THE TABRIZ HEALTH COMPLEX PROJECT IN IRAN

UNIVERSITY OF WASHINGTON STRATEGIC ANALYSIS, RESEARCH & TRAINING (START) CENTER

REPORT TO THE BILL & MELINDA GATES FOUNDATION

PRODUCED BY: BOYA GUO, BROOKS MORGAN, MIRANDA DELAWALLA, & PAUL DRAIN

SEPTEMBER 14, 2020

START CENTER

STRATEGIC ANALYSIS, RESEARCH & TRAINING CENTER

Department of Global Health | University of Washington

PRE-IMPLEMENTATION

SOCIOPOLITICAL STRUCTURE

Iran's political circumstances have undergone momentous changes over the past four decades. Iran experienced many difficulties following the 1979 revolution, including internal political struggles and economic disorder. The post-revolution era was a tumultuous time, exacerbated by the Iran-Iraq war, which resulted in a protracted period of health and economic rebuilding in Iran. The main focus from 1989 to 1993 was to implement a social, economic, and cultural development plan to reconstruct war-damaged areas.[1] The political isolation and economic sanctions placed on Iran since 2006 have devastated Iran's economy, limited the transfer of healthcare knowledge and technology from other countries, and has led to a decline in international aid.

HEALTHCARE LANDSCAPE

The primary health care system in Iran has undergone various reforms and can be considered in four phases. The first phase started in 1975 when Iran started an international movement to provide primary care services to rural populations via "health houses" staffed with community health workers (known as the *behvarz* program).[1,2] These health houses were located in the rural areas and served as the first level of contact between patients and the health system. However, there was a shortage of health workers in primary health care and the number of health houses was not enough to respond to the increase in health needs.[3] Importantly, no unified health care system existed in the country.[4]

The second phase began with more fundamental steps towards universal equitable access to healthcare services with the establishment of the Ministry of Health and Medical Education (MoHME) and a nationwide primary health care network in 1985 with the goal of reducing inequities and expanding coverage and access to care in deprived areas.[5,6] However, inadequate policy management resulted in a poor referral system and fragmented care. Positive effects were only seen in the first level of care delivery.[7]

The third phase was characterized by the creation of rural and urban Family Physician Programs (FPP), which were established in 2005-2010 in areas with a population of fewer than 50,000 residents.[8] However, several challenges remained.[9] First, the rural FPP has improved access to the healthcare services, but improvement in case detection and quality of care remains questionable. Second, there are considerable concerns in the referral system between levels I and II in both urban and rural programs. Third, there was no efficient planning to implement the family physicians as the gatekeepers of health care system effectively.[10] The FFP still had limited financial resources, lack of sustainability, high out-of-pocket payments, and lacked improvement in services.[11]

The fourth phase started in 2013 when the MoHME introduced the Health Sector Evolution Plan to achieve universal and comprehensive health services coverage.[12] The main objectives of this reform were to increase coverage of basic health insurance, reduce health expenditure, improve hospital organization and quality of services, and provide equitable inpatient care.[12] Some potential challenges remained, such as a high financial burden on the government, neglect of primary care, unequal distribution of specialists, and disregard of outpatient services.[7]

However, primary health care was still not implemented equally and adequately throughout the country. Specifically, urban primary services were not able to meet the health needs of the population, especially in slum areas. There was also an extensive use of private services for simple health problems. Family doctors did not exist in the urban health centers, but only in rural regions where there was an extremely low ratio of doctors to residents (approximately 1 doctor to 4000 inhabitants).[13]

HEALTH SYSTEM STRUCTURE

The health system in Iran is centralized and all health services are supervised by the MoHME. The MoHME runs the largest health care delivery network in Iran, responsible for health policy formulation, resource mobilization, monitoring, and evaluation.[8] The MoHME fulfills these goals through delegating the implementation of healthcare services to medical universities at provincial level. The medical universities are autonomous entities with semi-autonomous control over the health sectors for their designated regions.[14] The president of each medical university is the highest authority and reports to the MoHME.[15]

The health system is organized into three main levels (**Annex 1**). The first level is the national primary healthcare network, which provides public health and primary care services and management. The second level is represented by the district health network as the independent health authority to coordinate between the hospitals and the health centers in the district. The third level is comprised of specialty health care services, which are mainly located in urban areas.

Healthcare services are delivered through three main channels in Iran: the public-government system, the private sector, and non-governmental or charity organizations.[5] MoHME has the authority to oversee and regulate both the public and private health sectors. The public sector in Iran is the main

provider of primary care services. Primary health care services such as prenatal care and vaccination are provided free of charge in public facilities across the country.[15] Aside from providing primary care, Iran's public sector also provides a considerable amount of second and third level health services. The private sector mainly focuses on the second and third level health care services in urban areas.[15] The public sector owns 80% of all hospital beds and plays a main role in providing inpatient services. In contrast, the private sector is the dominant provider of outpatient services, including auxiliary and diagnostic care.[5]

IMPLEMENTATION

THE MODEL

The Tabriz Health Complex Project (THCP) is one of three models for urban areas: 1) the Tabriz Health Complex model; 2) the Family Physician model (in Fars and Mazandaran Provinces), and 3) the Comprehensive Health Center and health post. The THCP was developed by the Tabriz University

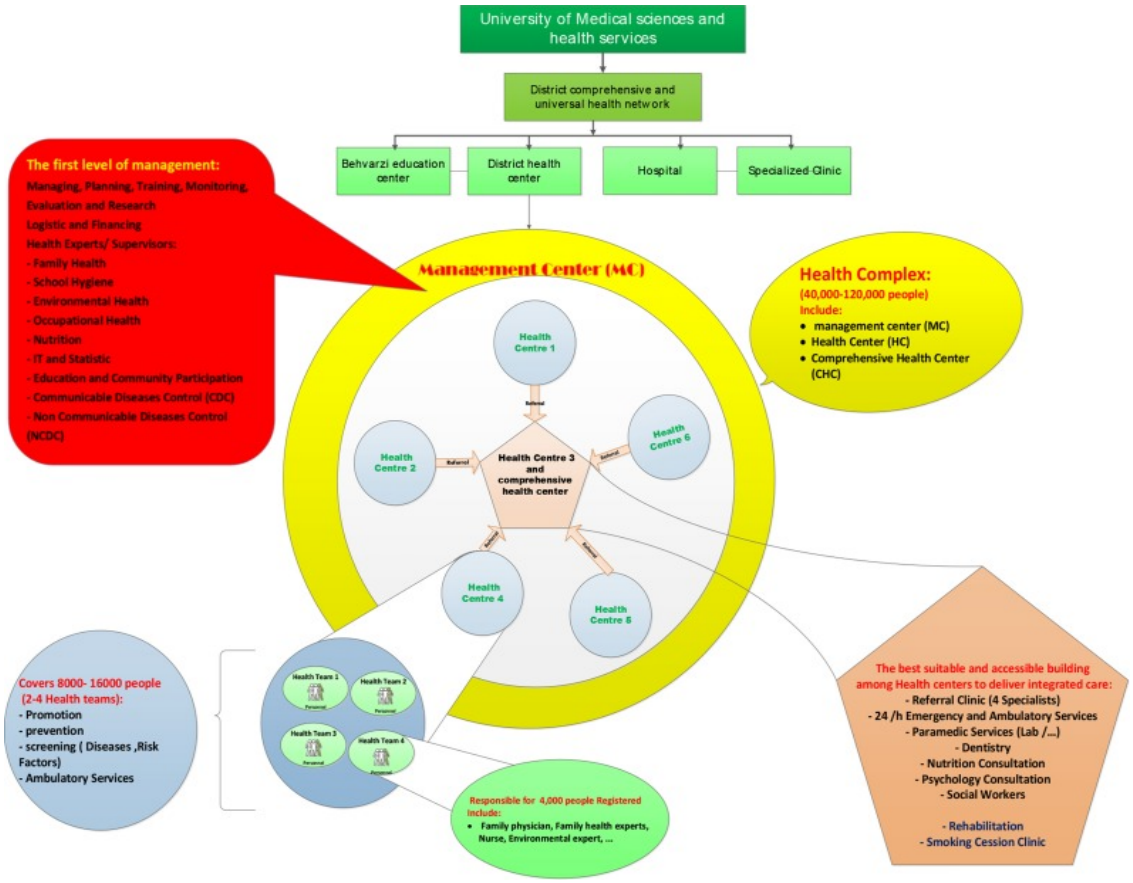


Figure 1. The structure of the Tabriz Health Complex model.[12] Each health complex (ringed in yellow), serves 40,000 to 120,000 people and is comprised of a Comprehensive Health Center (middle) with affiliated smaller Health Centers (peripheral), each of which host a set of health teams.

Table 1. Integrated Service Package in the Health Complex Model.[12]

Service package	
Self-care services	Urgency services in disasters
Targeted screening and identification of risk factors	Consultation and care of diet and physical activity
Recognizing and treatment of acute and chronic disease	Consultation and care of social health
Pregnancy and childcare	Maintain and improve the management of infectious diseases
Middle-aged and elderly care	
Consultation and mental health care	Rehabilitation services
Occupational and Environmental Health Services	Outpatient and minor surgery procedures
Referral and Specialized outpatient treatment	Oral and dental Health Services
Pharmaceutical and Paraclinical care	Home care services
Emergency services	

of Medical Sciences in 2013 during the Health Sector Evolution Plan. It was implemented in the form of a pilot project in the Tabriz suburban area, East Azerbaijan province.[16,17] A health complex is defined as an "integrated people-centered healthcare organization to deliver the active and coordinated care services to the catchment population against identified per-capita payment, under District Health Centre policies and regulations".[14]

The main objectives of the THCP are to 1) expand services, population coverage, and financial protection; 2) reform the structure and procedures for patients to benefit from available resources; 3) modify the current payment methods; and 4) improve the behavior of healthcare providers, and patients; 5) increase the quality of healthcare services.[16]

The structure of the Tabriz Health Complex Model is shown in **Figure 1**. Each health complex covers about 40,000 to 120,000 people and includes a management center, several health centers, and one comprehensive health center (CHC). The THCP delivers a comprehensive integrated healthcare package to patients at different levels with financial support, especially in marginalized areas, while also participating in education and research (**Table 1**).[16]

In each health center associated with the complex, there are usually two to four health teams, responsible for the health care of around 4,000 people. Each health care team consists of at least one family physician, one family health expert (non-clinician), four to eight community health workers, one nurse, and one receptionist or registrar to deliver prevention, promotion, treatment, and non-communicable disease care services.[16] Each health center also has a dietitian, a mental health professional, and an occupational or environmental health expert who provides a service package to the population. A physician is responsible for leading the health center.

A comprehensive health center is a facility with the most integrated health care services All-day emergency and ambulatory services and a referral clinic are located in each CHC. The referral clinic has at least four specialists (an internist, pediatrician, gynecologist, and psychiatrist) who accept patients referred from the health centers. Testing results and recommendations are returned to the referring general practitioner. In addition to referrals, specialists at each CHC are also responsible for

monitoring referrals, follow-up of referred patients, training of family physicians, and responses to telephone counseling. Nutrition and psychiatry consultation, dentistry services, and some social services are also delivered in CHC.

A management center monitors the process and provides logistics and administrative support to all the health centers in a local geographic area. The management center includes units for health experts divided into family and school health experts, disease control experts, occupational, and environmental health experts. A set of predefined tasks such as planning, training, research, monitoring, and evaluation are allocated to these group of experts.[18]

Compared to the traditional Iranian primary care model, innovative features of the Health Complex project include: public-private partnership, people-centered primary care, health promotion and prevention, the establishment of a referral system within the region (the organic connection between the first and second levels), creation of electronic health records (EHR) for all covered individuals, the establishment of a purposeful evaluation system connecting each level of healthcare delivery, and a performance-based payment system.[16]

Currently, 18 health complexes are contracted with the private sector and nine of them are located in Tabriz. These health complexes cover around 1,260,000 people in East Azerbaijan province. The Iranian government is planning to extend the program to more regions in other districts and provinces.

PAYMENT MECHANISMS

A mixed payment method is used for the model including per-capita, fee for service, and bonus payments (**Figure 2**). Capitation-based payments from the MoHME are used for disease prevention,

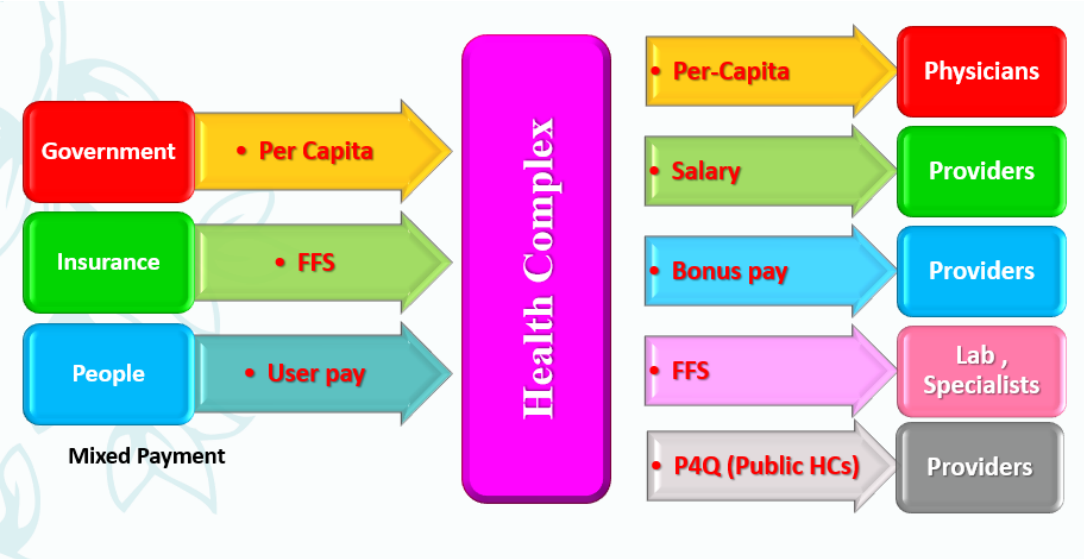


Figure 2. Payment Mechanisms in the Health Complex Model (Tabrizi, presentation slides: *PHC and Health Complex Model in the Islamic Republic of Iran*)

Table 2. Pre-employment Training and Duration.[12]

Title	Duration	Target group
Pre-employment training		
Preliminary	36 hours	All care providers
Complementary	120 hours	All care providers
Local health management	16 hours	Management Team
On-the-job training		
Main challenges - Scenario/Problem Based	1.5 hour/week, monthly schedule	All care providers
Service package - Care delivery		All care providers
Leadership and health management		Management Team
Role Playing		Management Team

health promotion, case finding, and treatment. Out-of-pocket payments are required for ambulatory services, medications, paramedic services, and rehabilitation. Bonus payments are allocated for special activities related to regional health needs and district-specific programs.[16] The model also uses a pay-for-performance system. Around 80% of the per-capita payment is paid to health complex monthly and the rest 20% is paid based on graded performance from evaluations.[16] The amount of per-capita payment differs based on the quality of services. A quality evaluation is made by provincial and district health center experts every six months. If health cooperatives deliver better quality services, they earn more money. Most preventive health services in each service package are free of out-of-pocket charges for patients. Dentistry services are free for children under 14 years of age and pregnant women. For some services, which are not covered, CHCs charge customers directly but based on pre-set rates, which are usually lower than in the private sector.[16, 17]

POST-IMPLEMENTATION

MONITORING AND EVALUATION

Six-day pre-employment and on-the-job training courses are required for all employees upon entering health complexes (**Table 2**).[16] Self-evaluations are performed by providers, bi-monthly internal evaluations are conducted by the management center, and external evaluations are presided over by the district health center every third month. A board of trustees meeting in each complex is also held every three months. Finally, at least once a year, the university's Vice Chancellor for Health provides an assessment of the district health networks and sub-sections.[19] A detailed evaluation process and the implementation of public-private participation (PPP) are shown in **Annex 2**.

The effectiveness assessment of the THCP was conducted by the Tabriz Health Management and Safety Promotion Research Institute at baseline and two years after initiation of the program. The

School of Health Management and Medical Informatics at the Tabriz University of Medical Sciences is scheduled to conduct cost-effectiveness analysis and the calculation of risk-adjusted per-capita.

BENEFITS AND OUTCOMES

The THCP in Iran has improved the organizational, financial, and geographic access of patients to health services.[20] Patients' health histories were documented using EHR. The level of public satisfaction and good feedback from experts on the model has increased after the implementation.[20] The mechanisms used in this model strengthen the referral system and enhance the continuity of service delivery care. A comprehensive EHR and report system allows fast, convenient, effective referrals, safer transmission of health information, a standard set of data on each patient, and easy access to general practitioners. Transparent coordination and communication exist at different levels of service to strengthen service continuity. The strategy of the health complex can be described as relaying not only on the treatment of disease, but also understanding what causes diseases with the assistance of health professionals such as psychologists, nutritionists, and occupational health and environmental specialists.

In addition, the number of health institutions and human resources in the suburb regions in Tabriz has increased significantly. The current 18 health complexes in East Azerbaijan province covers a population of total 1,260,000 with 60 staff members, including an average of seven general practitioners or family physicians.[21,22] The essential service packages provided to individuals as support (per-capita payment by the government) and also different mixed payment methods make the payment process more efficient than the traditional salary system.

DATA AND METRICS

One study is currently assessing the effectiveness of the Health Complex model.[17] However, there is limited information on the routine data collection via EHR or on the usage of operational metrics. The research protocol by the model designers identified the key outcomes of interests as: "community empowerment, participation, primary care trust, national health policy trust, non-communicable disease risk factors profile, self-care, health care utilization and responsiveness, maternity health care, child health care and vaccination, quality climate status in health facilities, diabetic care and management,

Table 3. Data collection plan in each sampling cluster of the effectiveness research for Health Complex Model in Iran.[13]

Number	Households	Questionnaire
1	1–5	Household information, community empowerment and participation, socioeconomic situation, risk factors questionnaire, self-care
2	6–9	Household information, PHC trust, socioeconomic situation, health care utilization, and responsiveness
3	10	Household information, socioeconomic situation, PHQ, ADHD, GHQ, health care utilization and responsiveness, PHC trust
4	11–12	Household information, socioeconomic situation, PHQ, ADHD, GHQ
5	13–20	Household information

Abbreviations: PHC, primary health care; ADHD, attention deficit hyperactivity disorder; PHQ, patient health questionnaire; GHQ, general health questionnaire.

hypertension care and management, depression care and management, acute care capacity, primary care data management status, and health equity".[17]

Various data collection tools were designed to measure these outcomes, such as household questionnaires, psychiatric assessment tools, pregnancy care questionnaires, nutrition and food intake questionnaires, and health care trust questionnaires. Household interviews were conducted in the Akhmagaya slum area located in the southwest of Tabriz metropolitan and Oskou, a southern district in East Azerbaijan province, in 2016.[17] Follow-up data collection will be performed every two years. The data collection plan in each sampling cluster is illustrated in **Table 3**. However, there is still a need to conduct evaluations over a longer period and at a national level to judge the model performance.

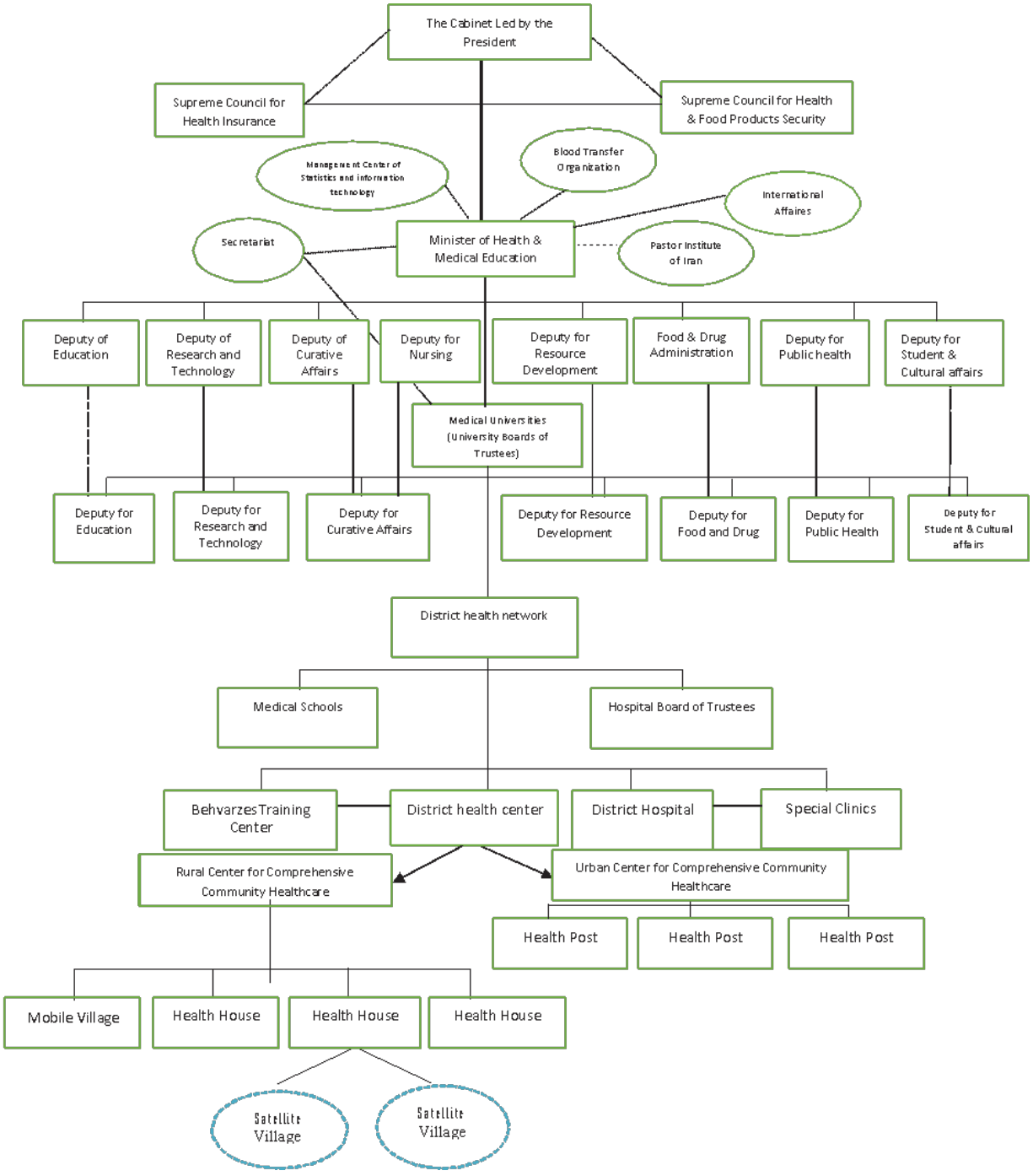
CONCLUSION

The ultimate goal of the Tabriz Health Complex Project (THCP) is to provide a comprehensive health service package to all people covered, especially to marginalized populations. Providing this volume of care to people on the outskirts of cities who are among the most vulnerable in society is a big step towards maintaining and promoting primary care in Iran. The THCP attempts to solve some of the existing problems in Iran's primary health system such as low coverage and quality of primary care in urban areas, increasing out-of-pocket payments, a fragmented referral system, and a lack of integrated care service care and health prevention. It does this through strengthening public-private partnerships, creating effective service delivery channels using EHR, and establishing cost-effective payment methods. THCP is a potential model for improving the health care journey of patients because of its transparent and coordinated communication between different levels of services through a responsive

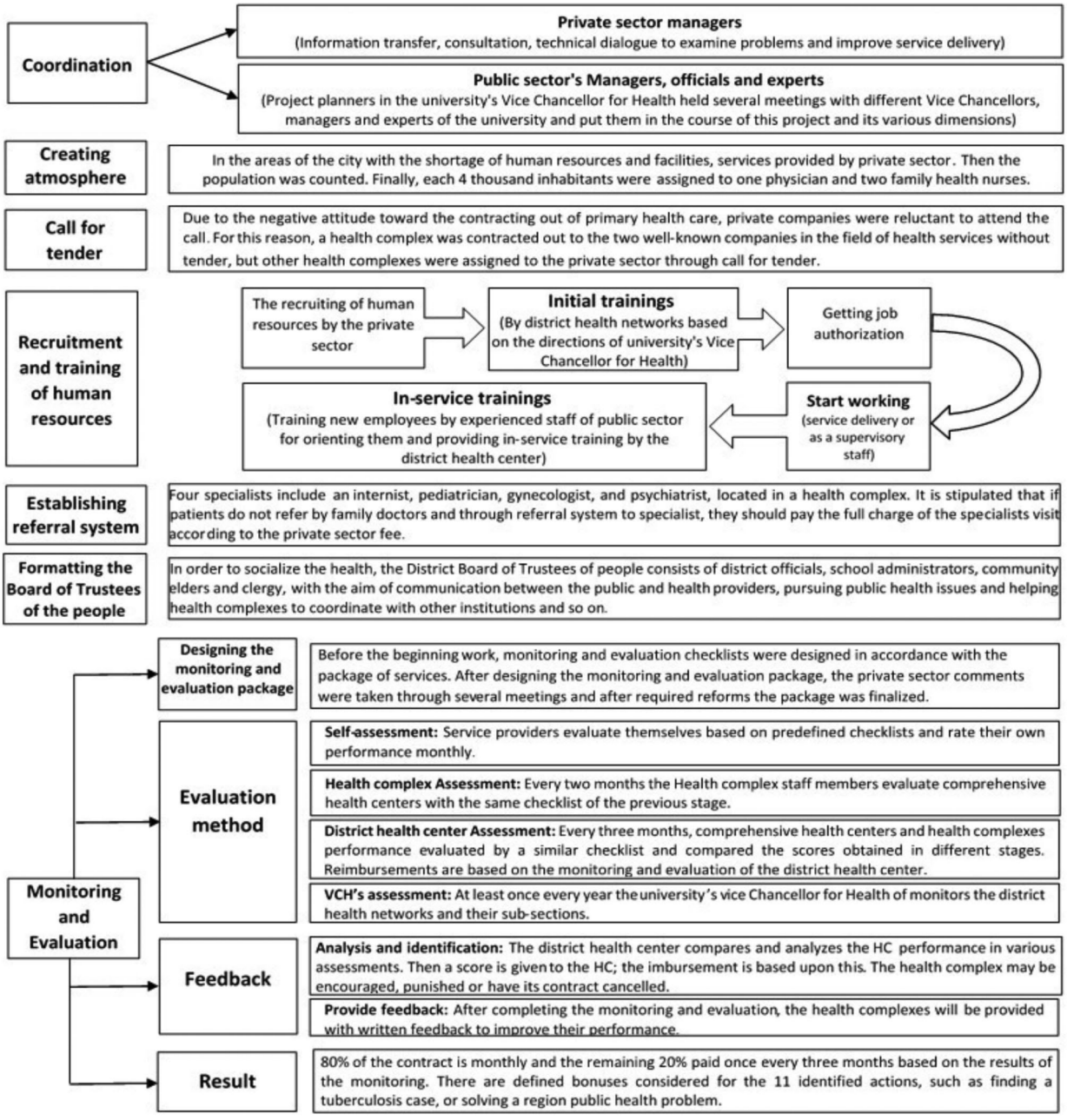
referral system, and its comprehensive package of services provided at different levels. Therefore, the THCP pilot model can be considered as a strong model of public-private partnerships and provides potential solutions to address many of the problems in the primary care system in Iran. However, there is still a need to conduct a long-term evaluation to judge the model performance in different regions in Iran.

ANNEX

Annex 1. Organizational Structure of the Health System in Iran[8]



Annex 2. The implementation of public-private partnership policy and the evaluation of performance in a health complex model in East Azerbaijan Province, Iran[19]



REFERENCES

1. New WHO publication FROM ALMA-ATA TO THE YEAR 2000 : Reflections at the Midpoint = Nouvelle publication de l'OMS FROM ALMA-ATA TO THE YEAR 2000 : Reflections at the Midpoint. *Wkly epidemiol rec*. Published online 1989.
2. Tabrizi JS, Pourasghar F, Gholamzadeh Nik-Joo R. Status of Iran's primary health care system in terms of health systems control knobs: A review article. *Iran J Public Health*. 2017;46(9):1156-1166.
3. Javanparast S, Baum F, Labonte R, Sanders D, Heidari G, Rezaie S. A policy review of the community health worker programme in Iran. *J Public Health Policy*. Published online 2011. doi:10.1057/jphp.2011.7
4. Sajadi HS, Majdzadeh R. From primary health care to universal health coverage in the islamic Republic of Iran: A journey of four decades. *Arch Iran Med*. Published online 2019.
5. Doshmangir L, Bazyar M, Majdzadeh R, Takian A. So Near, So Far: Four Decades of Health Policy Reforms in Iran, Achievements and Challenges. *Arch Iran Med*. Published online 2019.
6. Shadpour K. Primary health care networks in the Islamic Republic of Iran. *East Mediterr Heal J*. Published online 2000.
7. Heshmati B, Joulaei H. Iran's health-care system in transition. *Lancet*. Published online 2016. doi:10.1016/S0140-6736(15)01297-0
8. Doshmangir L, Moshiri E, Mostafavi H, Sakha MA, Assan A. Policy analysis of the Iranian Health Transformation Plan in primary healthcare. *BMC Health Serv Res*. Published online 2019. doi:10.1186/s12913-019-4505-3
9. Khayatzadeh-Mahani A, Takian A. Family physician program in Iran: Considerations for adapting the policy in urban settings. *Arch Iran Med*. Published online 2014. doi:0141711/AIM.0012
10. Khedmati J, Davari M, Aarabi M, Soleymani F, Kebriaeezadeh A. Evaluation of urban and rural family physician program in Iran: A systematic review. *Iran J Public Health*. Published online 2019. doi:10.18502/ijph.v48i3.882
11. Arab-zozani M, Husseini barghazan S. Health Sector Evolution in Iran; A Short Review. *Evid Based Heal Policy, Manag Econ*. 2017;1(3):193-197.
12. Moradi-Lakeh M, Vosoogh-Moghaddam A. Health sector evolution plan in Iran; Equity and sustainability concerns. *Int J Heal Policy Manag*. Published online 2015. doi:10.15171/ijhpm.2015.160
13. Manenti A. Health situation in Iran. *Med J Islam Repub Iran*. Published online 2011.
14. Damari B, Aminloo H, Farzan H, Rahbari M, Alikhani S. Ways to improve the current performance of the boards of trustees of medical universities in Iran. *Iran J Public Health*. Published online 2013.
15. Mehrdad R. Health system in Iran. *Japan Med Assoc J*. 2009;52(1):69-73.
16. Tabrizi JS, Karamouz M, Sadeghi-Bazargani H, et al. Health complex model as the start of a new primary healthcare reform in Iran: Part B: The intervention protocol. *Iran J Public Health*. 2019;48(1):147-155. doi:10.18502/ijph.v48i1.803
17. Tabrizi JS, Farahbakhsh M, Sadeghi-Bazargani H, Hassanzadeh R, Zakeri A, Abedi L. Effectiveness of the health complex model in Iranian primary health care reform: The study protocol. *Patient Prefer Adherence*. 2016;10:2063-2072. doi:10.2147/PPA.S107785
18. Nosratnejad S, Esmaeili R, Tabrizi JS, Mahboub-Ahari A. Development of age-sex adjusted capitation payment: The experience of Iranian public health complexes. *Int J Health Plann Manage*. 2019;34(1):e183-e193. doi:10.1002/hpm.2631

19. Gharaee H, Tabrizi JS, Azami-Aghdash S, Farahbakhsh M, Karamouz M, Nosratnejad S. Analysis of Public-Private Partnership in Providing Primary Health Care Policy: An Experience From Iran. *J Prim Care Community Heal*. 2019;10. doi:10.1177/2150132719881507

20. Dehnavieh1 R, Noorihekmat S, Masoud A, et al. Evaluating the Tabriz Health Complex Model, Lessons to Learn. *Iran J Epidemiol*. 2018;13(Special Issue):59-70.

21. Tabrizi JS, Haghgoshayie E, Doshmangir L, Yousefi M. New public management in Iran's health complex: A management framework for primary health care system. *Prim Heal Care Res Dev*. 2018;19(3):264-276. doi:10.1017/S1463423617000767

22. Amirhosintakian A, Akbarsiari A, Bayrami F, Sadiqtabrizi J, Mohammadi A, Alirezaei S. Design and use of health complexes for universal health coverage focusing on urban slum dwellers in Tabriz, Iran. *NASPA J*. 2005;42(4):1. doi:10.1017/CBO9781107415324.004