health variables, mostly related to childhood e.g. nutrition for infants and less exposure to diseases will increase efficiency in future and provide strong basics to sustainable development. The weak situation of health system in Pakistan generates many infectious diseases which daunt development of the country. More disease burden creates premature deaths and impact productivity. Even wealthy nations affected by similar situation, and disease burden will be recovered in the long term. Many diseases including throat infection, influenza, dengue, hepatitis, asthma increase poor work force and also affect quality of work which adversely impacts economic development. The Figure 1 and Figure 2 explain the private and public health care systems in Pakistan which has been revamped after 18th amendment in the constitution of Pakistan to decentralize health care system in the country.

Figure 1: Public Sector Healthcare System in Pakistan



Soruce: Government of Paksitan, 2017

Figure 2: Private Sector Health Care System in Pakistan



Soruce: Government of Paksitan, 2017

Healthcare services systems in the globe are facing problems, because they are not responsive to face masses healthcare needs but they have continuously unsuccessful to house local and central

pattern of larger healthcare determinants with transforming socio-political, environmental, and organization background of the governance service (Krishna, 2014).

Healthcare system support was highlighted as global issue in MDSGs 2015. World is now facing a change in world healthcare agendas from stress upon diseases approach to attention on the healthcare system improvement. This phase commenced from World Development Report 1993, funding in Health WHO 2000 reports on the Improving Health (care) System, where a common platform was to fund healthcare system for good performance (Shaikh BT, 2012).

Health has not been a political priority in our country, as fact from the determinedly low fiscal provision. Parties' manifestos mostly don't show fiscal solution which may increase investments in the health sector (Nishtar, 2013).

Local Government Systems of Pakistan is Local Government Ordinance of 2002, which has been displaced the after colonial type of districts and division level administration into country with national systems locally in the supremacy is predestined with the elected working classes representative. The target is to increase public sector-efficiency by carrying individual accountable for bringing service closer to the intend beneficiary and keeping accountable. Starting from the inception, provincial administration found alienated as consequence of the reforms because of harm of administrative authorities. Progress during the seven year is irregular with developments in selected districts as a consequence of the decentralized systems of decision-making, while it is considered by leading class in feudal controlled working-class politic. By the time of legitimate amendments of the law finished in year 2007, the provinces fought several agreements of the laws. Presently, provinces are keeping the local government systems as per a set of administrative and statutory notification which suites to local the circumstance and interest (Nishtar, 2013). The health sector has also decentralized as per Local Government Ordinance 2002.

Ironically, health is now not specified as a central right in the law that has serious consequences on management and policy of the health sector in the wake of current reform especially when non-planned transfer of resource is endured. The 18th amendment brings a major change in

structures, service delivery and resource generation between federal and provincial governments (Lead Pakistan, 2012).

Devolution denotes to the legal transference of control to democratically selected resident political structures which are supposedly autonomous of the federal Government in context of a defined unit of functions (Frumence, 2013).

Constitution of Pakistan: 18th Amendment 2010

The 18th Amendment of Constitution has promulgated by the National Assembly on 8th April, 2010, replacing the control of President to the dissolve the Parliament himself, transferring country from semi presidential to a full parliamentary governance, changing NWFP to the Khyber Pakhtonkhwa. Package was to change the extensive controls cumulative by President under Ex-President General Pervez Musharraf, and Zia-ul-Haq, and relax political uncertainty into country. Amendment inverses breaches on the Constitution in the country in many years by the martial law. Amendment is sanctioned by the Senate of Pakistan on 15th April 2010 and it has become act when the President Asif Zardari inked federal bill on 19th April 2010. This is the 1st time in country when the president surrendered substantial portion of the power transferred to the parliament and the office of Prime Minister of Pakistan. The health sector was also decentralized after the 18th amendment, 2012.

Background

Authority of President to dissolve Parliament was ratified by 18th Amendment to Constitution of country during presidency of General Zia-ul-Haq, priory it is removed by the Ex-Prime Minister M. Nawaz Sharif during his 2nd regime by the 13th amendment. It was lastly restored during presidency of General (R) Pervez Musharraf by the 17th amendment. The bill was the 1st bill since 1973 to decrease the authority of the President of Pakistan.

The amounted to the democratically elected parliament to totally its tenancy in past of Pakistan from 2003–2008, although under Ex-General Musharraf, who was the dictator in country. The 2nd complete parliamentary term is finished by the Pakistan People's Party led the government

from year 2008-2013 which has in fact promulgated the 18th Amendment 2002. While, the regime during 2008-2013 was often publicized to be the 1st complete democratic transfer of government with-out the military president or a coup-defeat in the country.

The public health system in Pakistan works as an indispensable integrated health unit which is administered at district level. Health service delivery is basically a provincial affair but central government works as supervisory and has a coordinating role. Earlier, Federal Ministry of Health had mandate for policy building, technical help, coordination, training and bring foreign financial help for health sector. As on 30th June, 2011 under 18th constitutional amendment has promulgated, brought power to the provinces. The ministry of health had many public health programs including national TB Control Program, Family Planning, and Primary Healthcare, National Aids Control Programme, Extended Program of Immunization, that are funded by federal Government but the aforementioned program's implementation is done by provinces and district administration.

The health care system which was now a provincial area is bifurcated in primary, secondary and tertiary healthcare system:

Primary healthcare system is executed via main health unit, rural healthcare centers, maternal and child healthcare centers and in the dispensaries.

Secondary healthcare system comprised on 1st and 2nd levels referral units extend acute, ambulatory and inpatient cares through the Tehsil Headquarter Hospitals, and District Headquarter Hospitals. THH, and DHQ which cover 100 thousand and 300 thousand and 1 to 2 million person the primary, and secondary healthcare systems comprises the District Healthcare System.

Tertiary health system provides major hospitals with specialized facilities that are working under provincial administration.

1.2 Problem Statement

The health sector of Pakistan always remain badly neglected and as a result of this, at present the country is facing double disease burden (communicable & non-communicable disease), maternal, and child health related issues and new healthcare challenges. These are not the only problems but these are compounded by a number of health system challenges (Nishtar, 2007). Despite these numerous problems, the share of total health expenditures as percentage of GDP is quite low with around only 0.5 per cent of GDP as of 2017-18.

In this kind of situation, instead of allocating the scare resources efficiently, the country cuts down its expenditures in health sector which make the situation worse. Though devolution in healthcare resulted in improvement of many health outcomes like life expectancy, infant and maternal mortality rate, even polio virus has seen significant reduction in Pakistan but they are still lagging behind many developing countries.

Decentralization as a national agenda should involve other sectors thus promoting an inter-sectoral collaboration, which is a cornerstone of revitalization of primary healthcare (PHC) services in Pakistan. Though responsiveness of health system and quality of health services might be improved, the decentralization has been brought with intention of full enactment, but still many sectors are performing stagnant or worse than earlier. The study results and data analysis has proved the volatile pattern before and after the devolution periods.

1.3 Research Gap

Although there are studies related to the devolution but none of the studies accomplished for finding the significant impact of devolution on health sector development, by comparing pre and post devolution scenario.

1.4 Research Question

1. How devolution affected healthcare system in Pakistan?
2. How health system performed in scenario of building blocks of healthcare?

1.5 Hypothesis

H_O: Null Hypothesis 1: Devolution process didn't affected healthcare system of Pakistan

H_1: Alternate Hypothesis 1: Devolution process affected healthcare system of Pakistan

1.6 Objectives of Thesis

General Objectives

General objective of the thesis is to analyze the impacts of devolution on the health system development in Pakistan.

Specific Objectives

The present thesis focuses to achieve the following specific objectives:

1. To examine a comparison of pre and post devolution in healthcare Pakistan.
2. To assess the health system performance through building blocks of healthcare.
3. To provide policy guidelines to stakeholders to improve health system in Pakistan.

1.7 Organization of the Research Thesis

The thesis is structured in six chapters. Chapter 2 provides an overview of the existing literature on the subject matter; the available literature carries out in depth analysis of health system in Pakistan before and after devolution. Accordingly, Chapter 3 presents the theoretical model, econometric approach, construction of variables and their description, and data sources. Chapter 4 provides empirical findings and the analysis of healthcare system. Finally, Chapter 5 and 6concludes the study and draws the policy recommendations, respectively.

CHAPTER # 2:

Review of Literature and Documents

This section presents detailed examination of the literature on healthcare devolution and its impact on health system development in general and Pakistan specifically. The literature has been reviewed to determine the current and previous understanding of challenges in implementing the devolution of healthcare strategies nationally and globally for improving healthcare delivery. This is presented in two sections as follows; firstly a global review is presented which is followed by the national review in context of Pakistan.

2.1 Global Review

There have been issues related to the capacity and preparedness of the nations to take over the health care services.

Dwicaksono and Fox (2018) investigated various studies related to healthcare systems input find damaging impacts of the decentralization upon resources distribution for healthcare sector via financial plan. Results reverse allocation efficiency opinions progressive in decentralization literature, that suggests that in the decentralized arrangements, native governments are improved to match provisions of native public good with the native preference; e.g. Uganda and Indonesia, that showed similar procedures of decentralization in the verdict in budget distribution was relocated to native levels, exhibited that decentralization had rather harmful impacts on the native health expenditure. One possible clarification is to relocate discretionary authority of the fiscal decision to native governments can be inadequate without refining native accountability. In Brazil, prolonged will to contain inhabitants 'opinions on public resources sharing appeared to link with favorable impacts. Brazilian municipalities which accepted participating budgeting procedures allocated added assets for the health sector compared with municipalities which excluded participatory budgeting. On the other side, in Indonesia, to directive to integrate citizens' participation in the funding decisions procedure, the participatory mechanism unsuccessful to deliver expressive channel for people to impact budget results. Possibly useful

impacts of decentralization on the healthcare system look to significantly related to current real governance method which makes it responsive to domestic values and needs.

Medicaid is a program in the United State of America (USA), it is one of programs where key allowance of central authority has been decentralized to the states; similarly in the United Kingdom (UK), health services are elementary duties of the modern Scottish and Welsh parliament, and Spain and Italy legislatives authority has joined amplified fiscal sovereignty in healthcare area (Akin et al, 2001). Similarly, in Portugal, which has been traditionally a more centralized nation, and Norway where regulations were introduced in year 2002 replaced controls over hospitals and medical centers away from local government (Jiménez, 2005).

Decentralization of health services is widely practiced throughout the globe especially in the developing countries to ensure improvement in the performance of the health system, increase population access to service and the efficiency of the delivered services (Salah, 2016).

Rural, poor citizens in the developing countries had approach to lesser health experience and services worse health results than their richer, metro counterparts. Whereas many governments had devolved their respective health systems in result to this disparity, they had few facts on whether the systems were making healthier citizens (Root).

Nyongesaet al. (2015) conducted a cross sectional survey in Nairobi. They found that health-care devolutions are not in concise with objective of devolution which is more than 50 per cent viewed process will not result in efficacy, disease control programs, resources allocation, maintenance of infrastructures.

Frumence et al. (2013) examined the challenges faced in implementation of the decentralization of the health care service from view of federal and district official. The paper showed several advantages of decentralization, including more autonomy in the domestic resources mobilization and usage, a more bottom up planning systems, increased healthcare personnel accountable and decrease bureaucratic measures in the decisions-making. Results revealed numerous tasks that delay effective working of the decentralization. These are insufficient financing, premature

disbursements of the fund from federal government, and unqualified workers, deficiency of the community participation in the planning and political interfering.

Dolores et al. (2005) found the result of estimation in Canada that suggests that decentralization had an optimistic and substantial effect on the efficiency of public policy to refine population's healthcare (in infant mortality). Moreover, the competence gains from the specific decentralization structure do not appear to be responded by the flypaper outcome. However, some carefulness is required in deducing the results. Firstly the pointer of healthcare decentralization utilized incarcerations one of the multiple magnitudes of health-care decentralization procedure: fiscal. Second, health results employed did not reflect fundamental levels of health in a culture. In spite of the limits, the research comprises modern empirical outlook to evaluation of commercial gain rising from decentralization into healthcare system.

Benjamin et.al (2017) analyzed the impacts of key political decentralization on healthcare sectors budgeting, planning and the financial management in Kenya. Authors showed the implementing devolution shaped opportunities for the native levels prioritization, and public involved in healthcare sector plan and funding, and more opportunities for the equity in native levels resources' allocation. The opportunity is not bound due to faster change of function to regions before county level ability proved to consider decentralized roles. They perceived sign of re-centralization of financial administration from healthcare facility to macro levels.

Truphena Makonjo (2017) analyzed the impact of devolution on healthcare systems. The study was guided by three research question namely i) what was effects of devolution on the healthcare infrastructure? ii) What were the effects of the devolution on access to health-care services? And iii) what is the effect of devolution on health care workforce? Stratified sampling technique was used to choose respondents based on corps to have sample population which is representative. They add pharmacists, clinicians, procurement officers, nurses, medical officers, and hospital managers. The population of study was ninety-four public health facilities in Nairobi. Data was collected using a structured questionnaire, with pilot conducted on a sample of thirty respondents from Westland's health facilities was used. Both inferential and descriptive statistical methods were used to analyze the data. Whereas descriptive statistics included frequency tables, charts

and graphs, inferential statistics including t-tests, regression and correlation analysis was used to determine relationships between variables. The study revealed that devolution had an improvement on health infrastructure. Medical equipment was in good condition in most facilities and new equipment had been acquired under the medical equipment scheme such as x-ray machines, nebulizers, lab equipment among others. In terms of access, it was observed that most health facilities served an average population of between 5000 to 10,000 people, which shows a low reach out to the intended population which should be of 30,000 people. Also, of importance to note, was that most of the health facilities had ambulances for use during emergency services, although inadequate funding for medicines, equipment and maintenance of buildings was observed. Significant gaps were also identified in the health care workforce where there was shortage of staff in health facilities coupled with lack of motivation mechanisms put in place that led to low productivity.

2.2 National Review

Kurji et.al (2016) analyzed that Pakistan tried to make improvement in its healthcare systems and brought out several reforms. There are less strength in healthcare delivery systems in country like making healthcare policies, starting vertical programmes and introducing Public Private Partnership (PPP), participating in Millennium Development Goals (MDGs) program, improving HRD and infrastructures by developing Basic Healthcare Unit and the Rural Health Centers across country. But these programmes are few and that were reasons country's health-care systems are not very efficient yet. There were many flaws including weak governance, and inadequate resources, meager superiority of Healthcare Information Management System (HIMS), dishonesty in healthcare systems, lack of M&E in healthcare policy and healthcare planning, and lack of trained healthcare workers. Country is improving in healthcare sector for the last 5 decades.

Bossert and Mitchel (2011) described healthcare sector decentralization, and local decisions making founded on the research tools controlled to the few of 91 healthcare sectors decisions makers in the 17 districts of country, the research analyzed the relationship among 3magnitudes of decentralization: decentralized authorities (referred to "decision space"), official capacity, and accountability of domestic officials. Quantitative indicator of 3 dimension was developed with 4

broad healthcare function. They brought 03key results, 1st district levels respondent reported vary degree of all dimensions in present of decentralization Govt. and facing similar law in all provinces. Second, with the dimension of decentralization especially capacity synergies lies between level stated by the respondent in function and these reported in many function (significant coefficient of the correlation range between the r ¼ 0.22 to the r ¼ 0.43).Last, synergy exists in dimension of the decentralization, principally in overall indicators of firms 'abilities (related with decisions space r¼ 0.39, and accountability r¼ 0.23). Writers established that decentralization was varied knowledgeable with few districts levels official building more usage of decisions space than the other and these who do, tends to had further capability to mark decision, and were kept accountable to chosen domestic official for the similar preferences.

Shaikh et al. (2012) identifies the assets and flaws of devolved districts healthcare systems of Pakistan from experience of various stakeholder, and recommends directions for the reform in existing systems. Using qualitative exploratory designs, the research study developed in three cities of Sindh i.e. country Karachi, Khairpur, and Larkana. 9 detailed interviews are piloted with many firms (District Coordination Officer DCO, Executive District Officer EDO, Medical Superintendent MS, healthcare experts, Medical Officers MO) of districts healthcare systems. Major strength identified are formations of District Health Management DHM group for more inter-sector association, development of modern positions at sub-district levels to monitor, supervision and more financial independence to the priorities as per needs. The weakness are limited autonomy, team work, and deficiency of capacity, nepotism, and weak accountability. The study result suggests that devolved healthcare systems were not implemented in its true spirit. Whereas devolution has been worked in Pakistan, several lessons can be known from the views of the stakeholders which functioned in systems for fresh policies to be implemented effectively.

Mazhar et.al (2016) conducted institutional evaluation of the province healthcare system in the province of the Punjab to highlight the attainments, issues, and problems, further to make the suggestions in the post-devolution scene. It is detail review of literature found on PubMed/Medline, documents made by the Govt. offices, Google Scholar (various journals), independent research work, reports produced by NGO and development agencies in Pakistan,

and academic papers on the 18th constitutional amendments, it's implication on the healthcare sectors. Following the 18thamendment, Government of Punjab developed healthcare sector strategy (2012–2017), that was implemented in the sector wise approaches. All districts have made 03 year working plan. Further, integrated and operational plans of the MNCH, and Family Planning were under the reviews. The Punjab Healthcare Commission has developed and was active to promulgate healthcare sectors. Moreover, development agencies have assisted healthcare sector strategy till year 2017. Plenty of investment for the improving governance, human resource, services delivery structure, healthcare information, and medical product are anticipated more than after 18th amendment period. This was the chances for the healthcare systems of the Punjab to help susceptible masses of other provinces, irredeemable from healthcare shock.

Nishtar et.al (2013) assessed performances and prospect of post 18thConstitutional Amendment period. Country has undergone massive fluctuations in its central structure under the 18thConstitutional amendment. Some healthcare status improvement, during the previous 65 years were factual but major healthcare indicator lagged below as compared with the developing nations. Examination covered aspects: input (financing, information, HR and governance), output (services promptness), outcome (exposure of intervention and prevalence's of the hazard behavior), and its effects. Effects were examined as per WHO's intrinsic goal for healthcare systems—achievements of the equity in the healthcare outcome, and fairness in the financial contributions and response. Information from Pakistan Social and Living Standards Measurement PSLM was deployed for districts investigation. Information regarding the causes of the death in the household (within last 06 month) was collected via interviews from respondents for annual Pakistan Demographic Survey PDS. Information for death was gathered as per transmissible diseases (including maternal illness), non-communicable disease, grievances and others (death from unidentified cause); 6·4 per cent (mean) of death was from cause in 09 round of PDS during year 1992 to 2006. In peer group examination, 12 countries was selected to benchmarks the country's progress in the selected core indicator during period 1990–2010. All the data of set of the 13 core health and socio-economic indicator was collected from World Health Statistics 2010 (WHO, 2010). For the sake of analysis of fairness in the budgeting, the information source was National Health Accounts 2007–08. They have pointed many priority

gap that needs to talk in term of data and analysis to intimate reforms and policies. Analysis shows that the country's healthcare systems have not been able to attain the 03 aims, satisfactory and reasonable healthcare, fair in the funding and response. Country has a mix healthcare system, with the existence of private and public healthcare divisions. Poor public health funding, deficiency of private healthcare regulations, and all the governance limitation had brought to the access, equity, quality concerns, explained as mix healthcare system condition.

Shaikh (2013) described challenges and opportunities for devolution in health sector. Nation has faced organizational reform via constitutional amendments in June 2011 (known as 18thamendment). Healthcare became mere provincial subjects. Since province is independent and regularly strong to resolve the healthcare system roadmap, it was opportune times for all to employ the finest practices, and often supported strategy for the healthcare systems consolidation across globe. Issue of governance, HR, financing, and services' delivery may to be picked as significance for the serving the poor masses of nation. These are some of imperatives to ensure the equity, quality, efficiency, and financial soundness in new devolved systems.

He also added that the pledge to attain the healthcare related Millennium Development Goals MDGs becomes even challenging. He analyzed WHO framework on building blocks of health system to catalogue challenges and constraints in wake of recent health reforms. These are service delivery, governance, health information, human resource, financing, and medical products/ technology. First and the foremost step in the current scenario of transition would be to educate ourselves, educate the partners, and educate the communities and all other stakeholders. It's important time for gathering the institutions to check appropriately and balance to lessen the corruption in the healthcare sectors, and to confirm the transparency. In this time of change, there is felt requirement for the institutional firming at the province levels, chiefly because of confirming a responsive services conveyance with the continuum and quality.

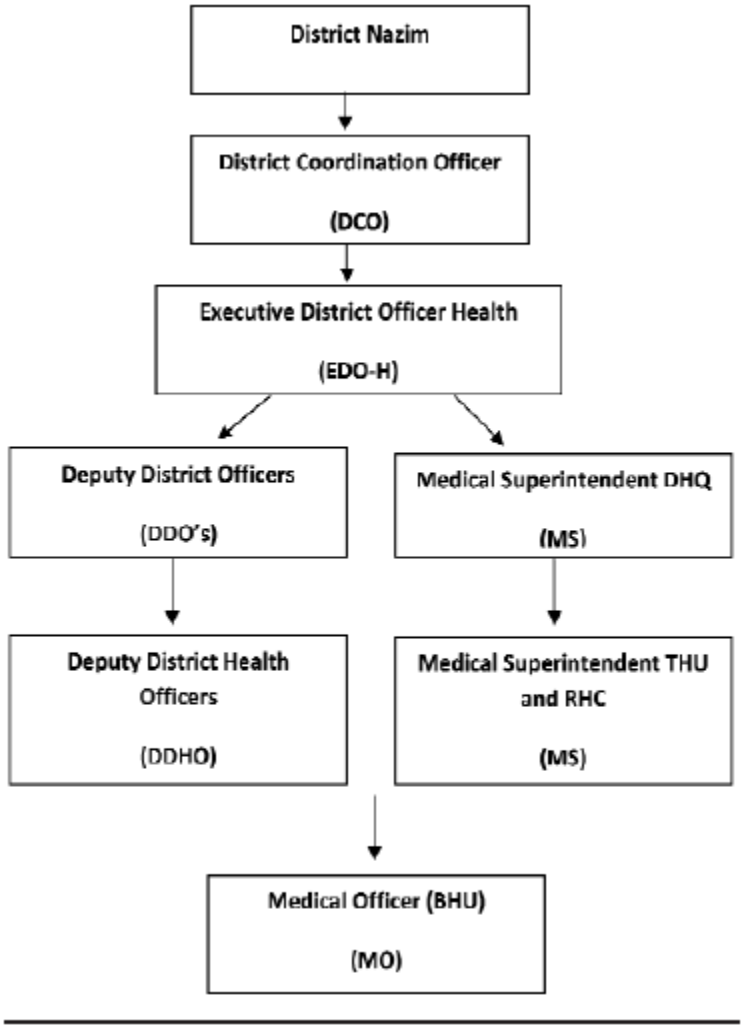


Figure: Schematic diagram of Hierarchy from District to Union council in District Health System.

Source: Shaikh et al. 2012

Health Information System of Pakistan and Decentralization

A sample of a nation which exhibits bottleneck among healthcare is the country that was the 6thpopulous ranked with population of more than 22 million, growth rate of about 1.91 per cent per annum. A majority of mass lives in the rural localities. While, with quick speed of development, urban localities including Karachi city and Lahore have caused main shift in the society and culture. By year 2015, the annual development of urban area is 3.1 per cent, and 37 per cent of total population lives in the cities (Ministry of Finance, 2015). Pakistan has 4provinces: Baluchistan, Punjab, Khyber Pakhtonkhwa, Sindh, and state of Gilgit Baltistan (GB).

The decentralization of administrative and political officials of 135 districts in country take place in year 2001, putting them in the power of domestic governments. The reforming power is undertaken with the vision to strengthen domestic officials and increase the efficiency. But, the systems unsuccessful because of enmities between center and district. Change takes place at a discontinuous speed, reaching mid-point between years 2002 to 2009. In July 2009, 03 provincial government announced their programmes and plan to convert to administrative systems before year 2001 (Shaikh, Nafees, Naeem, Zahidie, Fatima, Kazi, 2012), focusing on implementation expert which are related to reform, Ministry of Health is vanished on 30th June 2011. Healthcare related nationwide duty was sub-sequent changed to 07 related ministries. Further, to improvise delivery of services and increase healthcare systems at community levels, healthcare sectors were decentralized, which permitted healthcare related specification of resource and the authority in provinces. By the year 2012, the government approved Ministry of National Regulations and Services at federal level. Its mandate was to expand when it emerged Ministry of Health Service Regulations and Coordination (Ministry of National health Pakistan, 2015).

Japan International Cooperation Agency (JICA) has done research for Government of Pakistan on needs to develop Management Information in Healthcare Sectors from year 2004 to 2007 (Qazi and Ali, 2009). Research led to launch the District Health Information System (DHIS), that was effective than former systems, that was limited to information compilation from secondary hospitals and healthcare unit at others level. National Action Plan for the DHIS permitted for nation-wide operation (Fawad, et al., 2016).

Health Information System is primarily related with healthcare information of community. Its key targets are to confirm the effective use of resource to increase healthcare services facility of community. Information system collects information and dataset, then analyze hence converts data to information that is beneficial in developing Healthcare Information System. To accomplish systems, information should be trustworthy, correct and in time (Anwar, Rizvi, Khan, and Kumar, 2015). HIS require for its management from several sources, many kinds of data sets. Data gathering include diseases surveillance, facilities survey and routine report to accomplish the health services statistic. The system collects, analyzes and converts data to information that is cooperative in healthcare systems (Garrib, Herbst, lamini, Mckenzie, Stoors, Govender, and Rohde, 2008).

DHIS was harmonized at federal and province level in03 year, focusing on aspect wherein community based information on District Health facility. Key attention was on structures, and working of DHIS component. There were some district which needs data on enactments in healthcare sector; for the, annual review and issue which needs more care are emphasized. Further, there is districts' level improvement of HIS which reflect the healthcare system (Moazzam Ali, Yoichi Horikosh, 2002, Fozia Anwar, et al., 2015).

Quality of information compilation increased efficiency of health-care services (Odhiambo-Otiene, 2005). It has exposed that standard is being used based on the purposes and designs (Mitchell E, Sullivari F, 2001). Similar misappropriation that may forward to the weak data can forward to inefficiencies (Anwar, et al., 2015).This is the reasons that new information and data compilation, and its analysis must in place at central and provincial level.

Data and information for its application of the DHIS in various provinces have revealed improvement in the data compilation tool deployed in records and monthly collection of DHQ in various districts a hospital which has good healthcare facilities, Taluka Headquarters Hospitals in the healthcare facilities, and patients linked evidence. The attempt for data compilation helped in consistent data and information process. ICT required by the DHQ and THQ were issues, and utilized for the information and data compilation, presentations and, storages. Computer isalso frequently utilized in DHIS and HIS. There are districts which need assistant in attending the hardware issues and software issues (Fozia, etal., 2015).

During the system implementation, process is noted incompleteness and the data which were compiled (HISP, 2010, and Abou Zahr, and Boerma, 2005). Some crack and area for improvements in the systems are, as documented delay in data submissions as no form was given, information data was unreliable; the inadequate grasp of indicator, weak feedbacks systems; and inability of the manager to make data summary (Victora, Black, Boema, and Bryce.,2011, and Center for Global Development, 2006).

Clutching the values of the HMIS, Pakistan public healthcare sectors, has commenced data collecting at centers in the start of 90s. During the year 2004, it is changed in DHIS, as districts healthcare organization provided emphasized to device services performances, efficient logistics management and healthcare planning rather the HIS improvements (Moazzam, 2002). The HMIS is transformed in the DHIS in year 2004, because the District Healthcare Management was foremost on accounts of calculating service health planning. For it, the process lead to change indicator for information and data collection, tool and soft wares. In year 2006, DHIS is increased, and is applied at districts levels. This is supposed to undertake by provincial health department; but the specific requirement change in each provinces. System, despite it's setback, had a great points. By the year 2007, Punjab healthcare departments applied at districts. Information structures in country are given: Basic Healthcare Unit and Rural Health centers inform to the Tehsil Head Quarters, which sub-sequently report to District Health Quarters (DHQ), sent it to the province levels (Fozia, et al., 2015).

Till today, DHIS was unique data sources for public sector hospital. It is reason research is important values for the supervision, M&E of the systems from healthcare service as this emphasize on the private sectors. This was also essential to mention that DHIS was not Electronic Health or Medical Record systems which were geared to the clinical management of patient. DHIS was mainly action oriented HMIS developed to refine and support healthcare sectors, local decision making, and confirm effective usage of data. Target of the Shaw (2005) research is to know structures of systems for report generating, and data processing and healthcare sectors. It is imperious to maintain DHIS in the data compilation, analysis undertaken, spread of information to increase the public healthcare services (Shaw, 2005). This was founded on the HIS in the private sectors hospital, so DHIS will be excluded.

Public Healthcare System

Figure 1 below depicts community healthcare distribution systems that serve as joint healthcare compounds over-seen by districts. Healthcare systems are provided by Ministry via three tiered systems, with the others public healthcare programmes. Primary Health systems adds BHU and RHC, and secondary healthcare is composed of 02 level referral for service which cares for the serious in-patient, and ambulatory patient at THQ hospital (THQ) and DHQ. These are helped by

the staff teaching hospital (tertiary healthcare). But healthcare for the mother and children is section of the integrated healthcare system, where is limited number of healthcare unit, and BHU and RHC. The institution is to give basic the obstetric healthcare via community health outreach programmes where lady health workers and community health midwives give required health service (Fawad, et al., 2016).

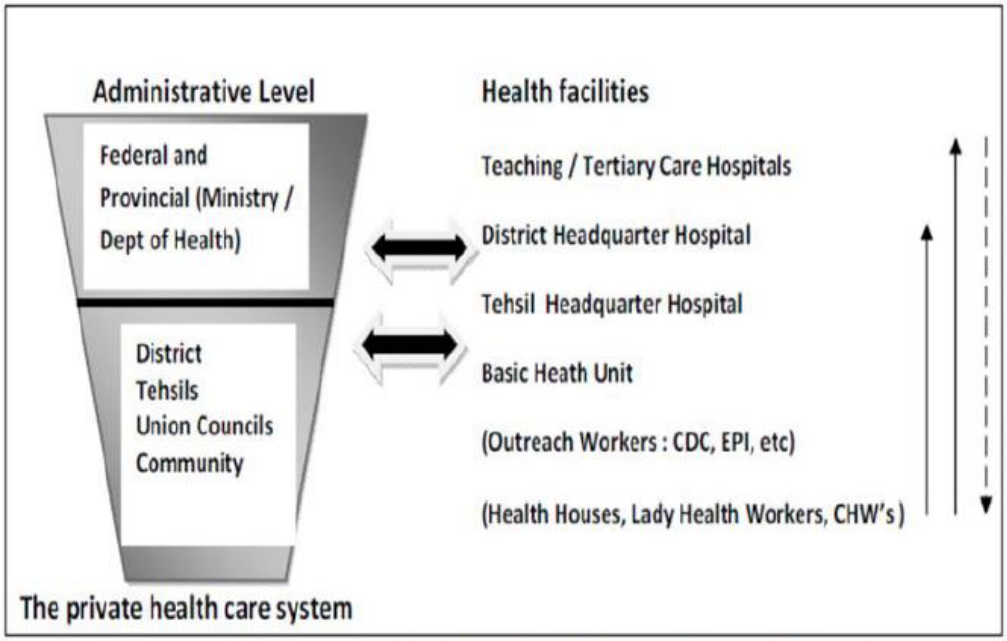


Figure 1: Illustration of Public Health Care Delivery in Pakistan (Source: Health Systems Profile–Pakistan, WHO).

In the Pakistan community doctors, pharmacists, traditional health healers, drug vendor, nurses and health laboratory technicians, unqualified practitioners provide private healthcare (Nisar, 2010). Cost for the healthcare service by private sectors in country is around 70 per cent, where 98 per cent was given by individual (Statistics Division, 2011-12).

Health Information Systems HIS with target to help mid-level and senior-levels manager to undertake proof based decisions, Federal Ministry of Health developed initial healthcare services unit called Health Management Information System (Ali and Horiloshi, 2002, Qaziand Ali, 2009). In HMIS is limited to 1st level healthcare. (Qazi, Aliand Kuroiwa, 2008).But, due to presence of diversity of health-care information system, it is requirement to manage and remove

the duplication. HIMS is constrained to information and statistics management, and restrict required actions as patient's data, hospitals management, laboratories management (Qazi and Ali, 2009).

CHAPTER # 3:

RESEARCH METHODOLOGY

Research Methodology for Health Decentralization Analysis

3.1. Introduction

The key objective of the study is to assess health system performance before and after devolution.

3.2. Introducing Healthcare system?

Healthcare systems comprise on all organizations, institution, and masses whose primary target was to advance healthcare (WHO, 2007). It contains energies to effect determinants of healthcare and direct health upgrading. Healthcare systems deliver deterrent, and curatives intervention via combination of public healthcare action and pyramid of healthcare facilities which delivers personal healthcare by the both government and non-government players. Actions of healthcare systems may be receptive and financially reasonable, whereas dealing people. Healthcare systems require funds, health staff, data, transport, supply, communication and directions to work. Strengthen the healthcare system hence means targeting main constraint in all of the areas.

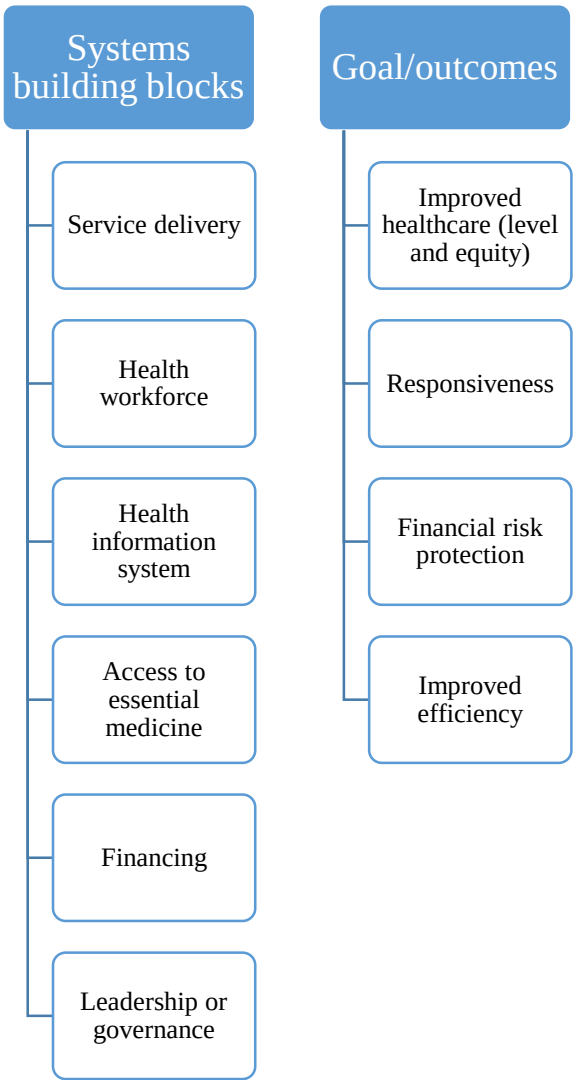
3.3. Frameworks to Monitor Healthcare System Performance

The multidimensional nature of healthcare system and extent of indirect and direct responsibility across various sector, forward challenge in M&E performances. In reaction, during the last many years, WHO and its partner has worked to access broad consensus on main indicator and effective method and measure of healthcare system, adding “input”, “process” and “output”, andto connect the signs of “outcome”. Prevailing framework includes the WHO framework for healthcare system performance valuation.

3.4. Building Block for Healthcare System Framework

WHO framework which explains healthcare system in the term of 06main component or called "building blocks":

i. Health services delivery
ii. Healthcare workforce
iii. Healthcare information system
iv. Leadership or governance
v. Access to the essential medicine
vi. Financing to Health sector.



The mentioned 6 building-blocks add to consolidation of healthcare system in various methods. Some of cross-cutting components, as *leadership and governance* and *healthcare information system,* provides foundation for policy and regulations of the all healthcare systems block. *Main* inputs component to healthcare systems comprise, *financing* and the *healthcare workforce*. The3rd*medical products and technologies* and *services delivery* shows instant productions' healthcare system, i.e. availability, delivery of healthcare.

The monitoring and evaluation frameworks show how healthcare inputs and process (healthcare workforce and infrastructures) are shown in output (intervention and available service) which in turn are reproduced in outcome (coverage) and impacts (morbidity and mortality).

3.4.1. Healthcare Service Delivery

Service provision is instant outcome of input in the healthcare system as the healthcare workforce, procurements, supply and health financing. More input may lead to increased services-delivery and more access to service. Confirming the availability of healthcare service which meets lowest quality standards and saving approach to them is a function of healthcare systems.

SN	Core Indicators	Data collection method
General services availability		
A	Number & distribution of healthcare facility per 10000 population	National database of healthcare facilities
B	Number and distribution of in-patient bed per 10000	
c	Number of out-patient departments visits per 10000 per annum	Routine healthcare facilities reporting systems Population based survey
General services readiness		
d	Score of service readiness for healthcare facility	Healthcare facility assessment

3.4.2. Healthcare Workforce

Operational M&E of human resource for healthcare in country require the development of the main core sets of indicator and the mean of calculation to update decisions making among the local authorities, and some other relevant stakeholder.

National level data is gathered from 04 key sources: population census, labor force survey, healthcare facility assessment and administrative health reporting system. The disaggregated information is forwarded on up to 18 professional types and distribution of healthcare workforce by sex and geographical locations.

Core Indicator

Recommended health indicator 1: Number of healthcare worker per 10000

Healthcare workers density — number of healthcare worker per 10000, by unit is healthcare force indicators which commonly reported across world, and represent critical starting points of the considerate the healthcare systems resource situations in the country.

3.4.3. Healthcare Information Systems

Sound and dependable data and the information is basis of decision making across the healthcare systems building block. This was vital for healthcare systems policy development, governance and regulations, research on healthcare, HRD, healthcare education and its training, services delivery, funding.

Healthcare data and information systems give support for the decisions making, with 4 main purposes: (i) dataset generation, (ii) collection, (iii) communications. Healthcare information system collect data/information from healthcare and its sectors, examines data and ensure its all quality, appropriateness, and transfer the data to the information for health related decision making.

Planners and decision-makers require various type of information consists:

• healthcare determinant (socio-economic, environment, behavior and genetic factor) and the contextual environment within which healthcare system operate)
• Input to healthcare systems and relevant process (organization and policy, healthcare infrastructure, cost, facilities, and human and financial resource and healthcare data system)
• Presentation or output of healthcare systems (accessibility, and the usage of healthcare information, and service, response of systems to user need, and financial risk protections)
• Healthcare outcome (disease outbreaks, mortality, morbidity, healthcare status, disability, and well-being)
• Healthcare inequities (i.e. determinants, and coverage of usage of service, healthcare outcome, and including main stratify as sex, socio-economic status, ethnic groups and locations).
• Upright healthcare data systems bring together relevant partner to confirm the users of the healthcare information has approach to reliable, usable, authoritative, comparative data, understandable.

3.4.4. Access to Essential Medicines

Approach has been well-explained as “have medicine regularly and inexpensive at the private and public healthcare facilities or medicines outlet which is within one hour’s walking distance of the population”.

As per WHO for healthcare systems, well-functioning healthcare systems confirms equitable approach to the medical product, vaccine, and technology of quality, efficacy, and low cost, scientifically sounds and cost effective usage. The objectives are required:

• National policy, guidelines, standard, and regulation which supports policy

• Information about price, position of worldwide trade agreement and capacity to decide and negotiates the price

• Reliable industrial practice when prevail in Pakistan and assessments of urgency product

• Procurements, and storages, distribution system which curtail the leakages and wastes

• Supports for balanced uses of medicines, and equipment, via guideline and strategies to confirm, lessen opposition, and maximizes patient satisfaction and trainings.

- M&E approach to indispensable medicine was intertwined with 2 other building blocks consists on services delivery and governance
- WHO and Health Action International developed standard method for facilities based survey of the medicines' prices, and affordable and prices mechanisms.

3.4.5. Health Systems Financing

Healthcare funding leads to working of healthcare process related to compilation, mobilization, and specifying funds to recover health requirements, with an objective of health funding available, and adjust rightfully incentivize to providers, to confirm individual which has access to public healthcare and personal healthcare.

Financing in system is divided into 3 inter-related function(i) revenue (ii) funds pool (iii) provisions of healthcare services.

Core indicators:

Recommended core indicator 1a: Total expenditure on healthcare sector

The indicator extends evidence on all the available funds. Adequacy should be considered as 2ndstep, with the country specific estimate of fund required to approve access to needed levels of health service, or term of comparison to other related countries as per GDP per head. Few countries find comparison of the expenditures of healthcare as proportion to the GDP.

3.4.6. Leadership and Governance

Governance in the healthcare is increased considered to noticeable subject on the agenda. Leadership in the developing healthcare systems involved confirming the strategic policy

framework exists and is joined with operative oversights, coalition buildings, regulations, attention to systems designs and accountability.

Accountability includes particularly:

• Delegations (implicit and explicit) of how the service is provided
• Financing to confirm the sufficient resource is obtainable to give indispensable services
• Performances around supply of the service
• Receipt of data or information to assess performances
• Implementation as imposition of sanction or provisions of reward for the performances.

CHAPTER # 4:

Results and Discussion

4.1. Health Service Delivery

Pre and post devolution health indicators of Pakistan showed a mixed scenario across 1960s till 2009-10 (pre devolution period) and 2010-11 till 2017-18 (post devolution period). Number of hospitals increased across the both periods, similar trend has been observed for dispensaries in Pakistan. In case of rural health centers, TB centers, and beds in hospitals and dispensaries also increased, but pattern of increase differ across time line.

Table 1: Pre and Post Devolution Health Indicators of Pakistan

Periods	Years	Hospital	Dispensaries	Rural Health Centers	TB Centers	Beds in Hospitals & Dispensaries
		nos.	000 nos.	nos.	nos.	000 nos.
Pre Devolution Period	1960s	380	1.7	-	-	25.5
	1970s	521	2.8	1	90	38.4
	1980s	651	3.5	127	122	55.6
	1990s	823	4.3	330	245	83.8
	2000s	912.6	4.6	494	283.3	99.1
	2004-05	916	4.6	552	289	99.9
	2005-06	919	4.6	556	289	101.5
	2006-07	924	4.7	560	288	102.1
	2007-08	945	4.7	562	290	103.2
	2008-09	948	4.8	561	293	103.0
	2009-10	968	4.8	572	293	103.7
Post Devolution Period	2010-11	972	4.8	577	304	104.1
	2011-12	980	5.0	579	345	107.5
	2012-13	1092	5.2	640	326	111.8
	2013-14	1113	5.4	667	329	118.4
	2014-15	1143	5.5	669	334	118.2
	2015-16	1172	5.7	684	339	119.5
	2016-17*	1205	5.8	668	342	122.8
	2017-18**	1211	5.7	676	431	126.0

The following table shows percentage of households who visited district and tehsil level hospitals for treatment in respective provinces and forwarded their experiences regarding public hospital services. Overall perception about public hospital services seems perfect in

Baluchistan, while rest of various indicators showed varied performance in different provinces.

Table 2: Perception of Public Hospital Services

Indicator	Punjab		Sindh		KPK		Baluchistan		Average	
	District hospital	Tehsil hospital	District hospital	Tehsil hospital	District hospital	Tehsil hospital	District hospital	Tehsil hospital	District hospital	Tehsil hospital
Building is maintained	65.0	62.0	84.0	64.0	82.0	90.0	100	100	83.0	79.0
Hospital convenient distance	78.0	79.0	73.0	69.0	79.0	72.0	92.0	90.0	81.0	78.0
Had required medicines /supplies	83.0	75.0	87.0	81.0	89.0	94.0	100	100	90.0	88.0
Satisfied with length of waiting	79.0	75.0	85.0	76.0	89.0	91.0	98.0	97.0	88.0	85.0
staff courteous	80.0	69.0	89.0	78.0	83.0	83.0	100	100	88.0	83.0
received medical attention	72.0	68.0	88.0	81.0	85.0	85.0	100	100	86.0	84.0

Source: Social Policy and Development Centre, Household survey, 2015

Expenditures of private health care provider pre and post devolution process witnessed that overall in Pakistan increased during 2009-10 and 2015-16; in absolute values expenditures increased but as percentage in Pakistan value remained stagnant, an increase in Punjab, while decline in Sindh, KPK and Baluchistan as given in Table.

Table 3: Expenditures of Private Health Care Out-Patient Service Providers (million PRs)

	2009-10	2015-16
Pakistan	76,767	122,847
Punjab	39,905	62,858
Sindh	13,233	21,176
KPK	21,194	33,915
Balochistan	2,436	3,898
%		
Pakistan	62.90	62.90
Punjab	67.50	67.55
Sindh	37.80	37.78
KPK	84.00	83.95
Balochistan	90.30	90.26

Source: National Health Accounts (various issues) Pakistan Bureau of Statistics

Establishment of private sector hospitals is not encouraging in post devolution period, the following table shows the establishment years and number of beds available in each hospital, whereas quality of services in all hospitals are incomparable with public sector hospitals, but services provided in almost all hospitals are very costly.

Table 4: Pre and Post Devolution Private Sector Hospitals

	Establishment Year	Hospital	No of Beds
Pre Devolution	NA	National Medical Center, Karachi	200
	1958	Liaquat National Hospital, Karachi	700
	1985	Aga Khan Hospital, Karachi	542
	1989	Shifa International, Islamabad	439
	2006	South City, Karachi	124
	2007	Indus Hospital, Karachi	150
Post Devolution	2012	Quaid e Azam Hospital, Islamabad	400

Source: Hospital website

Table 5: Public Sector Hospitals

	Hospital	Year of establishment	No of Beds	Nature	Location
Pre Devolution	Pakistan Institute of Medical Sciences	1985	947*	Public	Islamabad
	PNS Shifa	1956	700	Public	Karachi
	Military Hospital Rawalpindi	1857	>1200	Military	Rawalpindi
	Combined Military Hospital	NA	>1000	Military	Rawalpindi
	Lahore General Hospital	1958	1300	Public	Lahore
	Jinnah Hospital Lahore	1996	NA	Public	Lahore
	Civil Hospital Karachi	1898	1900	Public	Karachi
	DHG Hospital Mirpur	1981	300	Public	Mirpur
	Abbasis Shaheed Hospital	1974	850	Public	Karachi
	Shalimar Hospital	1982	350	Public	Lahore
	DHQ Hospital Faisalabad	NA	600	Public	Faisalabad
Post Devolution	Nasir Hussain Shaheed Hospital	2010	400	Public	Karachi

*The institute includes 3 semi-autonomous hospitals including Islamabad Hospital (592 beds), Children Hospital (230), Maternal & Child Health Care Centre (125)
Source: Hospital websites, News links and Wikipedia

Weight for age (underweight) after devolution decreased in all parts of the country as shown in Table below, sharpest decline observed in Punjab, whereas in Sindh the rate is still addressable.

Table 6: Weight-for-age (Underweight)

Location	1990-91	2012-13	2017-18
Federal	40	30	23.1
Balochistan	56	-	39
KPK	38	26	21.8
Punjab	37	26	14
Sindh	48	42	40.2

Source: PDHS, Ministry of Health, 2018

Weight-for-height (wasted) showed a mixed pictures across provinces, after devolution its highest in Baluchistan, and lowest in Punjab province; the table below shows the complete picture:

Table 7: Weight-for-height (Wasted)

Location	1990-91	2012-13	2017-18
Federal	9	11	7.1
Balochistan	6	-	18.3
KPK	7	12	7.5
Punjab	10	10	4
Sindh	9	14	11.7

Source: PDHS, Ministry of Health, 2018

The height-for-age (stunted) also decline in all parts of the country, but in Sindh the rate still need be pull down to stay abreast in rest of the parts of country, the complete scenario is presented in table below:

Table 8: Height-for-age (Stunted)

Location	1990-91	2012-13	2017-18
Federal	50	45	37.6
Balochistan	71	-	47.4
KPK	60	42	40.4
Punjab	44	40	29.8
Sindh	56	54	49.9

Source: PDHS, Ministry of Health, 2018

Under 5 mortality rate has declined to zero in provinces, except its 74 at federal level, the table below showed the detailed scenario:

Table 9: Under-five Mortality Rate

Location	1990-91	2012-13	2017-18
Federal	117	89	74
Balochistan	101	111	0
KPK	98	70	0
Punjab	133	105	0
Sindh	106	93	0

Source: PDHS, Ministry of Health, 2018

Child mortality rate declined across the country during pre and post devolution period.

Table 10: Child Mortality Rate

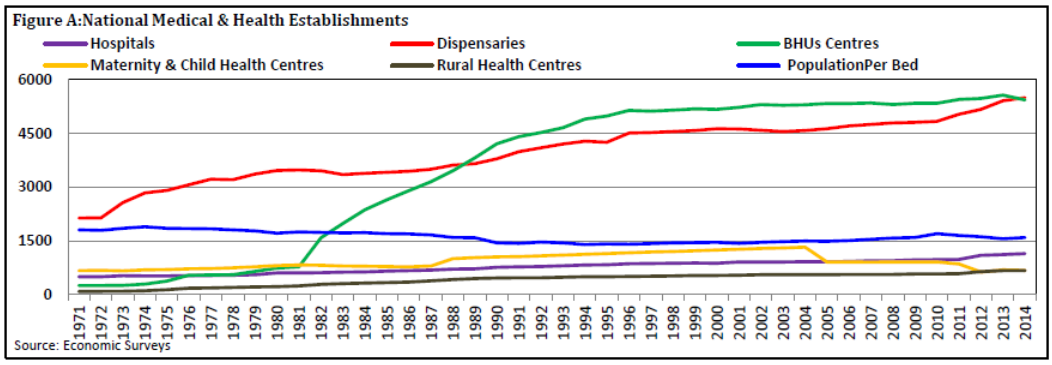
Location	1990-91	2012-13	2017-18
Federal	30	17	13
Balochistan	31	16	0
KPK	20	13	0
Punjab	32	18	0
Sindh	27	20	0

Source: PDHS, Ministry of Health, 2018

Table: Infant Mortality Rate

Location	1990-91	2012-13	2017-18
Federal	91	74	62
Balochistan	72	97	0
KPK	80	58	0
Punjab	104	88	0
Sindh	81	74	0

Source: PDHS, Ministry of Health, 2018



4.2. Health Workforce

Pre and post devolution indicators show increasing trends for registered doctors, registered nurses and registered dentists across Pakistan. During 2000s, this increase is more pronounced in aforementioned health workforce.

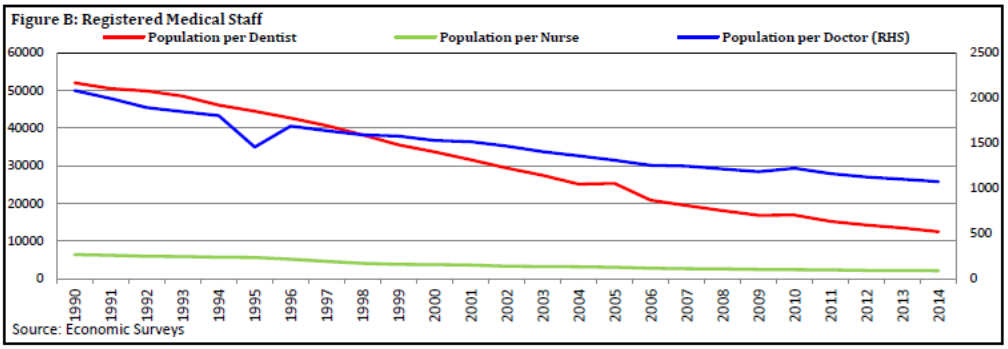
Table 11: Pre and Post Devolution Health Indicators of Pakistan

	Years	Registered Doctors	Registered Nurses	Registered Dentists
		000 nos.	000 nos.	000 nos.
Pre Devolution Period		2.0	-	0.2
		6.3	2.9	0.7
	1980s	28.1	9.9	1.4
	1990s	68.9	24.1	2.8
	2000s	110.5	49.0	6.1
	2004-05	113.2	48.4	6.1
	2005-06	118.0	51.2	6.7
	2006-07	123.1	57.7	7.4
	2007-08	128.0	62.6	8.2

	2008-09	133.9	65.4	9.0
	2009-10	139.5	69.3	9.8
Post Devolution Period	2010-11	144.9	73.2	10.5
	2011-12	152.4	77.7	11.6
	2012-13	160.9	82.1	12.7
	2013-14	167.8	86.2	13.7
	2014-15	175.2	90.3	15.1
	2015-16	184.7	94.8	16.7
	2016-17*	195.9	99.2	18.3
	2017-18**	208.0	103.8	20.5

The population (per dentist), population (per nurse) and population (per doctor) consistently declined during 1990 and 2014, the figures cited below shows narration of above table in ratio form and depicts both push and pull factors involved in the public health system across Pakistan. The reason behind the declining trend is overburdened population, less population of dentists, nurses and doctors, outward migration of skilled health workforce also set back local demand of health workforce. The rural areas have been affected more as compare to urban and semi-urban country sides.

Figure 3: Registered Medical Staff in Pakistan



Source: Economic Survey, 2017-18

Skilled birth attendants are need of time and country especially rural areas lacks in it, as shown in table, skilled birth attendants increased manifold in all parts of the country. Similarly, ANC at least one visit also showed an up to the mark picture, except Balochistan where due to transportation and road infrastructure witnessed an outlier against rest of the country figures.

Table 12: Deliveries by Skilled Birth Attendants

Location	1990-91	2012-13	2017-18
Federal	19	52	69.3
Balochistan	7.5	18	38.2
KPK	11.6	48	67.4
Punjab	16.4	53	71.3
Sindh	32.2	61	74.8

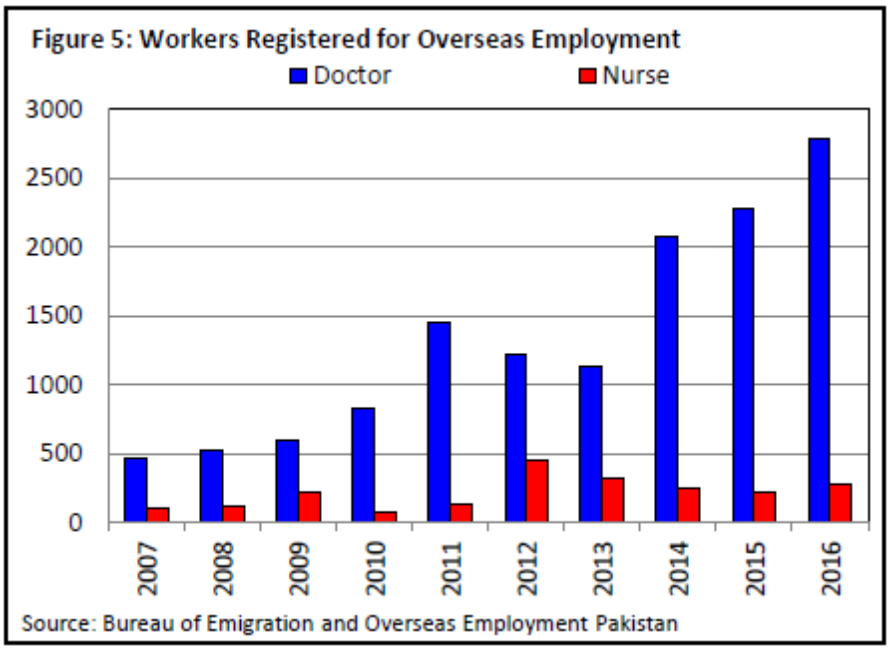
Source: PDHS, Ministry of Health, 2018

Table 13: ANC at Least one Visit

Location	1990-91	2006-07	2012-13	2017-18
Federal	30.0	65	67	86.0
Balochistan	37.0	46	28	55.5
Islamabad	93.6	-	-	93.6
KPK	19.0	64	54	80.1
Punjab	25.0	66	70	92.3
Sindh	51.0	73	76	85.7
AJK	89.6	-	-	89.6
Gilgit Baltistan	-	-	-	79.6
FATA	71.0	-	-	71.0

Source: PDHS, Ministry of Health, 2018

Bureau of the emigration and overseas employment Pakistan reported that devolution brought significant increase in workers registration for overseas employment especially doctors, whereas nurses registered far less in numbers after devolution process. Figures bellows shows the detailed pre and post devolution period between 2007 and 2016.



4.3. Health Information System

Population based health indicators largely lack in Pakistan, so far no information system could be established in the country or even in provinces to analyze the health indicators. Health information system has been made to produce date or information of current healthcare related formations to provide evidences based decisions making and effective administration of healthcare system at almost all the levels. Earlier, main focus in this system has been on technical issues, and it has been recognized that organizational aspects are critical nature in implementation in healthcare information system. In this regards following system has been established in Pakistan:

Pakistan Demographic and Health (care) Survey is 4thsurvey of its series conducted across Pakistan. PDHS was implemented by National Institute of Population Studies under Ministry of National Health Services, Regulations and Coordination. Main target of the PDHS was to up-to-date estimate of healthcare indicators. PDHS 2017-18 collected information on fertility, breastfeeding practices, awareness and usage of family planning method, maternal and child health, childhood mortality, nutrition, domestic violence, women empowerment, migration, disability related to HIV/AIDS and sexually transmitted infections (STIs), information of tuberculosis, and other healthcare related issue as smoking and hepatitis.

Other programs include district health systems, districts healthcare information systems, Health Management Information System, departmental levels disaggregated information collection procedures, ministry and departments of statistics, insurance companies, ministry of industry, banks, bureau of emigration, Pakistan Medical and Dental Council, Medical colleges and universities etc. update data sets on various health indicators including infrastructure, workforce, emigration, drugs manufacturing etc.

4.4 Access to Essential Medicines

Insufficient approach to the basic medicine was common challenge in Pakistan. Policy responses are restricted, among factor, by dearth of in depth country levels evidences. Indispensable medicine defined by the WHO are which satisfies the healthcare requirement of main of country population. Supports for access to basic medicines are fixed under the MDG 8 and provisions of the affordable, high quality, and essentials medicine was components of working healthcare systems. But approach to basic medicines in the low, and

middle-income countries remained questionable. Cohesive evidence is main to understand, monitor, plan, and evaluate access to medicines.

Pharmaceutical policy, and healthcare policy of Pakistan has prevailed in Pakistan. The country experiences policy concerns which are connected to key medicines access in Pakistan that needs integrated response from many healthcare systems. It is ailing addressed by current evidences and requires expanded healthcare system agenda. At the same times, necessary levels required to be taken to permit sustained dialogues among stakeholder and regular cultures of research dealing into evidences based policy (Zaidi et al., 2013).

Drug regulatory author at federal level works to monitor the access to essential medicines across Pakistan, where lists of such medicines are released and notified by the Ministry with respective licenses to importers to check the quality and quantity of medicines.

SN	Indicators	Data collection methods
Structures		
1	Access to basic medicine or part of fulfillment of rights of healthcare, in constitution or national legislation	Review of national constitutions or legislations
2	Existence and the year of last update of a published national medicines policy	Key-informant surveys using standard tool such as the WHO *Questionnaire on structures and processes of country pharmaceutical situations.*
3	Existence and year of last update of a published national list of essential medicines	
4	Legal provisions to allow/encourage generic substitution in the private sector	
Process		
5	Public and private per capita expenditure on medicines	National Health Accounts
6	Percentage of population covered by health insurance	Household surveys
7	Average availability of 14 selected essential medicines in public and private health facilities*	National (or sub-national when necessary) surveys of medicine price and availability conducted using a standard methodology developed by WHO and Health Action International.
8	Median consumer price ratio of 14 selected essential medicines in public and private health facilities*	
9	Percentage mark-up between manufacturers' and consumer prices	

Government has given evidences showed completely immunized children between 12-23 months are increasing across Pakistan, the least population lies in Baluchistan and Sindh, whereas in Punjab this figures remained 80 percent in 2017-18. In the presence of policy, need of the time is to implement the available policies for betterment of population.

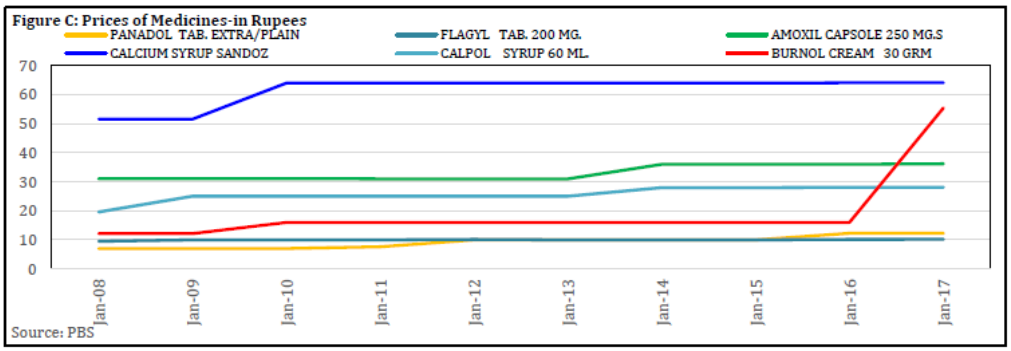
Table 14: Completely Immunized children 12-23 months

Location	1990-91	2012-13	2017-18
Federal	35	54	65.6
Baluchistan	18	16	28.8
KPK	38	53	54.7
Punjab	39	66	79.9
Sindh	25	29	48.8

Source: PDHS, Ministry of Health, 2018

Pakistan Bureau of Statistics provided data of prices of medicines of six medicines in Pakistan, where the rate shows a slight but permanent increase across pre and post devolution process during the year 2008 to 2017.

Figure 4: Prices of Medicines



Source: Pakistan Bureau of Statistics

The expenditures of out-patient services providers & Laboratories and Diagnostic Service Provider has been extrapolated on base of Consumer Price Index calculated for group of thirty six healthcare related commodity as Doctors' fees, Laboratory test, and various medicine bifurcated as Health Group in CPI. CPI for Health Group category for 2013-14 and 2015-16 are 167.15 and 182.69 respectively resulted in increase in prices of 9.3 percent in the time spans of respective 2 years.

National Health Accounts (2015-16) reported that types of healthcare accessed by the four provinces reflect which shares of Medical Products, equipment and appliance is the highest in the Balochistan (55.84 per cent) which is followed by KPK (49.77 per cent), the Punjab (30.7 per cent),Sindh (29.7 per cent). Percentage shares of out-patient highest in KPP (36.2 per cent) that is followed by the Punjab (30.7 per cent), then Baluchistan (29.7 per cent) minimum share is province Sindh (24.3 per cent). For in-patient service, largest share of province Sindh (30.6 per cent), lowest share is of KPK (14.0 per cent).

National Health Accounts (2015-16) also reported that out of pocket (OOP) statistics related to four provinces shows that the OOP expenditure on medicine/vaccines is the highest in Baluchistan (42.28 per cent), which is followed by KPK (40.68 per cent), the Punjab (34.62 per cent), and lowest shares is of Sindh (33.49 per cent). Reason works below high OOP spending on the medicines was in the private clinic, doctor takes fee including the medicines, and values reported in medicines' cost. Third highest spending for provinces surgery costs.

Table 15: Global list of medicines added in WHO/HAI surveys

	Indication	Medicine name	Strength	Dosage form
1	Cardiovascular disease	Captopril	25 mg	capsule/tablet
2	Infectious disease	Ceftriaxone	1 g/vial	injection
	Pain/inflammation	Diclofenac	50 mg	capsule/tablet
3	Cardiovascular disease	Atenolol	50 mg	capsule/tablet
	Asthma	Salbutamol	0.1 mg/dose	inhaler
4				
	Diabetes	Glibenclamide	5 mg	capsule/tablet
5	Cardiovascular disease	Simvastatin	20 mg	capsule/tablet
6	Depression	Amitriptyline	25 mg	capsule/tablet
7	Infectious disease	Ciprofloxacin	500 mg	capsule/tablet
8	Infectious disease	Co-trimoxazole	8+40 mg/ml	suspension
9	Infectious disease	Amoxicillin	500 mg	capsule/tablet
11	CNS Diseases	Diazepam	5 mg	capsule/tablet
13	Pain/inflammation	Paracetamol	24 mg/ml	suspension
14	Ulcer	Omeprazole	20 mg	capsule/tablet

A detail of medicines has been suggested by several diseases programs in the WHO for including the services accessibility and assessments method. It was recommended that all the survey collects, at minimum statistics on worldwide list of 14 medicine added in survey.

4.5 Health Systems Financing

Health expenditures are considered public commodity because it enhances to ability of country even after devolution, several developed countries assign big budgets for medical coverage, and many other seem for procedures to progress analysis. But a great connection between economy growth and healthy community, healthcare sector gain less importance into Govt.public policies and budget provision decisions of funding. Public sector health expenditures as per cent of GDP has remained low and falling since 1990s. Not only ratios have been decreasing, but Pakistan down lower than the healthcare expenditures in different developing countries. Increasing population volume and confined budget sources are deemed major influences for these uninspiring data.

In addition, health expenditure in the provinces are contained of developmental/non-developmental happenings. Investigation of province budget for previous 2 year expresses that larger focus has been provided to current expenditure. Trend has been witnessed for previous year, same has been continued after devolution in country.

Analysis of the devolution process in Pakistan shows that ratio of developmental expenditures to total public health expenditures is lowermost in Sindh, while it is highest in KP. Expenditures and low priority on developmental expenditure by the provinces are compiling despair to whole healthcare. Provinces have not able to apply budget that allocated for the healthcare plans to different problems including delay in decisions, intricate rules for appraisal of schemes, consultants' protests for in time payment.

Moreover, unsatisfactory and inadequate public healthcare service across provinces has increased cost of private sectors to fill in large demand and supply issue. Doctors' fee is raising trajectory. Costly private sector health keeps the county among leading nations have the highest per cent of out-of-pocket expenditure (expenses for healthcare related service), making 87 per cent of private healthcare expenditure. High cost of the private healthcare sector service is increasing chance of acceptable healthcare services only for privileged ones that may have it while baring other inhabitants not to satisfactory public healthcare sector service. The table given below shows the pre and post devolution health expenditures on health (as percentage of GDP) from 1960s to 2017-18. Immediately after devolution, a drastic decline in expenditures shows least priority on health by the provinces.

Table 16: Pre and Post Devolution Health Indicators of Pakistan

	Years	Expenditure on Health (as % of GDP)
Pre Devolution Period	1970s	0.6
	1980s	0.8
	1990s	0.7
	2000s	0.6
	2004-05	0.6
	2005-06	0.5
	2006-07	0.6
	2007-08	0.6
	2008-09	0.5
	2009-10	0.5
Devolution	2010-11	0.2

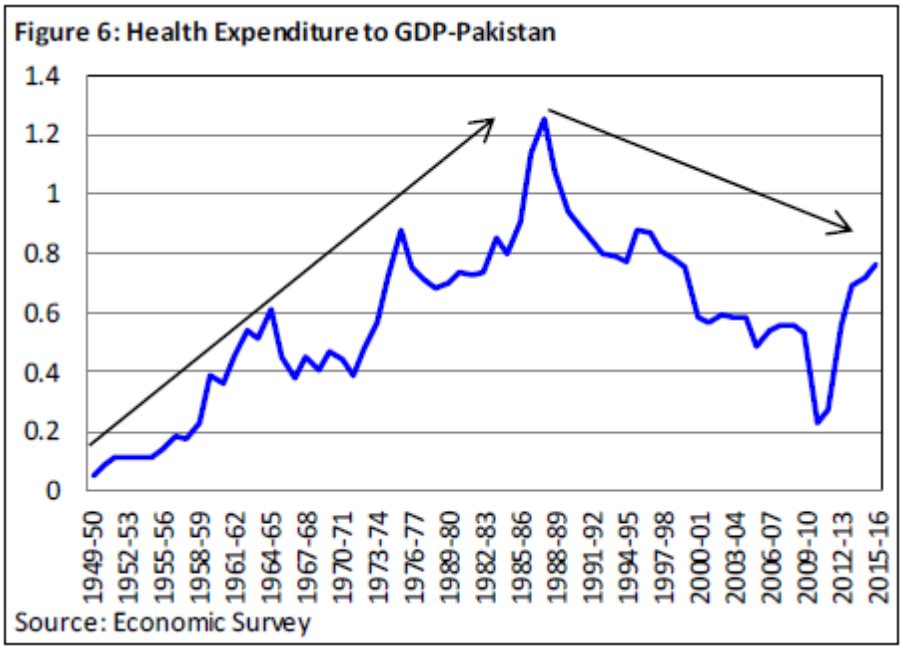
	2011-12	0.3
	2012-13	0.6
	2013-14	0.7
	2014-15	0.7
	2015-16	0.8
	2016-17*	0.9
	2017-18**	0.5

The table given below shows public expenditure on health sector by the respective four provinces Punjab, Sindh, KP and Baluchistan after devolution process during the years 2014-15 to 2016-17.Current and development expenditures show doesn't show encouraging scenario. A significant result may bring for equivalent parameter, importance may be extended to adopt global best practice. There is no constant that can be gained by outlay in case of health sector, bringing foreign assistance, capitalizing in structure etc., if principles in human capital did not improve.

Table 17: Public Expenditure on Health Sector (billion Rs)

		2014-15	2015-16	2016-17
Punjab	Current	45	61	70
	Development	21	33	32
Sindh	Current	40	54	62
	Development	8	14	15
KPK	Current	24	17	20
	Development	10	11	17
Baluchistan	Current	14	15	Na
	Development	4	4	Na

Source: Provincial Budget Documents



4.6. Leadership and Governance

Amongst many socio-economic, strategic and political problems, the health system of Pakistan has performed during pre and post devolution process, but it still serves behind some regional nations. Government developed National Health Vision 2016-2025 to deliver predominant nation's vision, after devolution harmonizing province and federal effort, inter-provincial effort and inter-sectoral attempts for getting the anticipated healthcare results and to generate impacts. It delivers a jointly established account of strategic guidelines to attain the common vision, and which provides a guideline of finest practices for the provinces to shape the policies and initiatives. The policy works with the thematic areas including healthcare service delivery, healthcare financing, human resources for healthcare, healthcare data system, governance, vital medicine and technology, cross sectoral linkage, and global health responsibilities (Ministry of Health, 2016).

The Sindh Health Sector Strategy 2012-2020 developed national and international commitments. The strategy was developed in cohesion with international commitments of the Millennium Development Goals. It was built upon the main parameters of access, equity and universal coverage delineated by the federal National Health Strategy which was developed in 2009.

"After 18thamendment, Govt of Punjab planned to develop the Healthcare through developing the strategy to improve quality and service delivery and coverage. And to improve workforce,

governance and regulation of the sector to ensure the support of poor as now 75 per cent of expenditure is out of the pocket. Lange strategies signified an approach during 2012 to 2017, suggested that KPK increase from 11.2 Rs billion to 14.8.

Khyber Pakhtunkhwa Health Sector Strategy 2010 – 2017was developed to improve the healthcare system for individuals and families, and communities, to defend the masses threatened by poor healthcare; protect masses in contradiction of the monetary penalties of sick health; deliver impartial accesses to the masses centered precaution and create it possible to take part in the decision affecting healthcare and its system. In KP, the quality of healthcare service is weak, resulting into waste of Govt. and household's assets and leading to less impact on healthcare outcomes.

Table 18: Health Sector MDGs

	Latest National Value	Target	Status
Goal 4: Reduce child mortality			
Under 5 mortality rate (deaths per 1000 live births)	85.5	52.0	Missed
Proportion of immunized children 12-23 month	82.0	>90.0	Missed
Proportion of children under-5 suffered from diarrhea in last 30 days (percent)	9.0	<10.0	Achieved
Lady health worker coverage (percent of target population)	83.0	100	Missed
Proportion of under 1 year children immunized against measles	83.0	>90.0	Missed
Infant mortality rate (death per 1000 live birth)	66.0	40.0	Missed
Goal 5: Improve maternal health			
Maternal mortality ratio	170	140	Achieved
Proportion of women 15-49 who had given birth during last 3 years and made at least one antenatal consultation	73.0	100	Missed
Contraceptive prevalence rate	35.4	55.0	Missed
Total fertility rate	3.80	2.10	Missed
Proportion of births attended by skilled birth attendants	58.0	>90.0	Missed
Goal 6: Combat HIV/AIDS, malaria and other diseases			
HIV prevalence among 15-49 year old pregnant woman	0.041	Baseline reduced by 50%	Achieved
HIV prevalence among vulnerable groups	IDU=37.40 FSW=0.80 MSW=3.10 HSW=7.30	Baseline reduced by 50%	Achieved
Proportion of population in	40.0	75.0	Missed

malaria risk areas using effective prevention and treatment			
Incidence of TB/100000	275	45	Missed
TB cases detected and cured under DOTS	91	85	Achieved

Source: Pakistan MDG Progress Report 2013, Ministry of Planning , 2015-16 Annual Report The State of Pakistan's Economy, SBP

Ending polio campaign has been mature and brought required results across the country, federal level strategies to address polio shows results shown in the table below.

Table 19: Post Devolution Provinces Wise Polio Cases

Province	2011	2012	2013	2014	2015	2016	2017	2018
Punjab	9	2	7	5	2	0	1	0
FATA	59	20	65	179	16	2	0	0
Khyber Pakhtonkhwa	23	27	11	68	17	8	1	0
Gilgit Baltistan	1	1	0	0	0	0	1	0
Baluchistan	73	4	0	25	7	2	3	1
Sindh	33	4	10	30	12	8	2	0
AJK	0	0	0	0	0	0	0	0
Total	198	58	93	306	54	20	8	1

Source: End Polio Pakistan www.endpolio.com.pk

Table 20: Pre and Post Devolution Progress Status in Pakistan

	Indicator			Post devolution status
1. Health service delivery	Hospital	968 (2010)	1092 (2013)	▲
	Beds in Hospitals & Dispensaries	103.7 (2010)	111.8 (2013)	▲
	Out-patient service providers expenditures	62.90% (2009-10)	62.90% (2015-16)	=
2. Health workforce	Doctors, nurses, dentists			▲
	Deliveries by skilled workers	52 (2012-13)	69.3 (2017-18)	▲
	ANC at least one visit	65 (2006-07)	86 (2017-18)	▲
3. Health information systems	PDHS	Yes (2006-07)	Yes (2017-18)	▲
4. Access to Essential Medicines	Prices of 6 Medicines			▼
	CPI for health group	167.15 (2013-14)	182.69 (2015-16)	▼
	Out of pocket expenditures on medicine/vaccine			▼
5. Health Systems Financing	Health expenditure	0.5 (2009-10)	0.5 (2017-18)	=
6. Leadership and Governance	Health policies			▲
	Polio case			▲
	MDGs			=

Source: various sources, author calculations (▲ Improved ▼Detroit= Stagnant)

CHAPTER # 5:

Conclusion

After devolution, Pakistan remained in requisite of comprehensive health system revamping. The Devolution Process is insufficient; this provides prospect to launch sustainable health sector system across the provinces. The research analyzed six building blocks which consist on all aspects of health system.

As the healthcare system is concerned, Pakistan requires essential paradigm transformation - from delivery of healthcare toward producing health. Health protection and advocacy through local level change and sufficient skilled workforce must be given priority. Keeping in view the 23 crore population, health-care services, from primary to tertiary levels of health system - Pakistan need further regionalize the post devolution health care system. In start, the provincial departments should signify the issues and challenges related to all six building blocks. The principal role of the Govt will be restricted to fund the healthcare service, extending policy guide, and M&E the implementation and revamping of system, as per international standards keeping in view the SDGs. Briefly, there should be separate service providers (provinces) and the service financier (federal and provincial government and donors) who will refine monitoring system according to six building blocks. Performance of overall health-care systems are comprehended in Table 20 showing pre and post devolution progress status in Pakistan; the table showed improvements, deterioration and stagnancy in various health sector parameters.

Indeed, the most intimidating mission is to familiarize the good governance in all provinces, however, the ultimate prerequisite for devolution efforts to succeed. With the social and economic liberty, the masses could hardly get their requisite potential. Unadulterated devolution system coupled with frequent increase in investment in the socio-economic sectors is mandatory step for the provinces. Health care system may fail to realize its full potential without the public sector commitment to concrete actions toward guaranteeing freedoms for the masses.

CHAPTER # 6:

Policy Recommendations

The following policy recommendations are suggested for health stakeholders and specifically Government at federal and provincial level in Pakistan:

i. Dissemination and transparency of health related information for registration of essential medicines is need of the hour. Ministry of Health may supply publically lists of the registered and deregistered drug authorities in Pakistan.

ii. Access to indispensable medicines consists because of the prescriptions given by doctors and specialist serving in the private sectors across the country. If clinics are observed in metropolitans, the private doctor have developed pharmacies in their private clinic and prescribed drugs that are available only with them.

iii. In order to bring an indispensable impact for comparable parameters, priority may be given to follow regional practices and measures to adapt them. As, there was few immediate fix which may be conceived by spending the money, keeping the foreign aid, and investing into structures, if values in human resources not developed and maintained at certain level.

iv. The research study recommends that health facilities in country may develop the catchment areas to be able to serve at wider population. The health facilities may be distributed evenly in a manner that a facility is not over addressed while the rest of medicines serve fewer clients.

v. It is imperious that stakeholders and policy makers may prioritize their agendas to quality delivery of public health service to make solid basis for sustainable economic development.

vi. The aforementioned policy at federal and provincial level should be implemented with priority with the help of all stakeholders. The stakeholders include federal and provincial governments, UN system, NGOs, pharmaceutical companies, and respective work force practicing in private.

vii. After the start of 18th Amendment to Constitution in Pakistan, province and the local government have been reserved by number of the skill in developing key healthcare policies and in-adequate capacity to channelize reform. The Government and

departments at province level requires currently is key multi-pronged method which will advance delivery of primary and tertiary health system by developing on available infrastructure and expanding service into provinces with partial outreach. Funds for health system, a formal health system of M&E may be implemented to certify that government funds are correctly used.

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