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Shahid Khan April 23, 2020

Retention of Physicians in Primary Health Care Facilities of Khyber Pakhtunkhwa

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An abstract of
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Abstract

Retention of Physicians in Primary Health Care Facilities of Khyber Pakhtunkhwa

By Shahid Khan

Despite extensive primary health care infrastructure, Khyber Pakhtunkhwa (KP) has failed to improve utilization of its primary health care facilities (PHCFs). A shortage of key cadres in the health workforce is one of the main reasons behind this problem. This case study aimed to identify factors behind poor retention of physicians in PHCFs across KP. A descriptive review was performed in this study using general Cochrane systematic review methods. This review examined the problems of physician retention in rural areas and PHCFs in different parts of the world and also assessed successful interventions implemented by different countries to resolve this issue. Policy documents and reports from Department of Health (DoH) KP were also explored to understand the current situation in KP and strategies implemented in this regard. It was observed that challenges related to physician retention in PHCFs of KP include lack of incentives, lack of career development opportunities, geographical inaccessibility, poor health facilities infrastructure and quality of life in rural areas. The study observed that these problems are remarkably similar to problems faced by other countries around the world. The strategies adopted by government of KP in the recent years have failed to achieve desired outcomes. This failure is widely attributed to lack of evidence-based policies and interventions implemented in the recent past. Based on effective strategies, successfully implemented in different countries to tackle this problem, this study recommended policy guidelines for DoH KP to improve physician retention in PHCFs. These comprise facility and services based financial incentives, restrictive measures and sanctions for physicians, personal and professional development opportunities, introduction of postgraduate family medicine residency programmes; and encouraging female physicians to enter practice. This study advocates that incorporating these recommendations into human resources for health (HRH) policies, DoH KP can improve physician retention in its PHCFs, particularly in rural areas.

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Table of Contents

Chapter 1: Introduction

A strong health workforce is an integral part of an effective and well-functioning health system. An adequate health workforce is vital to achieving health goals of populations worldwide. Countries around the world, irrespective of their socioeconomic level, are facing a variety of challenges related to education, training, recruitment, distribution and retention of their workforce. Despite being a core component of a well functioning health system, the importance of the health workforce has not been recognized until the recent past. (Roncarolo, Boivin, Denis, Hébert, & Lehoux, 2017). However, in 2006, the World Health Organization acknowledged its importance and dedicated the World Health Report 2006 entirely to the human resources for health (HRH) crisis and expressed its concern that Millennium Development Goals (MDGs) may not be achieved in the light of HRH crisis. (World Health Organization, 2006). In the post-2015 era, when a transition was made from MDGs to Sustainable Development Goals (SDGs), the importance of the health system and HRH was further acknowledged in the new SDG targets. These include achieving Universal Health Coverage (UHC) and substantially increasing health funding and recruitment, training and retention of health workforce particularly in developing countries. The Global Strategy on Human Resources for Health: Workforce 2030 (GSHRH) was developed to help countries address health workforce challenges in achieving UHC. (World Health, 2018). Among different cadres of health care professionals (HCPs), physicians and nurses/midwives are two subgroups that the GSHRH is focusing on and are vital to achieve health related SDGs targets particularly UHC, globally. WHO recommends that at least 2.5 HCPs (physicians, nurses and midwives) are required for provision of adequate primary care services per 1000 population. (World Health, 2016).

Physicians are one of the most skilled and important constituents of the of health workforce. WHO recommends at least 1 physician per 1000 population to ensure adequate primary health care. (World Health, 2016). However, the majority of World Bank classified low income countries (LICs) and low and middle income countries (LMICs) have failed to achieve the target. According to World Bank estimates, only 5 out of 49 LMICs have managed to achieve the WHO recommended threshold for physicians. The problem is further aggravated by urban-rural maldistribution and outmigration of physicians towards high income countries. Rural-urban maldistribution equally impacts developed countries which in turn attract physicians from LICs and LMICs, further exacerbating the situation in these countries. This ultimately has adverse impacts on rural populations in LICs and LMICs which comprise 66% and 50% of their total population respectively. (World Bank, 2017). The rural populations mostly depend upon primary health care facilities (PHCFs) to seek medical advice and the shortage of HRH, particularly physicians, is one of the factors that results in underutilization of these facilities, in addition to shortage of essential medicines, technology and equipment.

Pakistan, a LMIC situated in South Asia, is also affected by the global health workforce crisis and only 1.45 HCPs are available to serve 1000 people, compared to WHO recommended 2.5. (Zaidi, Idrees, & Riaz, 2019). Although Pakistan has 8 physicians/10,000 population, geographical distribution of the physician workforce highlights a crisis that is more nuanced. Over 60% of the Pakistan's population resides in rural areas but physician density in rural health facilities is four times less than urban health facilities, with substantial variations from province to province. (World Bank, 2015).

Khyber Pakhtunkhwa (KP) is a province situated in the northwest region of Pakistan. Over 80% of the population in KP lives in rural areas and health services to the rural population are mostly

provided by PHCFs. Despite the fact that KP has one of the largest primary healthcare infrastructures in the country, these facilities are underutilized and only one in eight individuals seeking health care services visits these facilities. (Pakistan Bureau of Statistics, 2016). A documented shortage of HRH, particularly physicians, is one of the main reasons for such underutilization in addition to the absence effective primary health care policies, poor funding, ineffective referral system and variation in public and private medical practice. Retention of physicians in the PHCFs has been a chronic problem since the inception of the primary health care system in the province. (Kurji, Premani, & Mithani, 2016). There are only 2 physicians available per 10,000 population in the rural parts of KP. Over the past couple of decades, government and health authorities in KP have been working hard to improve physician retention in the PHCFs of rural areas but have failed to achieve the desired outcomes. (S. Zaidi et al., 2019).

This case study serves to analyze the factors associated with poor retention of physicians in primary health care settings across KP and to assess the strategies that have been pursued to address poor retention. Furthermore, this study will also identify gaps in these strategies which have resulted in failure to achieve the desired results. Finally, seeking guidance from the evidences collected through peer-reviewed articles regarding strategies that have been designed and successfully implemented by other countries (having a similar administrative health system structure and sharing more or less the same geographic, demographic and/or economic characteristics) and documents and reports from the international health agencies like WHO and the World Bank, a set of recommendations will be put forward for Department of Health (DoH) KP to help the ministry take effective steps to curb the problem.

1.1. Khyber Pakhtunkhwa: Geography and Demography

KP is one of the four administrative provinces of Pakistan, located in the northwestern region of the country. It borders Afghanistan to the west through Federally Administered Tribal Areas (FATA-whose merger into KP is underway); Azad Kashmir and Gilgit-Baltistan (Pakistan administered areas of Kashmir) to the east and northwest; and Punjab and Balochistan to the southeast and southwest respectively.

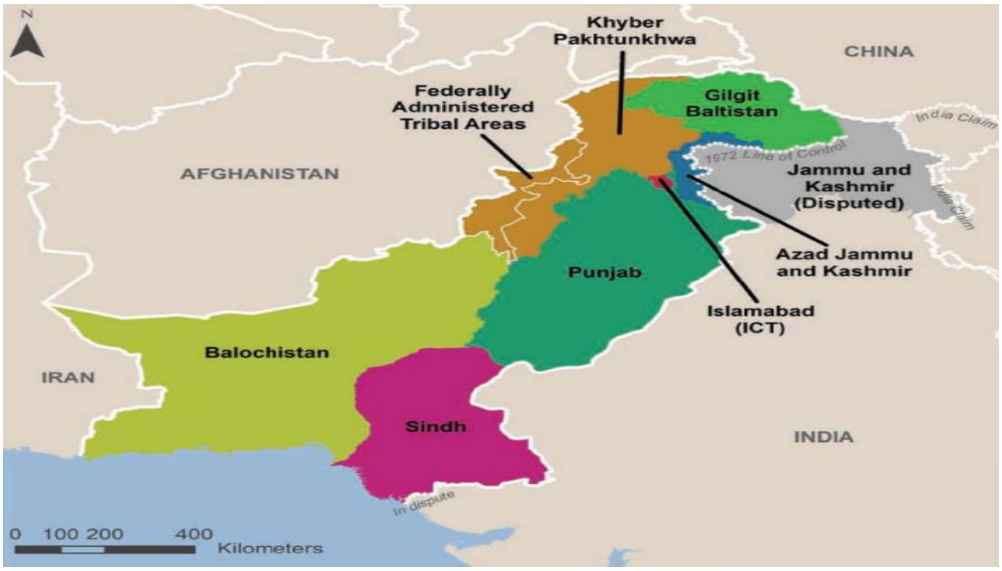

Figure 1. Map of Pakistan showing provinces and borders
Image Source: Survey of Pakistan (http://www.surveyofpakistan.gov.pk)

KP consists of twenty-five districts with a population of 30.5 million, stretched over an area of 74,521 square miles. The average household size is 7.6 people with 81% of the total population living in rural areas and 18.8% living in urban areas. (Government of Khyber Pakhtunkhwa, 2019). The district boundaries and population density per kilometer square maps are shown in Figure 2.

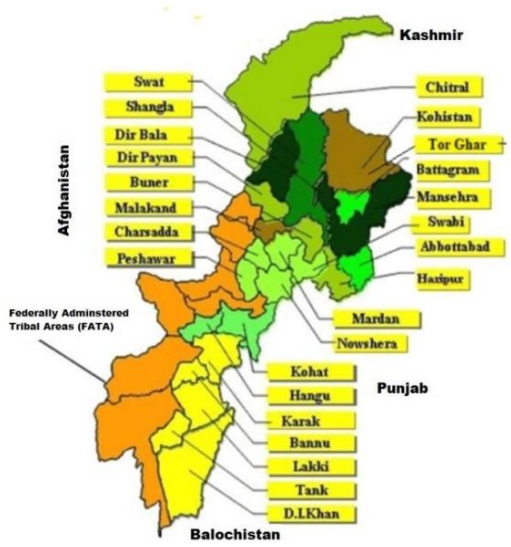

Figure 2a. KP map showing districts

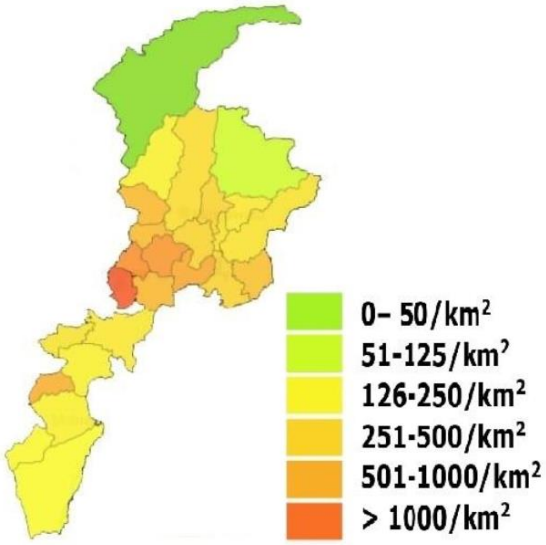

Figure 2b. KP map showing population density/km²

Image Source: Pakistan Bureau of Statistics (http://www.pbs.gov.pk)

The Environmental Protection Agency of KP divides these districts into 4 agro-ecological zones as shown in table 1. (Environmental Protection Agency of Khyber Pakhtunkhwa, 2018). This zonal distribution plays an important role as districts in each zone share common territorial accessibility and health authorities take this distribution into account while formulating policies or implementing interventions.

Table 1. Agro-ecological zones of Khyber Pakhtunkhwa with districts

Zone	Description	Districts
A	Higher northern mountains, northern mountains	Buner, Shangla, Swat, Lower Dir, Upper Dir, Chitral
B	Sub humid eastern mountains and wet mountains	Haripur, Battagram, Mansehra, Abbottabad, Kohistan, Torghar
C	Central Valley Plain	Peshawar, Mardan, Charsadda, Nowshera, Swabi, Kohat, Hangu
D	Piedmont plain, Suleiman piedmont	Bannu, Karak, Lakki Marwat, Tank, Dera Ismail Khan

Source: Environmental Protection Agency of Khyber Pakhtunkhwa, 2018

1.2. Khyber Pakhtunkhwa Health System and Service Delivery Structure

The health care system and service delivery in KP is provided both by public and private/not for-profit sectors. Government by means of public health facilities mainly provides preventive health services throughout the province and the majority of curative services in the rural areas.

The public health system in KP (like other provinces) has three tiers: (i) PHCFs which include Basic Health Units (BHUs) and Rural Health Centers (RHCs); (ii) Secondary health care facilities like Tehsil Headquarters hospitals (THQs) and District Headquarters Hospitals (DHQs); and (iii) Tertiary health care facilities which consist of teaching hospitals with attached medical colleges and various kinds of curative services. (Department of Health Khyber Pakhtunkhwa, 2018)

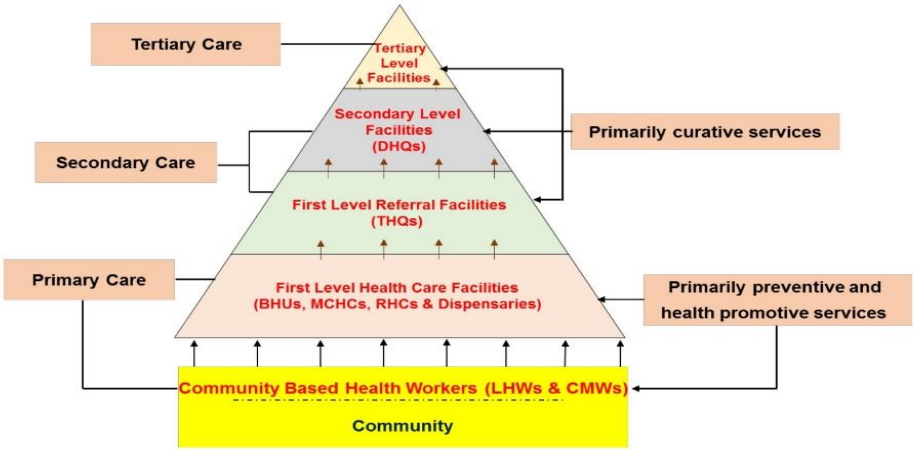

Figure 3. Public Health Facilities by Hierarchy of Service Provision
Image Source: Department of Health, Government of Khyber Pakhtunkhwa

The private and not-for-profit sector, on other hand, consists of a wide range of providers from renowned hospitals to unregistered quacks. Exact data regarding the number of private

facilities and service providers is not available but provincial ministry officials estimate that the private sector provides 40% of outpatient and 10% inpatient health care. (Department of Health Khyber Pakhtunkhwa, 2018).

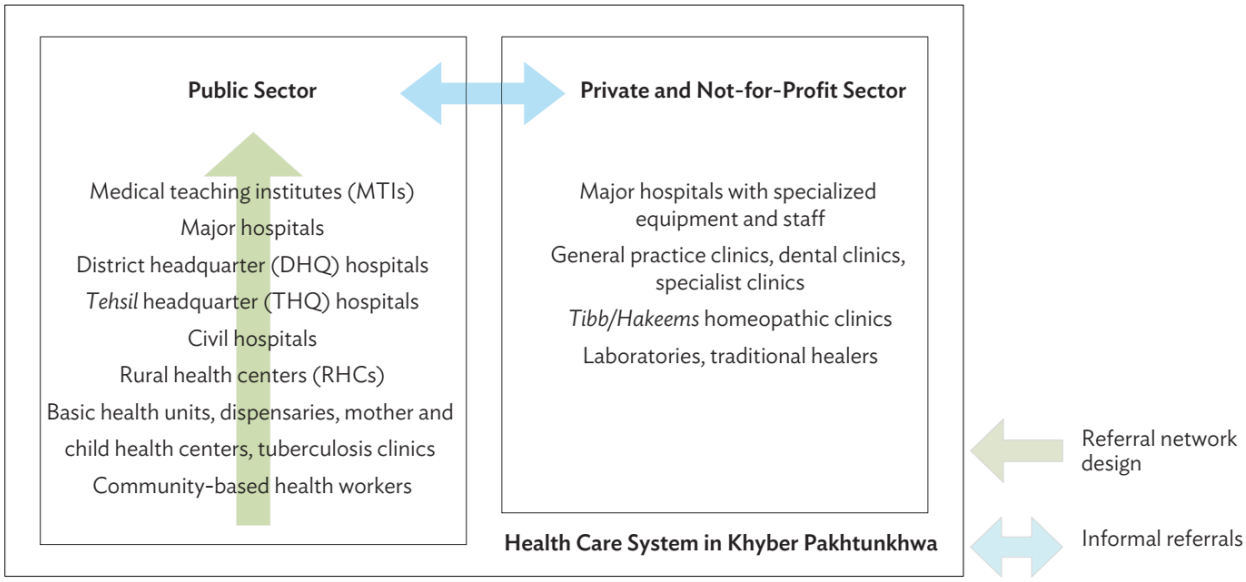

Figure 4. KP Health Care System and Service delivery
Source: Government of Khyber Pakhtunkhwa, DoH. 2018

1.2.1. Khyber Pakhtunkhwa Health Organizational Structure

The provincial ministry of health commonly called Department of Health (DoH) is led by a Health Minister, who is a member of the elected government. The provincial health department is divided into the Health Secretariat and Health Directorate, led by Secretary of Health and Director General of Health Services (DGHS) respectively, both of whom are civil servants. The Secretary of Health is responsible for overall functioning of the DoH while the DGHS is responsible for supervision and managing of primary and secondary health care services at district level. Health services at district level, are in turn, supervised and delivered by the District Health Officers (DHO). The organizational structure at district level is given in Figure 5.

Furthermore, the DoH is facilitated by various autonomous bodies like the Health Care Commission, the Medical Teaching Institutes and the Health Foundations. These bodies have been set up under the legislative acts of provincial assemblies. (Department of Health Khyber Pakhtunkhwa, 2018). The organograms for the organizational structure at provincial and district level are given below.

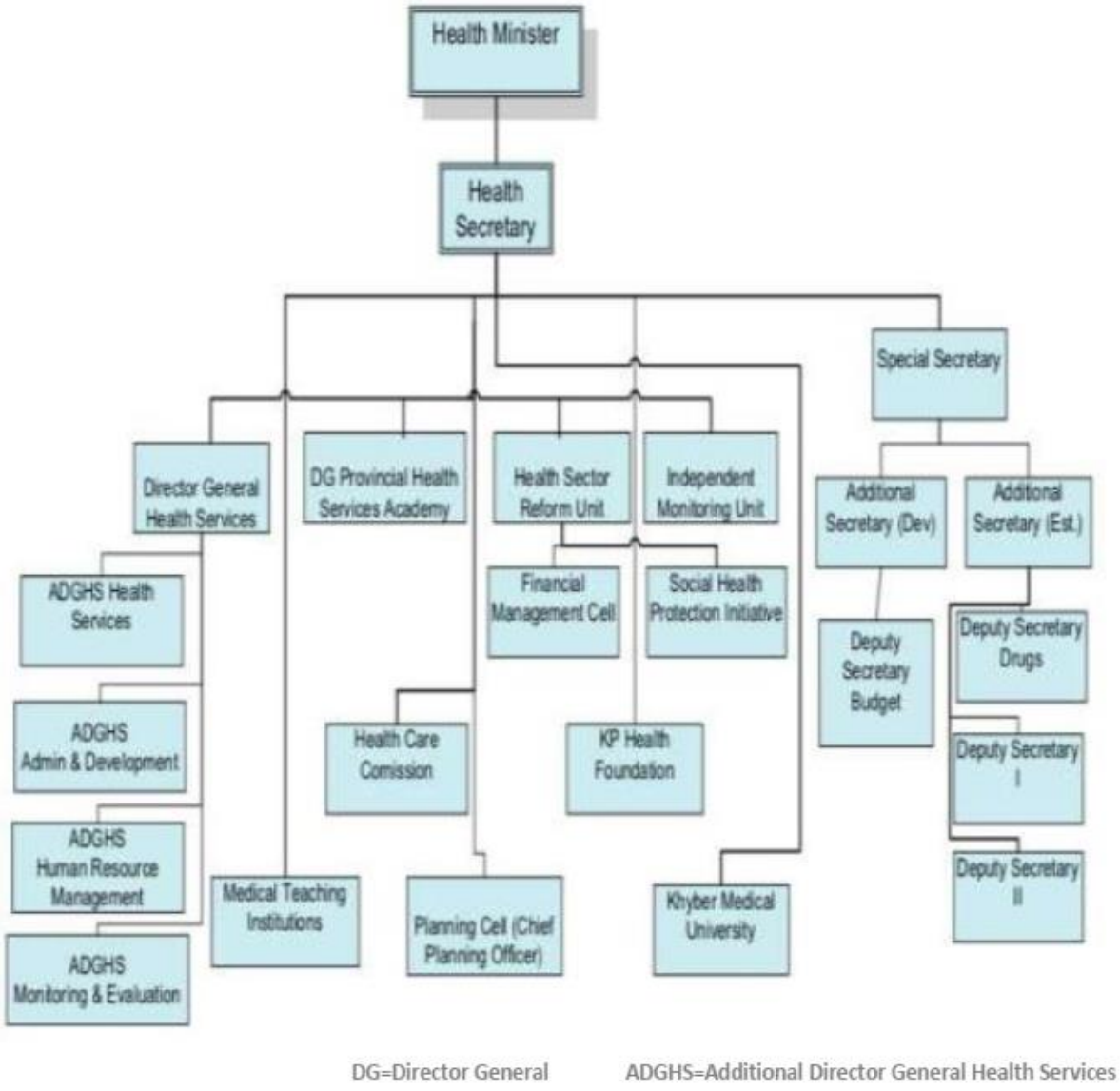

Figure 5: Organizational Structure of DoH, Khyber Pakhtunkhwa
Image Source: Khyber Pakhtunkhwa Department of Health, 2018

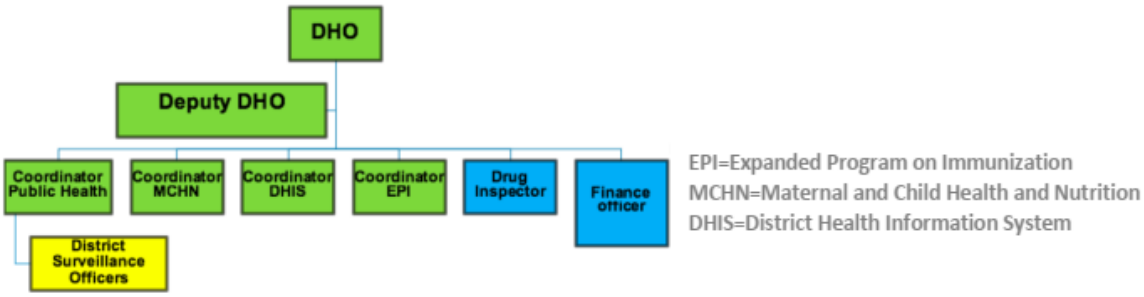

Figure 6: Khyber Pakhtunkhwa Health Organization at District Level
Image Source: Khyber Pakhtunkhwa Department of Health, 2018

1.2.2. Primary Health Care in Khyber Pakhtunkhwa

The primary health care system was initiated in Pakistan in 1980s after the famous Alma Ata declaration of 1978. ("Declaration of Alma-Ata," 1978). The government is the largest provider of free-of-cost primary health care services across KP. This includes both curative and preventive services offered through an expanded network of first level health care facilities and out-reach health workers. (Department of Health Khyber Pakhtunkhwa, 2018)

However, both formal and informal private health care networks are frequently consulted by the population across KP, which accounts for significant “out of pocket” health expenses. According to the latest Pakistan Social and Living Standards Measurement Survey 2014-2015, conducted by the Pakistan Bureau of Statistics, 61% of sick people in KP consulted private health facilities (includes both formal and informal) while only 39% consulted public facilities. (Pakistan Bureau of Statistics, 2016)

The basic health unit (BHU) is the first line of primary health care and preventive as well as curative services and is also the first referral point to the secondary or next level of health facilities. Each BHU is staffed with a physician, a trained female birth attendant, vaccinators, paramedics and other auxiliary staff. A Rural Health Center (RHC) offers the next level of care

and provides both inpatient and outpatient services (Department of Health Khyber Pakhtunkhwa, 2019). An overview of these PHCFs is given in the table below.

Table 2. Overview of Primary Health Facilities of Khyber Pakhtunkhwa

Description	Basic Health Unit	Rural Health Center
Catchment Population/Area	Population of around 10-20 thousand, mostly one per union council	Population of around 100 thousand Cluster of 4-5 union councils
Services Offered	6 hours planned education services 6 hours outpatient and referral services 6 hours antenatal, postnatal and delivery services Limited lab services and immunization	24/7 emergency services (RTA/insect bite/dog bite, First Aid 24/7 inpatient services (20 beds) 6 hours outpatient services 24/7 delivery and newborn services 6 hours minor surgical services ensuring infection control (stitching, abscess drainage, back slab plaster etc.) 24/7 medico legal services
Technical Staff	01 physician 03 primary health care (PHC) technicians 01 Lady Health Visitor (LHV) 02 Dai (midwife)	05-07 Physicians 01 Dental Surgeon 05-07 PHC Technicians 03-05 LHVs 02 Lab Technicians 02 Radiology Technicians 02 Surgical Technicians

Source: Department of Health Khyber Pakhtunkhwa, 2019

As the foundational tier of healthcare infrastructure, the BHU plays a pivotal role in provision of accessible health services at community level. KP has comprehensive network of BHUs to ensure primary health services delivery and as of 2019, there were 769 BHUs and 111 RHCs (Department of Health Khyber Pakhtunkhwa, 2019). However, these centers are underutilized due to infrastructural and administrative deficiencies. According to the latest survey conducted by PBS, only 11% people in KP choose to visit BHU/RHC for health consultation, 2% of the urban and 13% of the rural population. (Pakistan Bureau of Statistics, 2016). Lack of political will, shortage of resources and absence of effective primary health care policies are among the major reasons for these deficiencies and resulting underutilization. (Kurji et al., 2016).

Over the past few decades, the government of KP has devised different strategies to enhance the utilization of primary health care centers. These include construction of living quarters and residences for the physicians and female staff, enhancing non-salary and operational budget, introduction of a health information management system to evaluate the performance and raise in physicians' salary to attract them towards primary centers, particularly in rural areas. (Malik, Van de Poel, & Van Doorslaer, 2017).

The KP government is working towards improvement of utilization of primary health care centers across the province, particularly in the rural areas to decrease the burden on secondary and tertiary health care centers. Improved primary health care at public facilities will decrease the catastrophic and impoverishing health expenditures resulting from private health services in a province with a significant poor population. (Inayat Thaver, 2016).

1.3. Retention of Physicians in Primary Health Care Centers in Pakistan

Among various factors that lead to poor utilization of primary health services is the retention of physicians in the primary health care centers, particularly in the rural areas. It is quite a chronic problem and since the inception of the primary health care system in the early 1980s, the government of Pakistan and KP have been working to improve physician retention in the primary health care center. Despite its serious efforts, particularly in the last few years, DoH KP has failed to achieve desired results.

Physician retention in primary health care centers, particularly in rural areas, is a serious public health problem worldwide. According to World Health Organization (WHO), the rural population accounts for one half of the total world population but only 25% of the total physicians' workforce serves it. The situation varies from country to country, but this

geographical imbalance equally affects both developed and developing countries. (World Health Organization, 2010b). Owing to the increased focus of health agencies towards primary health care in recent years, particularly in rural settings, researchers and policy analysts have put their efforts into identifying and implementing strategies that are effective to address shortages of health workforce.

According to WHO, Pakistan is one of 57 countries with a health workforce crisis. (World Health Organization, 2006). These crises include urban-rural maldistribution, issues related to retention in the rural areas, skill mix, education and training quality, standards and accreditation, absorption capacity, brain drain from rural to urban areas and abroad, and lack of friendly working environment. (Abdullah et al., 2014). To address these issues Pakistan needs multi-sectoral strategic approach that is effective and feasible across the country.

Among different health work force cadre crises, physician retention in the primary health facilities, particularly in rural areas, is one that is much debated, and Pakistan has failed to tackle this problem and produce desired outcomes over the years. According to World Bank statistics in 2015, Pakistan with a physician per 1000 population ratio of 0.82 falls behind the recommended threshold of 1 physician per 1000 population. (World Bank, 2015). However, the situation worsens when it comes to urban-rural distribution of physicians. Despite the fact that 63% of the population is rural, a recent Primary Health Care Profile and Performance (PRIMSYS) case study about Pakistan reveals that urban to rural ratio of physicians per 10,000 population is 14.5 to 3.6, which clearly indicates maldistribution of physicians in the country. The situation varies from province to province. (S. Zaidi et al., 2019)

1.3.1. Retention of Physicians in Primary Health Care Centers of Khyber Pakhtunkhwa

When it comes to the situation in KP, the statistics get even worse. With a rural population of 82%, the physician to 1000 population ratio is 0.3, including both public and private sectors. The situation in primary care settings is worst, particularly in rural areas where the population almost solely relies on the only available government primary health facilities. Also, this is one of the reasons for low patient satisfaction and underutilization of PHCFs in KP and throughout the country. (Rouselle F. Lavado, 2019). There are numerous reasons for poor physician retention in the primary health care settings which include poor health facilities' infrastructure; lack of incentives; insecurities regarding career development; poor housing and inadequate amenities like electricity/water/internet affecting social, personal and family life; security concerns; political interference; inadequate transportation system and road infrastructure; and absence of any effective strategy on the part of DoH to settle these issues (Pathman, Konrad, Dann, & Koch, 2004).

Chapter 2: Literature Review

The health workforce is one of the six core building blocks of a functioning health system. Around the world, countries face a variety of challenges related to health workforce which include but are not limited to: ensuring sufficient supply and distribution, maintaining standard quality of training, providing friendly working environment to maximize their performance and retaining health professionals. (World Health, 2007). In past, the focus of health agencies and donors has been towards relatively easier and targeted areas of health like provision of vaccines and medicine. However, with the advent of technology and resulting increased awareness of health challenges like HIV/AIDS, Ebola; accelerated labor migration; and challenges related to scaling up interventions, the importance of HRH has been acknowledged and it has been incorporated into the global agenda. (Reich & Takemi, 2009). This statement is well-supported by the fact that WHO has devoted "The World Health Report 2006" to health workers. (Hernandez-Peña et al., 2013).

Physicians are one of the most important components of the health workforce. Provision and retention of physicians have historically been challenging around the world. This is mainly due to chronic and growing shortage of physicians due to ever increasing health needs of population and insufficient supply. On one end, half of the world population living in the rural areas is attended by a quarter of the physicians' workforce, whereas half of the total physicians are serving in the urban areas comprising one-fifth of the total world population, on the other end. (World health Organization, 2010a). The problem of retention of HRH in the primary and rural health care settings is a global issue which affects all countries, irrespective of their levels of income. Factors affecting the distribution of HRH vary by the category of health workforce. For example, highly qualified and skilled category of workers like physicians have a proclivity to

find a job and settle in urban and wealthier regions, highlighting the sunk education cost and a stronger need and desire to achieve promotion and a higher standard of living. Likewise, a greater number of less skilled workers are concentrated in rural or poorer areas. (Dussault & Franceschini, 2006) ,

2.1. Physician Retention in Primary and Rural Health Care Centers of High-Income Countries

As already mentioned, high income countries also face the problem of geographical maldistribution of health workforce, particularly physicians. America and Canada are two examples. Approximately 20% of the American population lives in rural areas, but it is served by only 9% of the total physicians. (Bolin et al., 2015). There are plenty of factors that influence a physician's choice to work in a rural setting. Studies show that individual characteristics like rural upbringing, exposure and personal attributes; medical school/residency and level of preparation, emphasis and exposure it provides for rural practice; and placement preferences which includes financial incentives; and spousal preferences are a few very common factors and dimensions that influence physicians choice to serve in a rural setting. (Hancock, Steinbach, Nesbitt, Adler, & Auerswald, 2009).

The situation is similar in Canada, where 18% population lives in rural areas and are served by 8.5% of the total physician cadre. The proportion of fresh medical graduates planning to serve in rural parts of the country is 16% less than the demand. Various factors that influence choice of physicians to work in rural areas are: financial incentives, previous exposure or life experience to the rural environment, ability to practice a wide range of skills, opportunity to work in hospital as well as community settings, and spousal preference and opportunities for employment in the rural parts of the country. (Mitra, Gowans, Wright, Brenneis, & Scott, 2018)

In Australia, the situation is even worse, where 29% of Australian population is living in the rural and remote areas. However, 274 physicians serve a population of 100,000 in rural Australia, compared to 433 physicians serving the same number in the urban areas. (Young, Peel, O'Sullivan, & Reeve, 2019). The Rural Health Issues survey of 2016, conducted by the Australian Medical Association, identifies factors that influence tendency of physicians to work in rural areas. These include: financial incentives, professional isolation and limited access to professional development, work intensity and working environment, representation of physicians/medical students from rural/remote parts of the country, access to locum relief program (program designed to incentivize HRH working in rural Australia), limited support, and education and employment opportunities for family members (Australian Medical Association, 2016)

Challenges to physician retention are remarkably similar in the U.S., Canada, and Australia.

2.2. Physician Retention in Primary and Rural Health Care Centers of Upper- Middle-Income Countries

Depending upon level of income categorizations, e.g. low income, middle income, problems of physician retention in rural and primary health care settings become more serious. South Africa, where 46% population resides in the rural areas but is served by a mere 12% of the total country's physician strength, is a case in point. (World health Organization, 2010a). Kotzee et al. noted that besides incentivizing physicians financially to encourage them to work in PHCFs across the country, various other barriers to rural practice of physicians need to be considered and dealt with. These factors include: poor working conditions and infrastructure, concerns related to further education and career development, understaffing and heavy workload, shortage

of recreational facilities and family matters, job satisfaction, and strengthening hospital management.(Kotzee & Couper, 2006).

Another upper middle-income country is Brazil. The world's fifth most populous country is divided into 26 states. Although, the rural population is 13% of the total population maldistribution is obvious particularly based upon level of health care facilities and geographical zones. The southeast region of the country which is well developed and comprises approximately 43% of the total population is served by 58% of the total physicians in the country. On the other hand, the north and northeast regions which are not well developed and are among the poorest regions in the country constitute 8% and 28% of the total Brazilian population, respectively. Only 4% of the total physician workforce serves in the north region and 16% in the northeast region. (Cortez, Guerra, da Silveira, & Noro, 2019). Brazil has mixed type health system containing both public and private health sectors. Physicians are allowed to serve in public sector and private sectors simultaneously. Serving in private sectors provides job security while it also helps them to earn extra income. This only encourages physicians to move to well-developed and settled areas and increases their inclination towards specialization as it improves their chances of practice in private sector. This in turn leads to shortage of physicians which ultimately affects PHCFs, as physicians with specialized education are reluctant to serve in primary care facilities. There is an internal migration to the regions of the country with specialized hospitals and opportunities for private practice. (Lindelow, Gragnolati, & Couttolenc, 2013).

2.3. Physician Retention in Primary and Rural Health Care Centers of the Low and Middle-Income Countries

LMICs find themselves with even more complicated problems when it comes to HRH retention in primary and rural health facilities. Financial constraints deteriorate the overall condition of health system further. (Mbemba, Gagnon, & Hamelin-Brabant, 2016). Situation and factors related to distribution and physician retention may vary, depending upon country and/or region, but problems are more or less similar. In addition to the problems related to rural to urban migration of skilled health workforce these LMICs face, there is another problem that adds further insult to injury. The problem is migration of HRH from LMICs to HICs. The lack of opportunities and facilities in the home country act as push factors for physicians and nurses to migrate to HICs. Higher wages, increased career development opportunities, better-quality lifestyle and flexible immigration policies for skilled workers in HICs are among pull factors for physicians from LMICs to emigrate. This type of migration is likely to further aggravate problems in LMICs. (Wickramage, Vearey, Zwi, Robinson, & Knipper, 2018).

Some examples of geographical maldistribution of physicians in LMICs of West Africa and South Asia are given below.

2.3.1. West Africa

a. Senegal

In Senegal 60% of the total physicians in the country are located in the Dakar (Capital) region, which is mostly urban and constitutes 23% of the total Senegalese population. On the contrary, the Kaolack region, which is mostly rural and among poorest regions in the Senegal, is served by

mere 3% of total physicians, although 11% of the total population is located in this region. (Zurn, Codjia, Sall, & Braichet, 2010). Honda et al. noted that insecurities regarding the absence of permanent contracts, shortage and/or unavailability of equipment in the health facilities, and absence of career development opportunities are among the key factors contributing to poor rural physician retention in Senegal. (Honda et al., 2019).

b. Ghana

The case of Ghana, another west African country, is no different where 69% of the total country's physician strength is concentrated in the two largest urban centers of the country (Greater Accra and Kumasi). Snow et al. found that: career development opportunities, clear job descriptions and security and financial incentives could help to retain physicians in the rural health facilities of Ghana. Besides, facilities' infrastructure, accommodation and facilities for the family are other important factors in the physicians' choice of working in the rural regions of Ghana. (Snow et al., 2011).

c. Sub-Saharan African Countries

The urban rural disparity of physicians' distribution is enormously high in countries in the sub-Saharan African region. In Sudan, the physician to population region is 24 times higher in the urban regions compared to rural, while this ratio is 17 times higher for urban regions in Mozambique, compared to rural regions of the country. (Lemiere, 2010). Similarly, in Tanzania where 80% population is living in the rural part, is served by mere 20% of the total physicians' workforce in the country. (Munga & Mæstad, 2009). Lemiere et al. recommend that enhancing funding for rural health; compulsory rural transfer policies for physicians and other health workers serving in the urban areas; and improving rural orientation in the current medical

education system are some of the strategies that could help countries in this part of the world to retain physicians in the rural parts. (Lemiere, 2010)

2.3.2. South Asia

The LMICs in the south Asian region of Asia are also affected by the geographical and facilities level distribution of the health workforce. Countries like Bangladesh, India and Pakistan combined constitute 22% of the world total population, with over 60% population living in the rural parts in each country. (Véron, 2008)

a. Bangladesh

Bangladesh is the eighth most populous country in the world and third most populous country in South Asia. 63% of its total population lives in the rural areas. (World Bank, 2018a). The country is significantly affected by the health workforce crisis. The most skilled health care professionals (HCPs) like physicians are concentrated in the urban regions (major cities like Dhaka), while less skilled HCPs are more inclined towards rural areas. In rural parts of the country, there are only 1.1 physicians in rural regions per 10,000 population whereas the number surges to 18.2 per 10,000 population in the urban areas. 35% of the total physicians in Bangladesh are serving in the four major cities of the country (Dhaka, Chittagong, Rajshahi, and Khulna), while 20% of the total workforce manages the health affairs of the rural population. (Dussault & Franceschini, 2006). Furthermore, the Bangladesh Health Facility Survey of 2014 revealed that 62% of the sanctioned physicians' posts are filled at district and subdistrict levels, which are mostly secondary care hospitals. However, at the union level, comprised mostly of PHCFs, occupancy rate of the sanctioned posts is less than 25%. (Mannan, Ahsan, Jamil, Arifeen, & Liskin, 2017). Darkwa et al. observed that besides the general problems related to

physician retention in rural areas like financial incentives, accommodation, career development etc., there is a need to analyze and revise government's rural health policy to deal with all the outstanding issues related to rural retention. This includes fair and transparent promotion system for rural physicians, enhancing local manager authorities to reduce workers absenteeism and introduction of a specific rural physician retention policy at national level. (Darkwa, Newman, Kawkab, & Chowdhury, 2015).

b. India

India, the second most populous country in the world, is also facing the challenge of attracting qualified health workforce in the rural areas which constitutes 66% of its total population. (World Bank, 2018b). The geographic maldistribution of skilled health workers is one of the major hinderances to delivery of quality health care services across the country. The physician to population ratio is four times higher in urban areas compared to rural areas, with 13.3 physicians available in urban and only 3.9 physicians available in rural areas for 10,000 population. Moreover, 60% of the total health workforce serves in the urban parts of the country which constitutes only 34% of the total population. (M. Rao, Rao, Kumar, Chatterjee, & Sundararaman, 2011). Rao et al. observed that attractive salary packages, good facility infrastructure and housing, reserving seats for higher education for physicians serving in remote and rural areas and special quota for students (from rural areas) in medical and nursing schools could result in better rural recruitment and retention of skilled health workers. (K. D. Rao, 2012)

c. Pakistan

Pakistan is the sixth most populous country in the world and second most populous in South Asia. Sharing very similar geographic, cultural and economic attributes to its neighbors,

Bangladesh and India, the country finds itself in a similar situation when it comes to rural retention of health workforce, particularly physicians, in the rural region. Although over sixty percent population lives in the rural areas, the physicians' ratio per 10,000 population is 4 times less than urban areas.

Health care in Pakistan is provided through both public and private sectors. Despite the fact that country has one of the largest primary health care networks in the world, the private sector dominates in the primary health care. 71% of Pakistan's population seek health services from the private sector health providers. (Pakistan Bureau of Statistics, 2010). With currently no effective health insurance policy in place for population in general, almost all the health expenses, from private health services, are 'out of pocket'. (Sarwar & Qureshi, 2013).

Public health care in the rural areas is mostly provided through PHCFs (BHUs/RHCs). However, the latest health survey conducted by PBS shows that only 5% of the population in rural parts of Pakistan consult primary care facilities for health services. (Pakistan Bureau of Statistics, 2016). Among many reasons for such underutilization of public health care facilities is scarcity of HRH, particularly physicians. Shortage of medicine, equipment and geographical inaccessibility are among other reasons. Rana et al. noted that lack of career development opportunities, lack of incentives, poor transportation and access, issues of governance and quality of life are among the most common reasons that physicians decide against serving in the rural Pakistan. (Panezai, Ahmad, & Saqib, 2017).

2.4. Physicians Retention in Primary Health Care Centers: Case of Khyber Pakhtunkhwa

In KP, where four-fifths of the population lives in the rural areas, situation of physician distribution is no different, compared to other parts of Pakistan. As already mentioned, majority of public health care services in KP are provided through PHCFs. However, as the case is with Pakistan in general, these government primary care facilities are underutilized, with only 13% of the rural population seeking health consultations from public health care facilities in the rural areas These reasons for underutilization are the same as those given above.

Among many factors affecting retention of physicians in the primary health centers of KP is geographical accessibility. Geography plays significant role when it comes to distribution of physicians. Districts situated in the north part of KP like Kohistan, Dir, Shangla, Chitral and Torghar have tough terrains and scattered population. Poor road infrastructure makes accessibility to remote parts of these districts even tougher. Most of the districts in this region have a few or no secondary health care centers at all and the population relies on the available public and PHCFs which unfortunately do not offer even minimal quality health services. Also, geographical inaccessibility discourages physicians and other HCPs particularly female health care providers to serve in these regions. Districts towards south of KP like Lakki Marwat, Tank and DI Khan face similar kinds of problems. The situation is relatively better in the central districts like Mardan, Peshawar and Nowshera where there is better road infrastructure and accessibility and the population is not widely scattered. Thus, these districts have better physician retention in primary health care centers and rural areas. (Ahmed, Nawaz, & Khan, 2016).

Shah et al. pointed out that disruption of professional, social and family life is one of the key factors that discourages physicians to join rural health services. Provision of financial and professional incentives and friendly working environment could be helpful in retentions of doctors in the rural settings.(Shah, Zaidi, Ahmed, & Rehman, 2016)

Unfortunately, only a few studies have been conducted to identify specific factors and reasons that affect physician retention in KP. However, as mentioned above, the problems related to physician retention in KP are more or less similar to those parts of the world. A thorough situation analysis will be performed in Chapter 4 to understand the reasons behind this poor retention and measures taken by DoH KP to improve the situation.

2.5. Statement of Purpose

The purpose of this review is to identify the factors behind poor physician retention in the PHCFs across KP and their impact on underutilization of these facilities, particularly in the rural areas. Seeking guidance from the strategies recommended by international health agencies like WHO and interventions implemented by the countries which have been facing similar kind of challenges, this special study project will put forward certain recommendations for DoH KP, which could help the province to tackle the problem effectively.

2.6. Research Questions

This review seeks to address the following questions.

1. What is the current situation of physicians' recruitment and retention in the PHCFs of KP?
2. What strategies, interventions, and programs government of Pakistan and/or DoH KP have been implemented thus far to combat poor physician retention in the PHCFs across

KP? How successful have these efforts been and if these efforts have failed what were the reasons for failure?

3. What are the existing gaps in knowledge which have resulted in poor outcomes and what recommendations can be made to improve the current situation of physician retention?

Chapter 3: Methodology

The purpose of this special study project is to identify problems related to physician retention in the PHCFs of KP, Pakistan. A descriptive review has been performed, for this special study project, using the general Cochrane systematic review methods which included a defined research objective, a specific target population and a clear outcome of interest. (Higgins & Green, 2009). Interventions and comparison groups were not applicable to this special study project. Specific inclusion and exclusion criteria were developed and applied to published peer-reviewed articles in the PubMed/Medline and EMBASE. No meta-analysis was conducted for this study.

The key words used to search the relevant literature in the databases included “Retention of physician” and combinations of terms related to retention of physician (“rural retention of physician”, “retention of physician in PHCFs of Pakistan”, “retention of physician in primary health facilities”, “physician recruitment and retention”, “health workforce crisis”, “human resource for health crisis“, “retention of physicians in peripheries”, “retention of physician in remote areas”). In addition, the term “doctor” and “physician” were also used interchangeably, in combination with the above-mentioned terms.

References were exported to EndNote. Titles and abstracts were reviewed for screening all relevant studies. The evaluation for selection of suitable articles was made by using established inclusion and exclusion criteria.

Inclusion criteria included:

a. Empirical studies from different countries, based on their level of income, which assessed the magnitude of problem and its impact on the population in general and on the rural

population in particular. The purpose was to get a global overview of the problem and strategies successfully implemented by different countries to tackle the issue.

b. All the available empirical studies and peer-reviewed articles from Pakistan, related to rural and primary health care retention of physicians.
c. Reports and documents from international agencies World Health Organization, World Bank.
d. Articles published between 2005 and 2019
e. Articles published in English
f. Full text available through Emory Library catalog
g. Reports and documents from DoH KP, Ministry of Health Pakistan and other relevant departments like Pakistan Bureau of Statistics, Ministry of Finance.

Exclusion Criteria included:

a. Studied population excludes rural population and/or PHCFs.
b. Peer-reviewed articles that include interventions that are not relevant in the context of Pakistan
c. Studies not published in English
d. Full text not available through Emory Library catalog
e. Published before 2005

The references section of the articles which met the inclusion criteria, were scanned and relevant articles were searched in PubMed, Medline and EMBASE. Some of the articles which were obtained were published before 2005. A few of these articles provided valuable information and context to our study and so were included in the list.

The PubMed/Medline and EMBASE search identified 451 articles with the search terms used. When limit was applied to the results for the articles published after 2005 and the articles whose full text was not accessible through library, the number of articles reduced to 288. Citations for these articles were exported to Endnote and abstracts were thoroughly examined for eligibility. After scrutinizing these articles, further screening was done. 219 articles were excluded those which did not include PHCFs and/or rural population; did not discuss focus on retention of physicians; and articles that provided recurring information. Finally, full text for 69 articles were assessed and included to the study project. The flowchart for the selection process is given below.

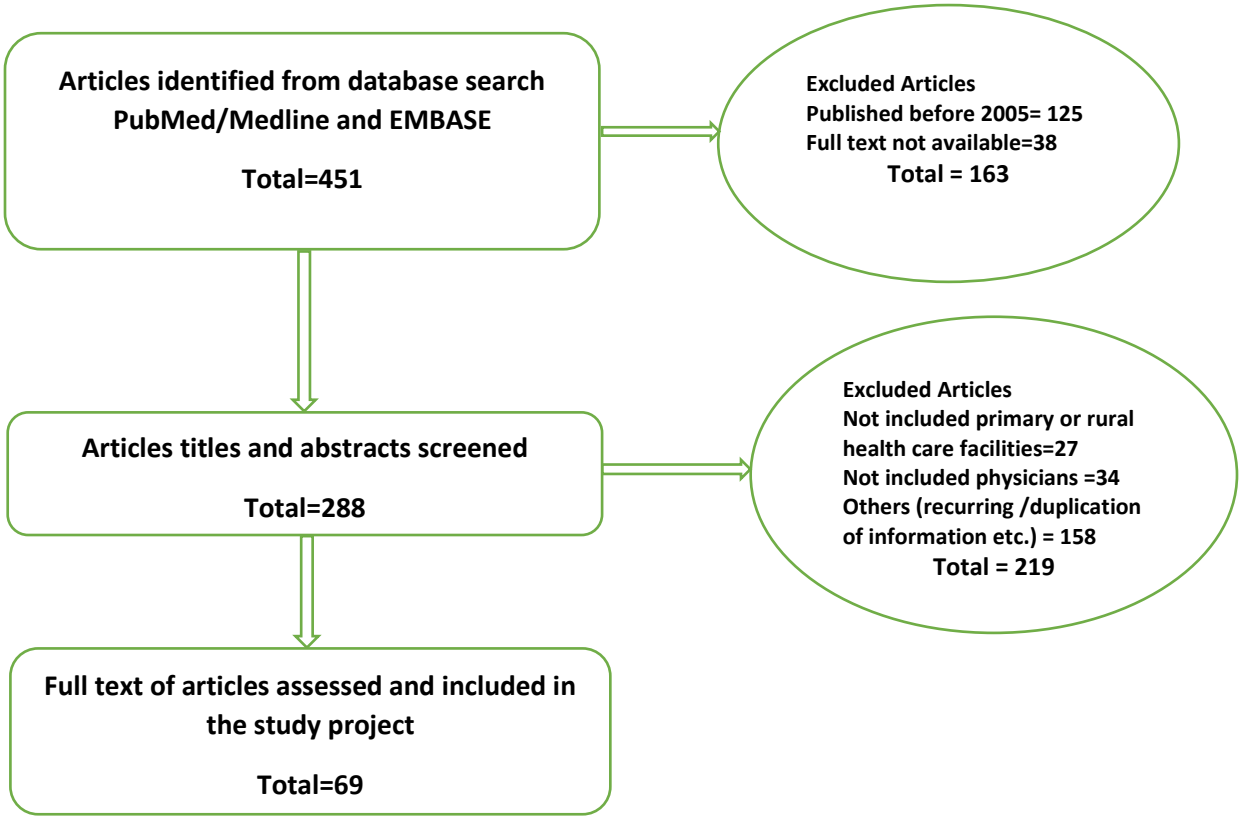

Figure 7: Flowchart of peer-reviewed articles search and retrieval

All the relevant data from these articles were abstracted and managed by means of a Microsoft Excel Spreadsheet. The information included title, weblink, reference, study population, region, publishing year, study design, results and conclusions.

The data related to current status of physicians in primary health centers of KP was not available online, as no such studies have been conducted recently. This data was provided, via email, by Sarhad Rural Support Programme (SRSP) and Independent Monitoring Unit (IMU), DoH KP, upon request. (Khan, 2020). The relevant information was extracted from the documents and reports and summarized in Microsoft Excel Spreadsheet.

Reports and case studies conducted by World Health Organization and World Bank were accessed through their respective websites and used as a source of supplementary information.

Since no human subject research was conducted Institutional Review Board (IRB) was not required.

The results of this review are provided in Chapter 4 as a case study of physician retention in KP.

Chapter 4: Results

4.1. Situation Analysis

This chapter will present the findings of the systematic review in the context of policies and strategies for physician retention in KP. The first section provides the context.

The timeline in Table 3 gives the important milestones from 2000-2019.

Table 3. Policy and Programmatic Initiatives for Primary Health Care in KP

Year	Initiative	Description
2001	National Health Policy	Aimed at reforming the health sector in accordance with Alma Ata Declaration
2006	People's Primary Healthcare Initiative	Contracting out of Basic Health Units (BHUs) to Sarhad Rural Support Programme (SRSP)
2010	18th Constitutional Amendment in Pakistan	Health planning, legislation, financing, regulation, service delivery and HRH production devolved to provinces
2012	Minimum Health Services Delivery Package for Primary Health Care Facilities (PHCFs)	To provide comprehensive primary health care to the community through the network of PHCFs and community-based workers
2015	Independent Monitoring Unit (IMU)	IMU was established to facilitate optimal utilization of government health facilities and making evidence-based decisions
2016	The KP Health Roadmap	To carry out targeted intervention in high priority sectors of health care which include adequate HRH, availability of essential medicine, routine immunization.
2016	Termination of PPHI Contract	Lack of coordination between SRSP and DoH, Limited capacity of DoH to monitor and evaluate the project and lack of continued support from GoKP led to discontinuation of PPHI.
2019	KP Health Policy	Aimed at developing and implementing an accessible, equitable and high quality healthcare through sustainable, coordinated and integrated health system at all levels based on PHC approach through the District Health System.

Initiatives for primary health care in Khyber Pakhtunkhwa like other provinces in Pakistan, started in 1961 with the introduction of the Rural Health Centers Scheme. However, it was the Alma Ata Declaration of 1978 which provided impetus to focus on ensuring primary health care services across the country. With the manifesto of "Health for All" the Alma Ata Conference aimed at providing basic health care for the underserved rural and urban populations, particularly in developing countries. The conference stated that primary health care is essential to delivering better health for all, promoting a healthy lifestyle, mother and child health care, immunization

against vaccine preventable diseases, prevention and control of outbreaks, treatment of common ailments and provision of essential medicines. ("Declaration of Alma-Ata," 1978). The Alma Ata Declaration which Pakistan signed served as the motivation for establishing Basic Health Units (BHUs), the first level of health care facilities which offer both preventive and curative services. Soon after the declaration, Pakistan with the support of international agencies like WHO and the World Bank started working towards accessible healthcare services at community level and now has a comprehensive network of over 5300 BHUs for primary healthcare service delivery. (Wazir, Shaikh, & Ahmed, 2013).

Khyber Pakhtunkhwa, has an extensive network of 769 BHUs, stretching across twenty-five districts. However, since the inception of this network a lack of political commitment, insufficient funding, shortage in the health workforce, infrequent availability of essential medicines and difficult geographical access have led to underutilization of primary health facilities across the province. There have been significant improvements over the past few years but performance indicators have been well below the minimum standards set in the MDGs or SDGs. (Rizvi, Bhatti, Das, & Bhutta, 2015).

Among all the above-mentioned factors, shortages in the physician workforce has widely been considered as the key factor that has led to poor performance of these facilities. Both the Government of Khyber Pakhtunkhwa (GoKP) and the Government of Pakistan (GoP) have been working towards improving the physician retention in the PHCFs but outcomes have not been satisfactory. In this chapter, we will examine two recent strategies implemented by GoKP and GoP to improve physician retention in the PHCFs. These include contracting of Primary Health Care Services (PHCS) to a non-government organization (NGO) that occurred between 2006-

2016 and strategies implemented by DoH KP after the termination of contract from 2016 onwards.

In the next section we will examine the situation from 2011 [1] onwards to get an idea of the improvements KP has made during this period, particularly towards physician retention.

4.2. Contracting of Primary Health Care Facilities

Owing to inadequate functioning and underutilization of PHCFs, the GoP decided to try different models to enhance the quality of care in these facilities through its third National Health Policy in 2001. The policy suggested developing public-private partnerships to improve the management and service delivery of primary health care services. (Government of Pakistan, 2001). The strategy was to improve primary healthcare services within the existing resources through reorganizing of existing infrastructure. It included: improvements in availability of staff particularly physicians and LHVs; supply of essential medicines and equipment; and physical infrastructure of facilities including rehabilitation and retrieval of dysfunctional BHUs. A pilot project was started in Rahim Yar Khan district of Punjab in 2003 under the title of Chief Minister's Primary Healthcare Initiative and evaluation done by the World Bank in 2005 indicated positive outcomes in terms of quality and utilization. (Loevinsohn, Haq, Couffinhal, & Pande, 2009). GoP, in the same year, decided to scale up the project in an effort to enhance functioning of these PHCFs by strengthening curative and preventive services delivery. This initiative was named People's Primary Healthcare Initiative (PPHI) and it is still in practice in Sindh and Balochistan provinces. (Tanzil, Zahidie, Ahsan, Kazi, & Shaikh, 2014).

[1] Data from 2006 to 2010 was not published, hence it was not available online.

4.2.1. People's Primary Healthcare Initiative in Khyber Pakhtunkhwa

After success of the initial pilot project in Punjab, the initiative was expanded to the whole country and the project was officially launched in KP in November 2006. It was implemented through the Sarhad Rural Support Programme (SRSP). SRSP is a provincial organization whose primary goal is to alleviate poverty through development services which include health, education and women empowerment across different rural areas of KPK. The organization was created by the provincial government and is managed by a Board of Directors and members include civil servants and private professionals from civil society. GoKP was the major source of financial resources with small proportion from donor agencies, usually for specific projects. Since SRSP oversees various type of other developmental projects, Programme Support Unit (PSU) and District Support Units (DSU) were created at provincial and district level to oversee and manage PPHI inputs and activities. Funding for the operations of these units was provided by the federal government. (Malik et al., 2017).

Control of over two-thirds of the districts (17 out of 25) and 576 BHUs (75% of total) in KP was handed over to the PPHI. The purpose of contracting the PHCFs to SRSP was to improve curative, preventive and promotive health services the PHCFs offer and to enhance utilization of these facilities by improving availability of HRH especially physicians, adequate supply of medicines and equipment and improving the facility infrastructure through rehabilitation. Martinez et al. noted that the government faced difficulties to attract and retain the physicians, and other types of HRH, like lady health visitors, in these public health facilities (BHUs), was the main reasons for introduction of this type of model.

4.2.2. PPHI Strategies for Recruitment and Retention of Physicians in KP

Like in all other provinces in Pakistan, a BHU in KP has one designated post for physician, titled Medical Officer (MO). An MO is in-charge of the BHU and besides his primary outpatient duty, he supervises the other staff including paramedics, lady health visitors (LHV), and other auxiliary staff like ward orderly, watchman. He is also responsible for all the preventive and promotive health care services offered through a BHU. In the contract agreement, PPHI administration at district level was authorized to hire any staff on contract including the MO, LHVs and paramedics. However, the majority of these facilities had ample staff with the exception of an MO. PPHI's approach to increasing health staff mainly focused on physicians and to some extent LHVs. Recruitment was relatively simple. There was a formal walk-in interview and validation of medical practicing license. MOs hired by PPHI received the same salary as their counterparts in non-PPHI districts. In addition, MOs who were working in these health facilities before PPHI took over and chose to stay were also managed by PPHI. These MOs maintained their status as regular employees of DoH and received their salaries from the said department.

The main focus of PPHI was to ensure the availability of MOs in each health facility under its control. For this purpose, PPHI introduced a "cluster model". In cluster model, MOs were given option of managing a cluster of two or three nearby BHUs. An MO was given extra financial supplements for each additional BHU he managed. The purpose was to ensure availability of MOs in each facility and to enhance utilization of these facilities. If the MO was a woman (titled WMO for government employed and FMO for PPHI contracted), she was also obligated to deliver mother and child health care (MCH) services together with an LHV, another strategy which was exclusive to PPHI. PPHI categorized the districts into Category-I and Category-II,

based on territorial accessibility and provided extra financial incentives to the MOs. Incentives for Category-I were doubled compared to Category-II which were comparatively less hard to reach. DoH employed staff, like medical technicians, LHVs and auxiliary staff in these categories were also incentivized, usually half the amount an MO received.

4.2.3. Situation of Physician Retention in PPHI Districts (2011-2015)

Martinez et al. noted that as a result of these strategies the number of MOs in PPHI managed districts increased over 50% during the first three years whereas the number declined by 10% in the districts managed by DoH. (Martinez et al., 2010). The final report of PPHI after the conclusion of its contract in 2016 indicates that only 6 MOs were available across all BHUs in the PPHI contracted districts when it took over these facilities in 2006. The situation improved over the period and the number of MOs in the PPHI managed districts improved significantly. Table 4 provides details of MOs in these facilities at the end of year 2011, 2013, 2015. (People's Primary Healthcare Initiative, 2016).

Table 4. Number of Sanctioned and Filled Posts in PPHI Managed Districts

Year	Number of Sanctioned MO Posts	Number of Filled MOs Posts	DoH Employed	PPHI Contracted	Percentage of Filled Posts
2011	576	293	80	113	51%
2013	576	536	141	395	93%
2015	575	447	2	445	78%

Source: People's Primary Healthcare Initiative Khyber Pakhtunkhwa, 2016

Moreover, PPHI also focused on recruitment of Female Medical Officers (FMOs) to improve MCH services provided at the PHCFs. The number of FMOs increased from 1 to 94 by the end of programme. In 30 facilities in different PPHI managed districts specific 24/7 MCH programmes were started with provision of free medical tests and ultrasounds. These facilities

were selected by DSUs of the respective districts based upon service utilization, accessibility and catchment area they covered. Final approval was given by PSU. In addition to this, a regular supply of medicines and availability of staff during the duty hours was ensured to further improve service delivery and utilization. (Rouselle F. Lavado, 2019). As a result, a substantial increase in outpatient (OP) attendance was seen every year. Table 5 gives an overview of OP attendance comparison from 2011 to 2015. (People's Primary Healthcare Initiative, 2016)

Table 5: Outpatient Services Attendance Comparison in PPHI Managed Districts

Year	OPD	Percent Increase	Comparison Year
2006 (Baseline)*	16,97,847		
2011	49,53,615	+192%	(2006-2011)
2012	5,126,374	+201%	(2006-2012)
2013	6,297,002	+270%	(2006-2013)
2014	6,220,720	+356%	(2006-2014)
2015	6,726,200	+396%	(2006-2015)

***Before PPHI contracting**

Source: People's Primary Healthcare Initiative Khyber Pakhtnkhwa, 2016

The above data from PPHI reports show that strategies implemented by PPHI to improve service quality and utilization resulted in significant improvement in utilization of the curative services these facilities offered. OP attendance increased by nearly 400 percent during the PPHI period. Third party evaluation conducted, three years after the inauguration of programme, in 2010 revealed that performance measures of PPHI contracted PHCFs in terms of health workforce retention and presence; outpatient attendance and satisfaction; cleanliness and maintenance; and sustainability had improved over the years and was better than non-contracted districts of KP. However, there was no considerable progress in preventive and promotive health services like immunization and family planning. The reason behind such uneven performance of PPHI is

widely attributed to weaknesses in contract management capacity of GoKP. (Martinez et al., 2010).

4.2.4. Reasons for Termination of PPHI Contract

After a decade of mixed performance, with a significant improvement in: staff availability; availability of essential drugs and equipment; and outpatient services but a decline in preventive services like immunization, the contract between the SRSP and DoH KP came to an end in 2016. Various factors behind the uneven performance of PHCFs under SRSP's management and termination of contract are given below.

a. Governance Issues

In the absence of an explicit reform agenda, key performance indicators for services, and without direct involvement of DoH KP, the contract between SRSP and GoKP was designed by the Planning and Development Department (P&D). This led to lack of effective coordinator between the PSU and DoH at provincial level as well as DSUs and District Health Offices at district level as working arrangements were not clearly defined. This resulted in an agreement that was focused on curative more than preventive services. Although contract at provincial level included transfer of all the services offered at a BHU, preventive and promotive outreach services were either not included in district level contracts or were not implemented. As a result, line management of staff responsible for preventive and promotive services (Vaccinators, Technicians, Lady Health Supervisors etc.), remained with district DoH and the PPHI contracted MO, who happened to be in-charge of the facility, did not have line management authority over them. This ambiguity led to poor monitoring of outreach field activities which were previously managed at facility level. (S. Zaidi et al., 2019).

b. Funding and Accountability Issues

Funding remained a major concern for PPHI throughout its course, especially towards the end of the programme. Funding for management staff at PSU and DSUs was provided by the federal government while BHUs budget was prepared at district level and allocated to PPHI after approval. Often, there were departmental delays in release of funds and resulting interruptions in release of salaries for hired staff particularly MOs. This often led to protests and resulting disruption of services at PHCFs. The PPHI administration often blamed the district health administration for deliberately delaying the release of funds to denigrate the programme's reputation.

DSUs had a single-line budget transfer and authority to freely move funds across different services. In addition, PPHI administration was not required to return any unspent balance to the provincial treasury and it was exempted from public audit of its accounts which raised many questions over the financial transparency of the programme. (Malik et al., 2017).

c. Health Care Management Competency of PPHI Administration

Most of the staff managing PPHI affairs at provincial and district level in KP did not have health programme management related experience like monitoring and evaluation, procurement, financing. An independent third party evaluation conducted in 2010 revealed that there was barely any staff at district or provincial level which had previous experience of managing health care and had minimal public health experience. The appointment criteria were vague and health management experience was not taken into account during recruitment. (Martinez et al., 2010).

d. Monitoring and Supervision

Monitoring and supervision of PPHI services was not routinely conducted because neither the contract agreement mentioned anything related to it nor did the DoH have ample financial and human resources to carry out program monitoring. (S. Zaidi et al., 2019).

e. Devolution of Health Sector

The 18th constitutional amendment of 2010is widely regarded as a turning point in Pakistan's history as devolution of legislative and executive authorities of 15 departments, including health, from federal to provincial level occurred. (Nishtar et al., 2013). Health planning, legislation, financing, regulation, service delivery and HRH production has been devolved to provinces. (S. A. Zaidi et al., 2019). A brief overview of distribution of federal-provincial roles and authority is given in Figure 8. This devolution provided DoH an opportunity to design and implement its own health policy. Owning to complexity of problems resulting from ineffective coordination between DoH and PPHI especially at district level, DoH decided to terminate PPHI's contract in 2016. (Yusufzai, 2016). DoH took over the PHCFs and implemented its own reforms.

Distribution of federal–provincial roles and authority		
Functions	**Federal**	**Provincial**
Health planning	International agreements and targets	Policies, strategies, plans, legislations
Financing	Co-financing preventive vertical programmes (interim arrangement) Insurance regulation	Financing curative+preventive Financing arrangements
Human resource	Licensing HR production	HR planning, deployment, management
Service delivery	Oversight on international agreements	Services menu, programming, implementation
Drug supply	Licensing, registration pricing	Market surveillance, supply systems
Health information system	Research Surveillance	Monitoring & Evaluation Surveillance
Governance	Standard setting	Strategic purchasing, regulation, accountability

Figure 8: Overview of Federal and Provincial Roles and Authority-Post 18th Amendment
Source: BMJ Global Health (https://gh.bmj.com/content/4/1/e001013)

4.3. DoH Strategies for Recruitment and Retention of Physicians in KP

After the 2013 election, a new government setup was established in KP with a clear manifesto of reforms in social services including health. The devolution of powers to the provinces provided KP freedom to design and implement its own policies and reforms even as the new GoKP decided to bring major reforms in health sector. As relationships between DoH and PPHI administration further deteriorated GoKP decided to terminate PPHI's contract and bring its own reforms to the primary health care. For this purpose, DoH launched "The Khyber Pakhtunkhwa Health Roadmap" in 2016.

4.3.1. The Khyber Pakhtunkhwa Health Roadmap

In 201, GoKP established an Independent Monitoring Unit (IMU) at DoH to regulate the performance of public health facilities and to improve quality of services through evidence-based decisions. (Government of Khyber Pakhtunkhwa, 2018). In the following year, the Khyber Pakhtunkhwa Health Roadmap was introduced. The key areas of this roadmap for primary health care were:

- to improve availability of HRH at PHCFs.
- to ensure availability of essential medicines.
- to strengthen routine immunization at these facilities.
- and to establish a reliable disease surveillance system through an IMU. (Independent Monitoring Unit, 2020).

4.3.2. DoH Strategies for Recruitment and Retention of Physicians in KP

Despite failures to improve preventive and promotive services at PHCFs, PPHI was successful in ensuring availability and retention of MOs. Learning lessons from PPHI, DoH decided to adopt a

similar strategy to maintain and improve MOs at PHCFs. For this purpose, DoH as part of its health roadmap strategy, started to recruit MOs on an ad-hoc basis and through the public service commission. At the same time major changes have been made to the service parameters of MOs across the province through Medical Officer and Dental (regularization of services) Act, 2015. These changes include regularization of service and rationalization of financial incentive packages based upon terrain, geographical accessibility, security situation and lack of development and infrastructure. Consequently, the health professional allowance (HPA) for physicians working across KP has been increased from three to six times the baseline existing during the PPHI period, based on remoteness of districts and facilities. (Department of Finance Khyber Pakhtunkhwa, 2016). The purpose of enhancing HPA is to encourage and motivate physicians to work in rural and remote facilities of the province. However, since there was no significant difference between HPA for primary and secondary health facilities inside a district, the outcome was not encouraging as far as retention of MOs in PHCFs is concerned. The data collected by IMU DoH, from a sample of 500 randomly selected BHUs, since the departure of PPHI to February 2020 is given in the table below. (Independent Monitoring Unit, 2020).

Table 6. Situation of MOs Retention under DoH Administration (2016-2020)

Year	Month	Sanction Posts	Filled Posts	% of Filled Posts	Remarks
2016	June	500	385	**77%**	Baseline-At the end of PPHI contract
	December	500	282	**56%**	Termination of PPHI contract and ad-hoc hiring-I by DoH
2017	February	500	404	**81%**	Ad-hoc hiring-II by DoH
	October	500	336	**67%**	Transfer and promotion
2018	February	500	345	**69%**	
	October	500	291	**58%**	MOs availed Extraordinary Leave (EOL) for postgraduate training
2019	February	500	274	**55%**	
	October	500	295	**59%**	Transfers and EOL
2020	February	500	253	**51%**	

Source: Khyber Pakhtunkhwa Independent Monitoring Unit, 2020

This shortage of MOs has affected OP attendance in the PHCFs across the province. The statistics given by District Health Information System (DHIS) in this regard are given below. (District Health Information System, 2019).

Outpatient Services Attendance Comparison under DoH KP Administration

Session	OPD	% Difference from Baseline
2015-2016 (Baseline)*	7,572,450	
2016-2017	5,218,199	-31%
2017-2018	5,970,977	-21%
2018-2019	5,039,114	-33%

***At the end of PPHI term**

Source: Khyber Pakhtunkhwa District Health Information System, 2019

The above table shows that significant decrease in outpatient attendance was observed with the decrease in availability of physicians. It shows that physicians have meaningful impact on utilization of PHCFs especially curative services. As indicated in the above tables, the decrease in MOs from 81% in 2017 to 59% in 2019 resulted in 33% decrease in the OP attendance in PHCFs.

The reports from IMU also indicate that the policy of DoH regarding Extraordinary Leave (EOL) for MOs opting for postgraduate training (PGT) and political interference in transfers were key factors behind such poor retention.

4.3.3. Extraordinary Leave and its Effects on Physicians Retention

Extraordinary Leave is a ‘leave without pay’, granted to MOs who are regular employees of DoH KP or who have been selected through the Public Service Commission (PSC) and may not have even commenced their services. In most cases, EOL is granted to physicians who opt to complete their PGT. The tenure of leave varies subject to duration of training, with a maximum limit of five years. The MOs availing EOL must sign an affidavit that after completion of their training,

they will serve for a period of three years in the district of their domicile. (Department of Finance Khyber Pakhtunkhwa, 2011).

This policy has negative impacts on physician retention in PHCFs and EOL has been the most common factor behind departure of MOs from PHCFs. The recent reports from IMU reveal that DoH managed to fill 86% of the total sanctioned posts in PHCFs across KP by May 2017, however, the number decreased to 51% in February 2020. The report shows that 83% of this decrease was due to EOL.(Independent Monitoring Unit, 2020). On the other hand, at the end of February 2020, 241 MOs resumed/started their services after completion of their PGT and none of them was placed in BHU (Department of Health Khyber Pakhtunkhwa, 2020). The reason is because MOs do not find BHUs/PHCFs as appropriate choice for their career development, especially after completing PGT. (Shah et al., 2016).

4.4. A Brief Comparison of Preventive Services under PPHI and DoH Administration

a. Immunization

As discussed above, despite improving physician retention and curative services, PPHI administration failed to improve preventive services. However, there have been improvements in preventive services especially routine immunization since 2017. Table 7 provides percentage of fully immunized children across KP between 2014 and 2018. (District Health Information System, 2018).

Table 7. Percentage of Fully Immunized Children across KP

Year	Percentage of Fully Immunized Children under 12 months
2014	65%
2015	62%
2016	63%
2017	70%
2018	72%

Source: District Health Information System, 2018

This indicates that preventive services have started to increase since 2017, under the DoH administration.

b. Mother, New Born and Child Care (MNCH) Services

MNCH services has not seen any major improvement in PHCFs over the decades, with the exception of three years between 2013 and 2015 when PPHI initiated a 24/7 MNCH initiative in 30 PHCFs. There was a significant improvement in the preventive MNCH services like antenatal care (ANC) and postnatal care (PNC) during this period. ANC visits increased 11 fold, while PNC visits improved 4 times between 2012 to 2015. In addition, the number of deliveries conducted at BHUs jumped to 5% of the total deliveries conducted across public health facilities (PHCFs and SHCFs) in 2014, compared to a relatively constant percentage of less than 1 in previous periods. However, these services were discontinued towards the end of PPHI contract due to lack of funds (People's Primary Healthcare Initiative, 2016). Beyond that, utilization of ANC and PNC services continue to remain below average and 38% of women in KP do not seek ANC at all. (Sahito & Fatmi, 2018). Moreover, deliveries conducted at PHCFs facilities remain below 1%, as reported by DHIS in its annual report of 2019. (District Health Information System, 2019).

4.5. Summary of results

The above results indicate that PPHI has remained successful in physician retention at PHCFs by improving the number from mere 6 physicians at the start of contract to 51% in 2011. The situation improved further over the year and reached 93% in 2013. In addition, curative services improved substantially, and OP attendance increased four folds during PPHI period. The reason behind this success was straight forward recruitment criteria and incentivized salary packages for MO. On the other hand, when DoH took over these facilities in 2016, it managed to improve the physician retention from PPHI baseline of 77% to 86% in May 2017. However, in the absence of effective policies, the number started to decline and reached 50% in February 2020. Ultimately, OP attendance decreased by 33% during this period. This decrease is widely attributed to government's EOL policy for physicians opting for PGT and political interference in transfers and postings.

On the other hand, preventive services have started to improve under DoH administration in the recent years and percentage of fully immunized children has increased to 72% in 2018 from the PPHI baseline of 63%.

Both PPHI and DoH failed to bring significant improvements in MNCH services, provided at PHCFs. 38% of women still do not seek any ANC services and only around 1% of the total deliveries conducted at government facilities are conducted at PHCFs. Only exception is three years of 24/7 MNCH services provided by PPHI across 30 BHUs, between 2013 to 2015, when deliveries taking place at BHUs increased from 1% to 5%.

Chapter 5

Discussion, Recommendations and Conclusion

5.1. Discussion

Development and implementation of policies that encourage physician retention in the PHCFs require understanding of the factors that influence the motivation of physicians to work in these health facilities. WHO recommends educational, economic, regulatory, personal and professional support for physicians in countries facing this problem and emphasizes that these countries need to prioritize recommendations based upon feasibility, effectiveness, acceptability, affordability, relevance and impact. (World health Organization, 2010a). Findings from the literature review suggest that health facilities infrastructure, accommodation, financial incentives and career development opportunities are among the principal factors leading to poor retention of physicians in PHCFs and are common to all LMICs including Pakistan. Although there is a paucity of evidence on the topic in KP available literature indicates that KP faces similar kind of problems. All of the studies conducted to date, globally, in LMICs, in Pakistan, and in KP, identify factors that discourage physicians from serving in the PHCFs with the primary focus on physician personal attributes and organizational context. Problems related to HRH policies and implementation strategies of DoH to address these factors have not been addressed in the studies conducted in KP.

The complexity of two recently implemented strategies in KP suggest that they were not based on strong evidence resulting in failure to assess various aspects of primary health care while formulating and/or implementing policy. For example, PPHI remained successful in ensuring retention of physicians across the province well witnessed by a fourfold increase in outpatient

attendance. However, in the absence of clearly defined arrangements for PPHI to deliver preventive services and competing interests of the health department and PPHI management at district level, PPHI failed to bring significant improvements in preventive services. Secondly, greater level of autonomy, exemption from audit and absence of continuous programme monitoring and evaluation created substantive problems related to management, transparency of the programme, and authenticity of reporting. For instance, PPHI reports claimed that outpatient attendance increased by 400% during the programme, however, PSLM surveys conducted by PBS during these years reveal that utilization of PHCFs (BHUs/RHCs) in KP increased only by 8% from 2006-2007 to 2014-2015. This clearly challenges the validity of PPHI reports. However, despite all the difficulties, retention of physicians in PHCFs during PPHI term saw significant improvement, particularly due to incentivized salary packages, improved health facility infrastructure, and housing.

On the other hand, despite claiming major reforms to the PHC sector, strategies designed by DoH have not proved beneficial concerning retention of physicians in these facilities. Similar to PPHI, DoH categorized the districts based on terrain and revised the HPAs leading to doubling up of salaries. However, this level of financial incentive is not sizable enough between urban-rural and primary-secondary facilities to attract and motivate physicians to choose primary care facilities, especially in the rural settings.

IMU has pointed out that the current DoH's EOL policy is one of the barriers behind poor retention of physicians in the PHCFs for various reasons. Firstly, physicians can avail EOL at any time during their service or even soon after appointment, often leading to an abrupt absence of physicians in the PHCFs. (Independent Monitoring Unit, 2020). Also, due to departmental hurdles, physician (MOs) recruitment under GoKP and DoH administration is a prolonged

process and sometimes takes a year following advertisement. So, unlike PPHI, it is not easy to fill the vacant posts immediately. Secondly, there is no policy that legally obligates physicians, availing EOL from PHCFs, to serve in the same or similar kind of facilities, for a certain period of time, after completion of their training. They are instead posted to secondary health care facilities (SHCFs). Consequently, current EOL policy drains physicians from PHCFs. (Department of Health Khyber Pakhtunkhwa, 2020).

Political interference is another factor that discourages physicians from work in public sector PHCFs. This issue is even more pronounced in rural regions of KP. Political interference refers to pressure applied by ruling politicians to grant undue and unjustified favors to certain people, be they an employee of the facility or member of the local community. This results in physicians opting out of government services, requesting transfer, or sometimes forcefully transferred to another facility. Studies conducted in KP related to physician retention revealed that political interference is one of the factors that discourages physicians to work in PHCFs. (Shah et al., 2016).

Another policy related issue is the failure of DoH and GoKP to realize the professional credibility or credentials of trained General Practitioners (GPs) in provision of primary health care. In Pakistan, a GP is a physician who earns a basic medical degree (MBBS) and enters practice without formal postgraduate family medicine training. The current postgraduate medical education system in KP does not offer many Family Medicine (FM) programmes. PGT programs are focused towards specialties in medicine and surgery. Only one medical teaching institution (MTI) in KP offers a two-year FM residency program while there is no four-year FM residency program in whole of KP. Physicians after completion of residency in non-FM specialties prefer

to serve in SHCFs or enter the private sector. This is another factor that further aggravates physician retention problem in the PHCFs.

The factors mentioned above indicate that current policies, particularly related to HRH recruitment and retention, should be revisited and certain policy modifications are urgently required to improve physician retention in the PHCFs. In this regard, certain policy recommendations will be put forward for DoH and GoKP in the next section.

5.2. Recommendations

These recommendations are based on proven strategies that are in practice in countries around the world and that have shown significant success.

5.2.1. Financial Incentives

Provision of financial incentives is considered as one of the most effective strategies to motivate cadres of the workforce to serve under challenging conditions. However, this approach does not always work as intended, especially in the absence of effective execution. The case is similar to DoH KP which introduced financial incentives for physicians to improve physician retention in health facilities particularly PHCFs in the rural areas. Although there was considerable increase in the financial incentives overall, the difference of incentives between different levels of health facilities has not been large enough to motivate physicians to serve in PHCFs.

To counter the problem, DoH administration needs not only to review the current categorization of districts but also introduce a facility-based incentive package. Factors like geographical accessibility, accommodation, availability of basic amenities like electricity, internet etc. and distance from urban settlements should be taken into account and financial incentives should be enhanced accordingly. This strategy will be challenging to implement, given its budgetary

implications on the health sector, but it will help to alleviate patient-burden on SHCFs, one of the reasons for higher resources allocation to these facilities.

Studies from Cambodia and Vietnam show that continuous service-based increases in financial incentives significantly improved retention of physicians in even highly remote and rural regions of these countries. (Zhu, Tang, Thu, Supheap, & Liu, 2019). Similarly, Australia achieved significant success in retaining physicians in rural health care facilities by introducing special facility based incentive packages for rural clinics. (Daniel G. Mareck, 2011). GoKP and DoH need to learn from the experiences of these countries and introduce a continuous service based and/or facility-based incentives package, instead of region based, to enhance physician retention.

5.2.2. Restrictive Measures and Sanctions

The current EOL policy for postgraduate training (PGT) of physicians is having negative impacts on physician retention in PHCFs. Physicians are continuously entering public health sector after completing PGT and likewise leaving to commence PGT. The problem is that there are more physician leaving than entering. The constant turnover is difficult to manage and is problematic for patients and other health workers in the PHCFs. Moreover, current DoH strategy is to allocate those entering the public health sector after completing EOL to SHCFs. This is one of the main reasons for current decrease in physician retention in these facilities as shown in Table 6. EOL policy obligates physicians to serve in their district of domicile after completion of PGT. However, this strategy is not being implemented, after strong reaction from physician community, demanding improvements in health facilities infrastructure and housing before implementing such policies. This clearly indicates that the current EOL policy is exacerbating the deficit of physicians in PHCFs rather than increasing retention.

The DoH should make service in PHCFs mandatory for all physicians availing EOL for PGT. Thailand is using a similar strategy to retain physicians in PHCFs of rural areas. In Thailand, one year of service in rural health facilities is pre-requisite for physicians before undertaking specialization training. In addition, physicians are required to complete three years of mandatory service in public health sector after completing their training. This strategy has been in place for decades and has proved successful. (Arora, Chamnan, Nitiapinyasakul, & Lertsukprasert, 2017)

5.2.3. Personal and Professional Development Opportunities

Studies reveal that lack of personal and professional development opportunities, such as continuing medical education, attending conferences and special training programs for physicians working in remote areas, are the top reasons physicians in KP are reluctant to serve in the PHCFs of rural areas. However, despite the availability of considerable evidence supporting this conclusion, policy makers in KP have not addressed this. To attract physicians towards PHCFs, DoH needs to prioritize addressing this gap. This might include provision of good standard living conditions; ensuring friendly working environment with acceptable standards; devising career ladders for physicians working in the PHCFs, particularly in rural parts of KP; facilitating knowledge exchange through support programmes and professional associations; encouraging interaction between physicians from better served areas and underserved areas by identifying and implementing appropriate outreach activities; and raising the profile of physicians working in PHCFs through public recognition measures like awards and titles at district and provincial level. Studies regarding similar type of interventions from Mali, South Africa and Australia reveal that these interventions proved successful. (World health Organization, 2010).

Given its resources, it would be challenging for GoKP and DoH to immediately introduce such measures. However, by trying each one of these strategies in different districts at a time and scaling them up to others, upon success, it can be achieved.

5.2.4. Family Medicine Programme

Family Medicine is one of the most ignored components of medical education in Pakistan, particularly in KP. Currently, no MT in the province provides a four-year PGT programme in FM. There is only one MTI that is providing two years PGT in FM. This explicitly suggests that FM is not the focus of postgraduate medical education in KP. DoH in collaboration with Pakistan Medical and Dental Council (PMDC) and College of Physicians and Surgeons Pakistan (CPSP) should work towards launching PGT programmes in all major MTIs of the province. Through special incentive packages and defined career paths, physicians can be encouraged to opt for PFT in FM. Countries in the Middle East, following in the footsteps of developed countries like Australia, United Kingdom and Canada etc., introduced postgraduate residency programmes in FM that helped them to overcome GP shortage (Soltanipour, Heidarzadeh, & Hasandokht, 2014).

Alternatively, establishing an on-the-job training programme for existing GPs is another way to strengthen primary health care. A similar kind of strategy has been successful in Cuba where community-based clinics are serving as PHCFs as well as centers for teaching and research of medical and allied services. (Amin & Sabzwari, 2018).

5.2.5. Policies to Encourage Female Physicians to Enter Practice

According to Pakistan Medical and Dental College estimates, 70% of the students entering a medical college in Pakistan are female and 23% of them enter practice after graduation. No official data is available online for KP. A predominantly rural population, existing tribal codes

and tradition and strong gender-specific cultural barriers for females, the barriers to practice for women in KP are formidable. As a result, a significant number of female physicians in KP do not practice, especially after marriage. Family commitments, in-laws' pressure and cultural barriers are among the top reasons for this. (Hamna Iqbal, 2020).

Currently, there are no policies in KP that encourage non-practicing female physicians to enter practice. Introducing strategies like allocating female doctors to the health facilities nearest their home; providing safe accommodation with amenities; and ensuring friendly working environment, can encourage female physicians to enter practice. This will not only help to improve the problems related to retention of physicians in PHCFs but also improve mother and childcare services provided at these facilities. (Shah et al., 2016).

In addition, GoKP and DoH can work in collaboration with digital health platforms like DoctHERs that connect female physicians with underserved populations through teleclinics. DoctHERs is a for-profit organization and is already working in different remote areas of KP. DoH through public-private partnership with DoctHERs or similar platform can provide curative services through its PHCFs, particularly the facilities that constantly face the unavailability of physicians. (Syed, 2016).

5.2.6. Improving Data Quality

Availability of high-quality HRH related data is a serious problem. Unfortunately, over the decades, this problem has not been acknowledged by DoH. Most of the KP related articles, reviewed during this case study, also mentioned the same problem. The reason is absence of effective strategy by DoH KP towards HRH data management. As already mentioned, further research is needed to completely understand the problem of physician retention in KP. It is only

possible when complete data related to HRH is available. DoH KP needs to work in collaboration with PMDC and CPSP to ensure management and availability of high-quality data related to HRH. This will encourage researchers to conduct quality research in future which will help DoH KP to design and evidence-based policies to achieve better outcomes.

Table 7. summarizes these recommendations, stakeholders responsible for their implementation and intended outcome for each of these recommendations. In addition to providing rough estimates of timeline, feasibility and affordability of these interventions is also graded in the table.

Table 7: Summary of Recommendations for DoH KP to Improve Physician Retention in PHCFs

Recommendation	Responsibility to Implement	Timeline	Feasibility 0-1 Easy 1-3 Moderate 4-5 Challenging	Budget Affordability 0-1 Easy 1-3 Moderate 4-5 Challenging	Intended Outcome
Financial incentives	DoH KP, Ministry of Finance (MoF) KP	6 months to 1 year 3-6 months for mapping 3-6 for approval from MoF & cabinet division	**3-moderate**	**4-challenging**	To encourage physicians to join PHCFs, esp. in rural KP
Restrictive Measures and Sanctions	DoH KP	3 months	**1-easy**	**0-easy**	Obligates physicians to serve in PHCFs
Personal and Professional Development Opportunities	DoH KP	2 years for Planning, devising mechanism, strengthening the institutions and coordination with other agencies like PMDC, CPSP	**4-challenging**	**3-moderate**	To retain and motivate physicians to serve in PHCFs
Family Medicine Programmes	DoH KP, CPSP, PMDC	3-5 years This includes: developing policy; 2-4 years for PGT of physicians in FM; Creating a cadre for FM; Devising policy and drafting commission document for replacing current system with GP system.	**4-challenging**	**2-moderate**	To train physicians exclusively for primary health care.
Policies to Encourage Female Physicians to Enter Practice	DoH KP	2-3 years Formulate rational distribution of HRH, mapping of health facilities and physicians. Upgrading facilities Special services for female physicians like Daycare centers	**3-moderate**	**4-challenging**	Improvement in physician retention and PHCFs.
	DoH KP, DoctHERs or other digital health platform	06 months-01 year For developing and implementing strategies for such public private partnership	**2-moderate**	**3-moderate**	To improve MNCH and general curative services at PHCFs
Improving Data Quality	DoH KP, CPSP, PMDC	Ongoing	**3-moderate**	**1-easy**	To improve research quality and policy formulation

5.3. Conclusion

Retention of physicians is a longstanding problem in KP. Despite trying different strategies, the DoH has not achieved meaningful success. Only limited data related to factors affecting retention of physicians in PHCFs is available for KP. Even previous research conducted in KP may not reflect the situation of the whole province since the research has been conducted in districts like Abbottabad where there is a relatively low rural population and accessibility to PHCFs is better.

What is needed is carefully designed research to provide an evidence base for policy and decision makers. But action must not wait for results of research. The recommendations outlined in Table 7. are based upon successful interventions from different regions of the world and from countries that have similar socioeconomic status. Incorporating these strategies into its HRH policy may help DoH KP to improve retention of physicians in its PHCFs, particularly in the rural areas.

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