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**A Case Study on the Use of Pay-for Performance Contracts in
Turkey to Reduce Geographic and Social Disparities in
Access to Primary Health Care**

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Preface to the Working Paper Series

The India Health Systems Project is motivated by the goal of advancing health system reforms in India to provide equitable access to good quality of care and financial risk protection for its citizens. The Project adopts a system approach to assess the strengths and weaknesses of India's current health care system, identify underlying causes, propose potential solutions drawing on best practices within India and international experience, and, finally, to monitor and evaluate progress and impacts of reforms.

The Working Paper Series presents products from the project. They include research papers, country cases, and analytical tools for conducting health system and reform analysis. The intended audiences are researchers, health policy analysts and practitioners of health systems reform in India—at the national- and state-level—and worldwide. The Working Papers are available at <https://sites.sph.harvard.edu/india-health-systems/>.

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Abstract

Turkey is one of the few countries that explicitly relied on primary health care (PHC) provider payment reforms as part of a much larger health system reform process known as the Health Transformation Program (2002-2013) to address inequitable access to health services. This case study reviews Turkey's PHC provider payment reforms (2005-2007) that entailed the introduction of performance-based contracts for all PHC providers to derive lessons that may be applicable to India's ongoing efforts to redesign the existing payment arrangements for its own PHC providers. This analysis uses the Flagship Framework to understand how changes in PHC provider payment methods can lead to changes in the geographic distribution of health professionals and in the use of PHC services. It compares the traditional salary-based provider contracts used prior to the reform with the new performance-based contracts, with a focus on the design features that provide explicit financial incentives for (1) deployment in areas with low levels of socioeconomic development and (2) increasing the number of PHC consultations for certain segments of the population, particularly for maternal and child health care. The case study derives three lessons from Turkey's experience in designing and implementing PHC provider payment reforms. First, redesigning provider payment arrangements at the PHC level is an important policy lever that can lead to better health system performance. Second, relying on provider payment mechanisms to boost provider availability in areas with low socioeconomic development alone does not guarantee significant increases in provider density in these areas due to the other underlying factors that drive geographic maldistribution of health professionals. Third, the design choices for identifying performance indicators in provider contracts can encourage providers to prioritize certain kinds of healthcare services, but not others that may also be needed.

1 Introduction

Strengthening primary health care (PHC) is a priority in many low- and middle-income countries. In 2018, all 192 members of the United Nations reaffirmed their commitment to strengthening PHC in the landmark Astana Declaration as an essential step for achieving universal health coverage and health-related Sustainable Development Goals.¹ The Astana Declaration articulates that the governments will be responsible for strengthening their own PHC systems by investing in the capacity and infrastructure for primary care.¹ To optimize health gains, the PHC systems are envisioned to meet the health needs of the whole population throughout the course of life, with a strong emphasis on preventive, promotive, curative, rehabilitative services and palliative care.¹ To this end, the PHC systems are tasked with providing a comprehensive set of services ranging from maternal and childcare mental health, and sexual and reproductive health, as well as services for the prevention, control and management of communicable and non-communicable diseases (NCDs). More recently, experiences from countries like Japan², South Korea³ and Italy⁴ underscored the importance of PHC systems for tackling the COVID-19 pandemic.

In India, the performance of the PHC system is hindered by long-standing challenges. Health care markets remain fragmented, with substantial variation in the quality and cost of care between and within communities.⁵ Stark differences persist in the geographic distribution of trained health personnel both in the public and private sector.^{5,6} Private providers with no formal training in medicine fill the existing gaps in the availability of trained health professionals, particularly in rural communities.^{5,7} In the public sector, high levels of absenteeism among health workers undermine the predictability of service availability.⁸ As a result, patients often bypass local PHC clinics in favor of private providers, despite having to face higher out-of-pocket expenses compared to the public sector.^{9,10} Another challenge in the public sector is chronic underfunding. Today, India's public expenditure on health continues to rank among the lowest in the world.¹¹ In the absence of adequate public funding for health, high levels of out-of-pocket expenses continue to hinder access to care, disproportionately affecting the poorer populations. Each year, health care costs are estimated to push approximately 50-60 million people into poverty.¹²

In September 2018, the Indian government embarked on a series of health reforms known as the Ayushman Bharat, with the aim of improving access to health care services, particularly among the vulnerable populations.^{11,13} Ayushman Bharat has two main components: (1) launching a new government-funded health insurance program for poor households known as Pradhan Mantri Jan Arogya Yojana to provide financial coverage for costs incurred in secondary and tertiary care and (2) establishing a national primary health care network known as the Health and Wellness Centers (HWCs) that is envisaged to serve as the first point of entry to the health system, particularly in rural areas.¹³ The HWC reforms entail a comprehensive set of interventions that are meant to overhaul the current PHC system. To reduce fragmented PHC delivery, a network of more than 150,000 HWCs will be set up, which will entail both building new primary health care centers and upgrading the existing ones under the unified HWC structure. This implementation process is hoped to be completed by the end of 2022.¹⁴ The new

HWC network is envisaged to increase access to comprehensive care, including preventive care, maternal and child services, basic emergency care services, as well as services for managing NCDs. In addition, efforts are underway to rethink the existing arrangements for PHC provider compensation, which will entail introducing new contracts that link payment to provider performance based on a set of clearly identified indicators.¹⁵

The goal of this case study is to review Turkey's provider payment reforms between 2005 and 2007, which included the introduction of performance-based contracts for PHC providers, to derive lessons that may be applicable to India's ongoing efforts to redesign the existing payment mechanisms for its own PHC providers. In particular, we review two design features of the performance-based contracts in Turkey that may have contributed to (1) alleviation of the geographic disparities in the distribution of PHC professionals and (2) increases in the number of PHC consultations for certain population groups, particularly for maternal and childcare. We apply the Flagship Framework, a widely used framework that helps explain how changes in five policy levers (i.e., financing, payment, organization, regulation and persuasion) may lead to changes in the final outcomes for health systems (i.e., health status, financial risk protection and citizen satisfaction).¹⁶ We review the existing publications on Turkey's PHC provider payment reforms and supplement our review with descriptive analysis of publicly available datasets. We present our findings that may be applicable to India's ongoing efforts to introduce performance-based contracts for PHC providers in its HWC network. Our analysis is intended for policy makers, bureaucrats, practitioners and researchers in India that are interested in designing PHC provider payment reforms in order to improve longstanding performance challenges in India's own PHC system. We acknowledge that many low- and middle-income countries grapple with geographic disparities in the distribution of health workers and socioeconomic disparities the use of PHC services. Therefore, policy makers from other countries who are considering changes in PHC provider payment methods may also benefit from this analysis of Turkey's experiences.

We selected Turkey as the focus of this case study for several reasons. Turkey is one of the few countries that explicitly relied on PHC provider payment reforms as part of a much larger health system reform process to address inequitable access to health services. Prior to 2003, the Turkish policy makers were faced with two distinct problems: (1) how to narrow longstanding geographic disparities in access to care across communities and (2) how to increase persistently low access to health care among the disadvantaged segments of the population. To address these challenges, Turkey launched a comprehensive set of health system reforms in 2003, known as the Health Transformation Program (HTP). One important component of the HTP reforms was the introduction of the Family Medicine Program (FMP) in 2005. With the FMP reforms, Turkey overhauled the existing arrangements through which PHC services were delivered and financed. A key element of the FMP reforms was to change PHC provider payment methods, which replaced traditional salary-based payment with new contracts that tied payment to performance. To address two distinct sources of inequities in access to care, the new performance-based contracts offered financial incentives that explicitly encouraged (1) the deployment of PHC professionals in areas with low levels of

socioeconomic development, and (2) the use of PHC services among vulnerable segments of the population. In this way, the Turkish government used performance-based contracting as an explicit policy lever in an attempt to tackle persistent inequities between and within communities.

This case study is organized as follows. We start by describing the conceptual framework and methods. Next, we present the socioeconomic, cultural and historical context prior to 2003 that shaped the main objectives and features of the HTP. We then apply the conceptual framework to the existing literature on the design and implementation of the PHC provider payment reforms (2005-2018). To ascertain the impact of these reforms on PHC system performance, we look at existing evidence on the number of general practitioners (GP) per 100,000 population and the number of PHC consultations per capita before and after the PHC payment reforms were implemented. No changes were made to the design of the performance-based contracts during this study period. The next section discusses the lessons from the Turkish PHC provider payment reforms relevant to India. We then discuss the limitations of the case study and conclude.

2 Methods

2.1 Conceptual framework

This case study adopts the Flagship Framework¹⁶ to guide the analysis. The Flagship Framework is a widely used analytical tool that facilitates a systematic approach to identifying problems in health systems that can be diagnosed and specific policy actions that can improve performance in countries across the development spectrum.¹⁶ Over the last two decades, the Flagship Framework has been taught in global, regional and national level courses, reaching more than 20,000 people since its inception.¹⁷ It has been used by policy makers in many countries, including Turkey, to navigate the health system reform process. The Flagship Framework is frequently used in analytical research to examine how changes in specific policy actions can lead to changes in the intermediate and ultimate performance goals for health systems, including for example a recent article on the ongoing health system restructuring process in Mexico.¹⁸

The Flagship Framework presents that every health system has three ultimate performance goals: health status, financial risk protection and citizen satisfaction. These three ultimate performance goals are linked to five policy levers: financing, payment, organization, regulation and persuasion. Three intermediate performance goals, namely efficiency, access and quality, connect the ultimate performance goals and the five policy levers (A more detailed description of the concepts discussed in the Flagship Framework is provided elsewhere.¹⁶) Payment refers to the methods by which financial resources can be used to purchase health care services and products and medicines. Provider payment, in particular, describes the ways in which health revenues can be transferred to providers in order to compensate them for the health services rendered.¹⁶ Different payment methods create different risks and incentives for providers, which in turn may change their behaviors. In Turkey, the FMP reforms entailed changes in the financing, organization, payment and regulation of the existing PHC system. In this case study, we focus on provider payment methods to improve health system performance at the

primary care level, using Turkey's PHC reform experience as a case study to derive lessons that can be applicable to policy makers in India and beyond.

The design choices made by policy makers over provider payment methods can lead to measurable changes in the geographic distribution of health professionals and the quantity of health care services provided to the different segments of the population through several mechanisms. Financial incentives that reward service provision in certain geographic areas may encourage providers who would normally not consider working in these areas. Another mechanism is that financial incentives can slow down the outflow of health professionals from certain areas by improving the retention time for those providers who would otherwise choose to work in these areas for a shorter period.¹⁹ Different payment methods have also been shown to affect the number of patients seen by providers, particularly patients from certain segments of the population (e.g., pregnant women and young children).²⁰ Fixed salary payments may induce providers to reduce the number of patients that they see and limit the time they spend and effort that they exert at work. Conversely, performance-based payments that link provider compensation to the number of consultations for certain population groups are likely to increase the number of patients, because providers can induce demand for the services that they provide for these groups.

Changes in provider payment methods do not guarantee improvements in the ultimate health system goals. Many shortcomings in the design of the provider payment methods may dilute positive changes in the health system performance intended by the policy makers. For instance, the magnitude of the financial incentive is an important factor for inducing behavior change. If the incentive amount is not perceived as sufficient by service providers, then it will fail to induce the intended changes in behavior. Financial incentives alone may not always be sufficient to encourage work in certain geographic areas, because providers are not motivated by monetary rewards alone. The design of the financial incentives may reward only a subset of health services to meet the health needs of certain population groups (e.g., maternal and child services). In this case, providers may choose to prioritize the kind of health services that offer the greatest financial rewards, which can come at the expense of other kinds of health services (e.g., the management of NCDs).

2.2 Outcome variables

Our primary outcomes of interest are the number of GPs per 100,000 population and the number of PHC consultations per capita, including antenatal care visits. We selected these two outcomes, because Turkey's performance-based contracts for PHC providers include clearly defined financial incentives for (1) deployment in areas with low levels of socioeconomic development and (2) increasing the number of PHC consultations for certain population groups, particularly for maternal and child health care. Both of these mechanisms can plausibly contribute to changes in the intermediate and ultimate health system performance goals.

2.3 Analytical methods

Our analytical methods involved literature reviews, descriptive analyses of publicly available datasets and expert consultations. We conducted two literature reviews. Our first review focused on the design features of the Turkish PHC provider payment reforms and the potential impact of these reforms on (1) the geographic disparities in the availability of PHC providers and (2) the number of PHC consultations per capita, with a focus on antenatal care consultations. Our second literature review looked at India's PHC system, with the aim of understanding factors that underlie the geographic imbalances in the distribution of PHC providers and the use of PHC services.

The literature review on Turkey yielded a number of studies that looked into the changes in the number of PHC consultations prior to and after the introduction of the FMP reforms. However, we were unable to identify any empirical studies that provided evidence on the impact of the FMP reforms on the distribution of PHC professionals during the study period. Furthermore, we were not able to identify any studies that provided an in-depth analysis on the type of PHC consultation (e.g., prenatal checkups, NCD screening). Given these gaps in the literature, we decided to supplement our literature review with descriptive analyses of the changes in the distribution of PHC professionals and the use of maternal and child health services in the study period using data from publicly available sources. We obtained data on the geographic distribution of GPs between 2002 and 2018 from the Turkish Health Statistics Yearbook (2018). We extracted data on the number of antenatal care consultations at the PHC level from two waves of the Turkish Demographic and Health Surveys 2003 and 2018.

We relied on expert consultations to identify lessons from Turkey's payment reforms that are relevant to India's ongoing efforts to reform the existing arrangements for compensating PHC providers. These consultations were attended by experts with in-depth knowledge of both the Indian and Turkish health systems. In these meetings, the author presented results from the literature reviews and descriptive analyses and proposed a set of lessons from the Turkish experience applicable to India's ongoing PHC reforms. Expert consultations were held until all participants agreed upon the lessons discussed in the case study.

3 Study context

Turkey experienced substantial improvements in the health of its population prior to the HTP. Life expectancy at birth increased from 64.3 in 1990 to 77.4 years in 2003.²¹ Infant mortality rate (IMR) decreased from 55.4 in 1990 to 24.8 per 1000 live births in 2003 and under-5 mortality rate declined from 73.9 in 1990 to 29.8 per 1000 live births in 2013.²¹ Despite these improvements, stark disparities in health persisted. In 2003, the IMR was the highest in the poorest Eastern region (41 per 1,000 live births), almost double that of the IMR in the West region (22 per 1,000 live births).²² There were similar disparities in other child mortality outcomes. In 2013, under-5 mortality rate in the East was 49 per 1,000 live births, considerably higher than 30 deaths per 1,000 live births in the West.²²

Turkey's general elections in November 2002 provided the impetus for health system reforms.²³ The newly elected government prioritized health as a priority to address constituents' concerns over low health system performance in the public sector. In 2003, Turkey embarked on broad health reforms known as HTP. During the HTP reforms, public resources allocated to health increased substantially. The domestic general government health expenditure per capita more than doubled from \$346 in 2003 to \$769 in 2013.²¹ Two factors may have contributed to the allocation of additional public funding for health. The HTP reforms coincided with a period of economic expansion, with the annual GDP growth averaging at 6.6% in this period.²¹ The economic growth meant that more domestic resources were now available for health, even though government expenditure on health as share of GDP remained relatively stable at about 3.6% between 2003 and 2013.²¹ Another important factor that may have contributed to this increase was the reprioritization of health within the government budget. During the HTP reforms, the share of public sector budget allocated to health increased from 9.3% in 2003 to 10.3% in 2013.²¹

Prior to the FMP reforms, PHC provision was hindered by a number of challenges. The PHC centers often lacked trained medical personnel, equipment and drugs.²⁴ The scope and quality of PHC services available in different areas varied across geographic regions. Absenteeism was common among general practitioners at work at the PHC level.²⁵ Many medical school graduates did not choose to practice at the PHC level, largely due to the perception that working at the PHC settings did not provide a viable career path.²⁵ In the absence of a well-functioning PHC system, patients relied primarily on outpatient departments and specialist physicians in hospitals as their primary source of care.²⁴ This heavy reliance on hospitals resulted in the overburdening of hospital capacity, which was evident by over-crowding and long-waiting times.²⁵ NCDs were managed by specialists in hospitals, because the PHC level provided no services for the prevention and management of NCDs.²⁴

The HTP underscored the importance of PHC reforms from the outset. Provider payment reforms were complemented with changes in the organization of PHC services by introducing (1) a year-long family medicine training program targeting physicians who were already practicing medicine in the public or private sector, (2) family medicine, for the first time, as a specialty in medical schools, (3) multi-professional family medicine units that are comprised of physicians, nurses and midwives and (4) patient rosters for each family medicine unit based on the area of residence. As part of the broader HTP reforms, copayments for all PHC services were eliminated in an attempt to remove financial barriers that may hinder access to care. A more detailed review of the FMP reforms^{26,27} and the changes faced in the implementation of these reforms²⁸ is provided elsewhere. The FMP was initially piloted in one province in 2005 and it was gradually expanded to cover the entire population in 81 provinces by 2010.

4 Introducing performance-based contracts for primary health care providers in Turkey

A key feature of the FMP reforms was the introduction of performance-based contracts for PHC professionals in the public sector. Before the FMP payment reform, all PHC professionals were compensated through fixed salaries, which were considered low compared to specialists.²⁶ There were no additional salary adjustments for providing care in underdeveloped areas. All PHC professionals were considered civil servants; contracts did not impose any limits for the number of years health providers could work at the PHC level until the provider reached retirement. No mechanisms existed to evaluate provider performance over time.

The introduction of the performance-based contracts changed PHC provider compensation in important ways. First, the new performance-based contracts came with a substantial rise in monthly salary payments for PHC workers. It is estimated that from 2003 to 2011, PHC physician salaries more than tripled, reaching to around 70% of average salary of specialist physicians.²⁴ This salary increase intended to attract more health workers to practice at the PHC level. Performance-based contracts were renewable and covered a maximum of two years. The changes in the PHC provider payment were rolled out in three phases. After the initial piloting phase in 2005, a set of 35 performance indicators were introduced in 2006. In 2007, the performance-based contracts were expanded to include all PHC personnel, including nurses and midwives.²⁶

Under the new performance-based contracts, PHC provider payment was redesigned with five components: (1) capitation-based payment, (2) capitation adjustments for socioeconomic level of area, (3) operational costs and other reimbursements, (4) reimbursements for expenditures on laboratory tests and consumables and (5) ambulatory health care service fees. The new provider contracts included clearly defined financial incentives for providing care in areas with low socioeconomic development and prioritizing care for certain population groups.²⁶

Capitation-based payment, the first component of the performance-based contracts, provides explicit financial benefits for prioritizing maternal and child health.²⁹ The monthly base payment of each PHC providers is calculated based on a capitation formula in proportion to the number of people registered in the patient roster of each PHC team, which gives different weights to different types of patients (See Table 1).²⁴ For instance, pregnant women have the highest coefficient for payment (3), followed by prisoners (2.25), and children under 5 years of age (1.6) and adults over the age of 65 (1.6). Performance-based contracts also include a salary deduction system that links provider performance to the coverage of select maternal and child health services that encourage increases in the number of PHC consultations, including childhood immunization coverage, at least 4 antenatal care visits in accordance with the pregnancy schedule of the patient and follow-up visits for babies and children.²⁶

Additionally, the performance-based contracts include 35 performance indicators to ensure providers adhere to their contractual obligations (e.g., compliance with work

hours, maintenance and security of patient health records in accordance with guidelines and patient confidentiality). For instance, two of these indicators included explicit salary deductions to address the long-standing challenge of absenteeism among health workers: (1) failure to comply with planned work hours and (2) absence from health post without an excuse. For the latter, salary is deducted for each day of absence without an excuse. Providers who fail to reach these targets risk a 20% deduction in their base salary payments.²⁶

Table 1. Coefficients used in the capitation formula for family physician payment

Patient group	Coefficient applied
Children under 5 years of age	1.6
Children and adults between ages 5 and 65 years	0.79
Adults over 65 years of age	1.6
Pregnant women	3
Prisoners	2.25

Source: Adapted from Tatar and colleagues (2011)²⁴

The second component of performance-based contracts is capitation adjustments for socioeconomic level of area. In practice, this means that the monthly base salaries of PHC providers who work in underdeveloped areas are further complemented with additional location bonus payments that can reach up to 40% of the base salary depending on the socioeconomic development index score of the area.²⁶ PHC teams who work in these areas receive additional funds to cover operational costs (e.g., electricity, fuel, water) and expenses for medical equipment, laboratory tests, consumables and fees for ambulatory care services. Finally, PHC providers in less developed areas receive additional payments if they make home visits or provide mobile health services.²⁶

Compliance with the terms of the performance-based contracts is monitored through a new online data reporting platform called the Family Medicine Information System. Developed in 2005, this online platform enables the tracking of health-related indicators relevant to the FMP. The PHC professionals use this platform to provide patient data (e.g., vaccinations, antenatal care consultations) to the Provincial Health Directorates. This information is then used to provide feedback on the target thresholds for staff payments.²⁶ Auditors from the Provincial Health Directorates regularly assess the compliance with contract terms.

5 Lessons for Indian policy makers

Redesigning provider payment mechanisms can be an important policy lever to produce changes in health system performance at the PHC level. In Turkey, performance-based contracts for PHC providers use clearly defined financial incentives for (1) deployment in areas with low levels of socioeconomic development and (2) increasing the number of

PHC consultations for a subset of the population, especially for maternal and child health care. One recent study found that Turkey's PHC reforms were associated with an 11% reduction in mortality across all ages between 2001 and 2014. The observed effects were more greater among younger age groups: 25.6% and 22.9% reduction in mortality among infants and children between 1–4 years of age, respectively.³⁰ The study further concluded that the effects of the FMP were more pronounced in provinces with higher levels of baseline mortality, suggesting that Turkey's PHC reforms contributed to the narrowing of disparities in mortality outcomes. It is important to note that isolating the impact of PHC provider payment reforms in Turkey on these outcomes is complicated, because these reforms were implemented as part of a broader set of health system reforms that overhauled many aspects of primary care delivery and financing at the same time. However, improvements in the geographic distribution of PHC workers and the use of PHC services are two plausible mechanisms that could have contributed to the observed reductions in mortality attributable to the FMP reforms.

Most PHC professionals in India who work in the public sector are paid through fixed salaries, though some states make salary adjustments for the specific circumstances in the service area and the level of medical specialization of the health provider (A list of monetary incentives used in different Indian states to encourage deployment in underserved areas is provided elsewhere.²⁹) Though limited, the existing evidence on these financial incentives suggests that considerable variation across states exists in the amount of the monetary incentive targeting different types of health workers and the methods used to identify what constitutes a hardship post.³¹ Moreover, PHC service utilization remains low, and many patients continue to bypass PHC networks in the public sector in favor of private providers. As India continues to consider various options to redesign provider payment mechanisms for its own PHC professionals, Turkey's experience with designing performance-based contracts suggests that using a capitation formula that prioritizes certain population groups may help improve health systems performance, as measured by reductions in mortality. Moreover, the use of salary bonuses that reward deployment in under-developed communities may help reduce disparities in the geographic distribution of health workers.

Relying solely on provider payment mechanisms to boost PHC provider availability in areas with low socioeconomic development may not significantly increase the number of providers in certain geographic areas, because of other underlying factors driving the maldistribution of health workers. In Turkey, performance-based contracts provide financial rewards for working in areas with low socioeconomic development. Recent trends in the density of GPs suggest that the introduction of these financial rewards may have contributed to the improvements in the availability of health workers in relatively underdeveloped geographic regions. The number of GPs increased from 44 to 48 per 100,000 population between 2002 and 2018.³² This increase was more pronounced in some of the regions that include poorer provinces (Table 2). For instance, in the Mideastern Anatolia, the region with the lowest level of per capita gross domestic product (GDP) in 2018³³, the GP density reached 56 per 100,000 population in 2018, a considerable rise from 46 GPs per 100,000 population in 2002. Similarly, in the Southeastern Anatolia, the GP density increased from 32 to 52 per 100,000 population from 2002 to 2018.³² A closer look at the data reveals that geographic disparities persist

in the geographic distribution of GPs. For instance, in 2018, the density of GPs was the highest in the Eastern Blacksea (62 per 100,000 population), considerably higher than the GP density in Southeastern Anatolia (52 per 100,000 population) and the Mideastern Anatolia (56 per 100,000 population).³²

Table 2: Number of GPs per 100,000 population (2002-2018) and GDP per capita (2018)

Geographic region	GPs per 100,000 population		GDP per capita in current \$US (2018)
	2002	2018	
Eastern Blacksea	63	62	6639
Northeastern Anatolia	45	61	5232
Western Blacksea	61	57	6398
Central Anatolia	64	57	7021
Mideastern Anatolia	46	56	4595
Western Marmara	47	52	9599
Southeastern Anatolia	32	52	4899
Aegean	54	50	9630
Mediterranean	48	49	7612
Eastern Marmara	44	45	11912
Western Anatolia	46	41	11204
Istanbul	19	38	16264
Turkey	44	48	9693

Source: (Ministry of Health 2018)³² and (Turkish Statistical Institute 2018)³³

Notes: Statistical regions are defined by the MOH as the nomenclature of territorial units for statistic (NUTS) level 1. Unlike other statistical regions that combine data from multiple provinces, the province of Istanbul is considered a separate statistical region.

One plausible explanation for this persistent challenge is that the financial incentives included in the performance-based contracts provide rewards solely on the basis of an area's level of economic development, with no consideration for other factors that can influence providers' decisions over the location of their medical practice. To the best of our knowledge, no studies have yet examined the main drivers of the imbalance in the distribution of health workers in Turkey. In other settings, studies show that providers' decisions over the choice of work location are influenced by various factors, including safe working and living conditions, opportunities for continuing education, training and professional development opportunities.¹⁹

Much like Turkey, India grapples with persistent challenges in the distribution of its own PHC health workforce in the public sector. One recent study used nationally representative data to show that, on average, only 6.4% of Indian villages had at least one PHC provider in the public sector.⁵ This study also highlighted stark differences in PHC provider availability across different states. In Kerala, 37.9% of villages had at least one PHC provider, compared to 0.8% in Madhya Pradesh, 2.6% in Chhattisgarh and 4.3% in Odisha.⁵ Several studies shed light into the potential causes that underly these distributional challenges in India, such as the growth of private medical colleges³⁴, concerns over security, poor perceptions towards PHC professionals among young medical graduates, living conditions and educational opportunities for children.³⁵

The density of private providers in certain areas, including those with no formal medical education, have been highlighted as important feature of India's health care markets^{5,36}, which may also influence physicians' decisions over service location. In addition to these studies, the Turkish experience suggests that financial incentives alone may not be sufficient to encourage PHC providers to relocate in less developed communities and that non-financial incentives can be considered to be introduced alongside with financial rewards. Pursuing medical education in India is a costly endeavor. Financial incentives can be created for people willing to work in these areas, but who would not otherwise have the means to pursue medical education.¹⁹ India has been experimenting with different strategies to persuade people to locate in typically underserved areas, such as the Swalambaban Yojana Program in the state of Madhya Pradesh (2006-2007).³¹ Understanding challenges faced by policy makers in designing and implementing these programs may benefit future efforts to address the long-standing imbalances in the geographic distribution of health workers in India.

The design choices for identifying performance indicators in contracts can encourage providers to prioritize certain kinds of health services, but not other services that may also be needed. The set of performance-indicators used in Turkey's new PHC provider contracts have their roots in the global health priorities set in the Millennium Development Goals era (1990-2015), which set out ambitious goals to reduce maternal and child mortality. While Turkey achieved important improvements in maternal and child health prior to the FMP reforms, mortality outcomes were among the highest among OECD countries and compared to countries with similar levels of national income. It was in this historical context that the Turkish policy makers developed the list of performance indicators to track provider performance that reward care for pregnant women and young children.

Most empirical evidence shows that the introduction of the FMP reforms led to increases in the utilization of PHC services in Turkey. A 2013 World Bank study estimates that between 2003 and 2010, the implementation of the FMP reforms was associated with a 14% increase in the number of PHC consultations.²⁶ In a subsequent study, Hone and colleagues (2017) found that the average number of PHC consultations per person increased from 1.75 to 2.83 visits from 2002 to 2013.³⁷ These studies showed that the greatest increases in the number of PHC consultations were observed in provinces with the lowest levels of socioeconomic development and among low-income populations. This observed increase in PHC consultations appears to have partly been driven by an increase in the number of antenatal care services. The percentage of women who did not seek any antenatal care during pregnancy declined from 18.6% in 2003 to about 3.6% in 2018.^{22,38} In this period, the share of women who visited a trained health professional increased at least four times increased from 53.9% to 89.7%, as it was incentivized by the performance-based contracts.^{22,38} In 2018, about 96% of women in Turkey received antenatal care from a skilled provider (e.g., physician, nurse or midwife). In this year, the gaps in antenatal care coverage between women from the poorest and richest income households reduced to around five percentage points (94.4% versus 99.2%, respectively), suggesting that the highest gains were observed among

population groups from disadvantaged socioeconomic backgrounds.³⁸ Similarly, geographic disparities in the antenatal care coverage was largely addressed by 2018.

Despite this progress in maternal and child health, the PHC system continues to fall short of providing appropriate care to tackle Turkey's increasing NCD burden. Today, NCDs represent the leading cause of death and disability in Turkey. Cardiovascular diseases, particularly ischemic heart disease, stroke, and cancers, neurological disorders, chronic respiratory diseases and diabetes, are the top five leading causes of death.³⁹ A key objective of the FMP is to manage NCDs at the PHC level through preventive care, health promotion and education. However, NCD screening remains ad-hoc, with most detection and management of NCDs carried out by specialist physicians in hospitals.⁴⁰ One explanation for this finding is that the current design of the performance-based contracts encourages providers to exert more effort into providing maternal and child health care services rather than providing care that is appropriate to address health needs of the entire population (including NCDs) that they serve.

Similar to Turkey, India is undergoing major demographic and epidemiological transitions. In the last three decades, the number of deaths attributable to NCDs is estimated to have increased from about 381 deaths per 100,000 people in 1990 to 455 deaths per 100,000 people in 2017, surpassing the number of deaths due to infectious diseases as the leading cause of mortality.³⁹ In 2017, cardiovascular diseases, chronic respiratory conditions, cancers and mental health disorders were among the leading causes of death. To address these evolving trends in the disease burden, India's new HWC network is envisaged to provide comprehensive PHC services, including prevention and treatment of chronic conditions, and the provision of free essential drugs and diagnostics services. As Indian policy makers consider different options to design PHC provider contracts in their own context, the performance-based contracting in Turkey suggests that financial rewards providing care for specific population groups alone does not guarantee that the PHC system will be able to address the changing health needs over time. The design choices for identifying performance indicators that determine financial rewards require a careful consideration of the underlying demographic and epidemiological trends that shape the health needs of the population in each context. Over time, performance indicators may be revised in a systematic manner that entails introducing new targets to address the evolving health needs, while retiring or altering relative weight of other indicators whose targets are met.

6 Study limitations

This case study has several limitations. First, Turkey's FMP reforms included a wide range of changes in the organization, financing, payment and regulation of its PHC system. In this case study, we do not attempt to provide a comprehensive review of Turkey's FMP reforms. Instead, we explore whether the use of performance-based contracts for Turkey's PHC providers as an explicit policy instrument resulted in positive changes in narrowing longstanding geographic and socioeconomic inequities in access to care. While this limited focus allows us to review the design of the new performance-based contracts in detail, it precludes us from concluding that the gains that Turkey achieved in improving the geographic distribution of GPs and the use of

PHC services are attributable solely to the changes in the provider payment methods. Evaluating the impact of performance-based contracts is further complicated by the complexity of the FMP reforms that entailed a wide range of changes to the deliver and financing of PHC that were introduced at the same time.

Second, this case study is limited in its ability to draw causal inferences due to the analytical methods used in the analysis. Our research methodology relies on an examination of already existing publications and descriptive analyses of publicly available datasets. Therefore, our analysis is subject to limitations of the methods and data used in the publications we reviewed. We derived lessons through an iterative process that involved several expert consultations. While expert consultations were crucial for identifying lessons that were agreed to be highly relevant to India's ongoing efforts, there may be other relevant lessons from Turkey that are not discussed in this case study.

Another limitation relates to the study outcomes. One of our primary outcomes was the number of GPs per 100,000 population. While an analysis of the trends in the availability of GPs is important, Turkey's new performance-based contracts transformed the existing compensation arrangements for all PHC professionals, including nurses and midwives. However, we were not able to identify publicly available data on the distribution of these types of health professionals that work at the PHC level. We used the number of PHC consultations per capita as a measure of access. While an important metric, the number of PHC consultations is not an all-encompassing measure of access. For instance, our analysis did not examine how changes in the provider payment methods for PHC providers may have influenced the content of care that people received at the PHC level.

Technical assessments of health reforms are crucial to help identify the impact of different policy designs, track progress against the main objectives of the reform and make course corrections.¹⁷ However, in our literature review, we noted that the FMP reforms in Turkey are not well studied; most evidence on the impact of Turkey's PHC reforms on health system performance come from ecological study design and small-area studies. We attribute this finding partly to the dearth of publicly available data that can facilitate comprehensive analyses of different aspects of the Turkish PHC reforms. For instance, under a civil servant system, changing provider payment methods from input-based payment methods, such as line-item budgets and salaries, to performance-based contracting necessitates a shift in public budget management.⁴¹ In this case study, we were unable to shed light on this important aspect of the budgeting process due to the lack of publicly available data.

7 Conclusions

Introducing performance-based payment methods in the contracts for PHC providers is an important policy lever that can help improve the performance of the PHC system. In Turkey, performance-based payment methods were introduced into public sector contracts to encourage PHC workers to be deployed in areas with low socioeconomic development and to incentivize care for vulnerable population groups. This case study suggests that, in Turkey, the performance-based contracts for PHC providers may have contributed to (1) alleviating the geographic imbalances in the distribution of general practitioners and (2) the increases in the number of PHC consultations per capita, particularly for prenatal care. We also found evidence that redesigning provider compensation methods alone was not sufficient to address the underlying causes of inequitable distribution of health workers and use of PHC services, as demonstrated by the remaining gaps in the utilization of PHC services across geographic regions and income-groups. Our analysis further shows that the design choices made by policy makers can encourage the use of certain services (e.g., prenatal care), but not others that may be needed to address the diverse health needs of the population (e.g., NCD management). This analysis of Turkey's PHC provider payment reforms may provide important lessons for policy makers in India as well as other countries who are considering changes in provider payment methods for PHC providers in an effort to improve the performance of the PHC delivery system.

8 References

1. World Health Organization, United Nations Children’s Fund. Astana declaration: global conference on primary health care [Internet]. Astana; 2018 [cited 2020 Jun 1]. Available from: <https://www.who.int/docs/default-source/primary-health/declaration/gcphc-declaration.pdf>
2. Hamaguchi R, Masaya Higuchi B, Masafumi Funato M, Negishi K, Ouichi K, Kaeng Takahashi M. Global learnings evidence brief the Japanese health system response during the COVID-19 pandemic [Internet]. Ariadne Labs. 2020 [cited 2020 Jul 1]. Available from: www.ariadnelabs.org
3. Oh J, Lee J-K, Schwarz D, Ratcliffe HL, Markuns JF, Hirschhorn LR. National response to COVID-19 in the Republic of Korea and lessons learned for other countries. *Heal Syst Reform* [Internet]. 2020 Jan 1 [cited 2020 Jul 18];6(1):e-1753464. Available from: <https://www.tandfonline.com/doi/full/10.1080/23288604.2020.1753464>
4. Fraser A. “No One is Prepared for This” - Italian Doctors Fight to Keep Home Patients Alive [Internet]. Reuters. 2020 [cited 2020 Jul 18]. Available from: <https://www.reuters.com/article/us-health-coronavirus-italy-bergamo/no-one-is-prepared-for-this-italian-doctors-fight-to-keep-home-patients-alive-idUSKBN21Z22Y>
5. Das J, Daniels B, Ashok M, Shim EY, Muralidharan K. Two Indias: The structure of primary health care markets in rural Indian villages with implications for policy. *Soc Sci Med*. 2020;
6. Anand S, Fan V. The health workforce in India. *Human Resources for Health Observer Series No. 16*. Geneva; 2016.
7. Das J, Chowdhury A, Hussam R, Banerjee A V. The impact of training informal health care providers in India: A randomized controlled trial. *Science* (80-) [Internet]. 2016 [cited 2020 Jul 18];354(6308). Available from: <https://science.sciencemag.org/content/354/6308/aaf7384>
8. Muralidharan K, Chaudhury N, Hammer J, Kremer M, Rogers H. Is there a doctor in the house? Medical worker absence in India. 2011.
9. Rao KD, Sheffel A. Quality of clinical care and bypassing of primary health centers in India. *Soc Sci Med*. 2018 Jun 1;207:80–8.
10. Kujawski SA, Leslie HH, Prabhakaran D, Singh K, Kruk ME. Reasons for low utilisation of public facilities among households with hypertension: analysis of a population-based survey in India. *BMJ Glob Heal*. 2018;3:1002.
11. Gupta I, Patel N. International Health Care System Profiles: India [Internet]. The Commonwealth Fund. 2020 [cited 2020 Jul 20]. Available from: <https://www.commonwealthfund.org/international-health-policy-center/countries/india>
12. Selvaraj S, Farooqui HH, Karan A. Quantifying the financial burden of households’ out-of-pocket payments on medicines in India: A repeated cross-sectional analysis of National Sample Survey data, 1994-2014. *BMJ Open*. 2018 May 1;8(5):18020.
13. University of Pennsylvania Public Policy Initiative. “Modicare”: India’s Path to Universal Healthcare Coverage: Wharton Public Policy Initiative [Internet]. [cited 2020 Jul 18]. Available from:

- <https://publicpolicy.wharton.upenn.edu/live/news/2909-modicare-indias-path-to-universal-healthcare>
14. Government of India Ministry of Health and Family Welfare. Ayushman Bharat | HWC Portal [Internet]. 2020 [cited 2020 Jul 20]. Available from: <https://abhwc.nhp.gov.in/#about>
 15. Jhalani M. No Title [Internet]. Government of India Ministry of Health and Family Welfare. 2019 [cited 2020 Jul 20]. Available from: <https://abhwc.nhp.gov.in/download/document/523c27ca1692003b27c239b4a68d005b.pdf>
 16. Roberts MJ, Hsiao WC, Berman P, Reich MR. Getting health reform right: a guide to improving performance and equity. New York: Oxford University Press; 2004.
 17. Reich MR, Yazbeck AS, Berman P, Bitran R, Bossert T, Escobar M-L, et al. Lessons from 20 Years of capacity building for health systems thinking. *Heal Syst Reform*. 2016 Jul 2;2(3):213–21.
 18. Reich MR. Restructuring health reform, Mexican style. *Heal Syst Reform*. 2020;6(1):1–11.
 19. Bärnighausen T, Bloom DE. Financial incentives for return of service in underserved areas: a systematic review. *BMC Health Serv Res*. 2009;9(86).
 20. Witter S, Fretheim A, Kessy FL, Lindahl AK. Paying for performance to improve the delivery of health interventions in low- and middle-income countries. *Cochrane Database Syst Rev* [Internet]. 2012 Feb 15 [cited 2020 Jul 20];(2). Available from: <https://pubmed.ncbi.nlm.nih.gov/22336833/>
 21. World Bank. World Development Indicators Database [Internet]. World Development Indicators Database. 2020 [cited 2020 Jul 20]. Available from: databank.worldbank.org
 22. Demographic and Health Surveys Program. Turkey Demographic and Health Survey Final Report 2003. 2003.
 23. Sparkes SP, Bump JB, Reich MR. Political strategies for health reform in Turkey: Extending veto point theory. *Heal Syst Reform* [Internet]. 2015 May 19 [cited 2020 Jul 21];1(4):263–75. Available from: <https://www.tandfonline.com/doi/full/10.1080/23288604.2015.1093063>
 24. Tatar M, Bayram M, Salih S, Aydın S, Maresso A, Hernández-Quevedo C. Health systems in transition: Turkey health system review. Vol. 13, Turkey Health System Review. Copenhagen; 2011.
 25. Baris E, Mollahaliloglu S, Aydın S. Healthcare in Turkey: From laggard to leader. *BMJ*. 2011 Mar 12;342(7797):579–82.
 26. World Bank. Turkey performance-based contracting scheme in Family Medicine- design and achievements. Washington DC; 2013.
 27. Atun R, Aydın S, Chakraborty S, Sümer S, Aran M, Gürol I, et al. Universal health coverage in Turkey: Enhancement of equity [Internet]. Vol. 382, *The Lancet*. Lancet Publishing Group; 2013 [cited 2020 Jul 21]. p. 65–99. Available from: <https://pubmed.ncbi.nlm.nih.gov/23810020/>
 28. Belén Espinosa-González A, Normand C. Challenges in the implementation of primary health care reforms: a qualitative analysis of stakeholders' views in Turkey. *BMJ Open*. 2019;9:e027492.
 29. Aran M, Ozcelik EA. Universal health coverage for inclusive and sustainable development: country summary report for Turkey. Washington DC; 2014.
 30. Cesur R, Güneş PM, Tekin E, Ulker A. The value of socialized medicine: The

- impact of universal primary healthcare provision on mortality rates in Turkey. *J Public Econ.* 2017 Jun 1;150:75–93.
31. Sundararaman T, Gupta G. Indian approaches to retaining skilled health workers in rural areas [Internet]. *Bulletin of the World Health Organization*. World Health Organization; 2010 [cited 2020 Jul 22]. Available from: <https://www.who.int/bulletin/volumes/89/1/09-070862/en/>
 32. Republic of Turkey Ministry of Health. *Health Statistics Yearbook 2018*. Ankara; 2018.
 33. TUIK. *Regional statistics on gross domestic product* [Internet]. Ankara; 2020. Available from: <https://biruni.tuik.gov.tr/medas/?kn=116&locale=tr>
 34. Mahal A, Mohanan M. Growth of private medical education in India. *Med Educ.* 2006 Oct 1;40(10):1009–11.
 35. Rao KD, Ramani S, Murthy S, Hazarika I, Khandpur N, Chokshi M, et al. Health worker attitudes towards rural service in India: Results from qualitative Rresearch [Internet]. Washington DC; 2010 [cited 2020 Aug 12]. Available from: www.worldbank.org/hnppublications
 36. Das S, Barnwal P. The need to train uncertified rural practitioners in India. *J Int Med Res.* 2018 Jan 1;46(1):522–5.
 37. Hone T, Gurol-Urganci I, Millett C, Basara B, Akdag R, Atun R. Effect of primary health care reforms in Turkey on health service utilization and user satisfaction. *Health Policy Plan.* 2017;32:57–67.
 38. Demographic and Health Surveys Program. *Turkey Demographic and Health Survey Final Report 2018* [Internet]. 2018 [cited 2020 Jun 10]. Available from: <http://www.hips.hacettepe.edu.tr/eng/tdhs2018/anaraporsunum2.pdf>
 39. Global Burden of Disease Collaborative Network. *Global burden of disease study 2017 (GBD 2017) cause-specific mortality 1980-2017*. Institute for Health Metrics and Evaluation (IHME). Seattle; 2018.
 40. Jakab M, Hawkins L, Loring B, Tello J, Ergüder T, Kontas M. Better non-communicable disease outcomes, challenges and opportunities for health systems, No. 2, Turkey Country Assessment. Copenhagen; 2014.
 41. Cashin C, Bloom D, Sparkes S, Barroy H, Kutzin J, O'dougherty S. *Aligning public financial management and health financing (Health financing working paper no. 4)*. Geneva; 2017.

9 Glossary of acronyms

Acronym	Full Name
FMP	Family Medicine Program
GP	General Practitioner
HTP	Health Transformation Program
HWC	Health and Wellness Center
NCD	Non-Communicable Disease
PHC	Primary Health Care