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Policy Evaluation of Primary Care Doctor Practice Based on PCMH in Shenzhen

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Abstract: This work is to conduct a comprehensive policy evaluation of the Patient-Centered Medical Home (PCMH) in Shenzhen since the year of 2009. Main stakeholders of the primary care policy are community residents, government, general hospitals, health agencies, community service providers and medical insurance institutions, drug suppliers. Equity is improved through better community service coverage condition, increase of outpatients in community health service centers, decrease in medical expenditure and the implementation of zero price addition policy of drugs. Better performance in terms of public health cost saving upon primary care doctor policy based on PCMH in Shenzhen are reflected in the reduced proportion of government grant by 7.1%. Each community health service center provided medical services are increased from an average of 97.1 to 156.1 person-times per day, and every doctor servicing with an average of 27.1 to 53.2 person-times per day from 2009 to 2013. Every 1 million from government found brings 2.2 million in operational revenue in 2013, with ratio 1:2.2 compared to 1:1.6 in 2008. Based on the findings from this policy evaluations, it appears that the introduction of PCMH model in public health may improve health care equity, efficiency of community service utilization and cost saving in Shenzhen. However, the extent in which PCMH might be useful also depends on the stakeholders' effort, as well as the validity of the data used in this evaluation report.

Keywords: policy evaluation, the Patient-Centered Medical Home, community health service, public health equity, efficiency of community service, stakeholder analysis.

1. Objectives

The objective of this report is to identify the relevant stakeholders in the implementation of Patient-Centered Medical Home (PCMH), to examine parameter changes in public health related parameters upon implementation of PCMH, and to evaluate the primary care doctor practice in terms of performance and improvements in equity and cost efficiency, based on available data from the documents concerning PCMH in Shenzhen since 2009.

2. Stakeholders, Coalitions and Partnerships of Community Health Service Practice Based on PCMH

2.1. Community Residents

The direct and largest beneficiaries of this policy should be community residents, which is influenced mostly by the policy. Implementing the policy of first treatment in community and dual referral system based on PCMH may impact community residents in several ways (including those relevant to public health), as described below: changing the residents' behavior of seeking doctors, medical cost reduction of the residents, improved medical services.

2.2. Community Service Providers

Under the implement of first diagnosis in community and dual referral system based on PCMH, community health service centers in Shenzhen and general practitioners or primary care doctors, are the service providers facing great challenges to provide high-quality primary care services, since the residents doubt and distrust the quality of primary care services served by community health service centers. Such a policy leads to a new establishment of coalition and partnership between presidents and general practitioners with expanded scope of health care service in community health service centers.

2.3. General Hospitals and Specialist Physicians

The impact of first treatment in community and dual referral system of community health service to general hospitals and specialist physicians was indirect but still important to consider the influence because of potential reduction in the number of patients admitted under the PCMH model. Coalition and partnership between general hospitals and community health service centers are mainly focused on referral. Impact on general hospitals and specialist physicians are reflected in weakened function of outpatient of general hospital and reduced income.

2.4. Government

The local government undertakes the main financial responsibility of public grant part, whose financial department is a stakeholder directly involved in the policy implementation process. Increasing health investment refers to the redistribution of government fund. Although political power of the Government may override potential resistance from stakeholders, the government should try to provide some form of incentive supporting the reform, and clearly layout the advantages and issues (alongside with solutions) which may arise upon implementation of PCMH.

2.5. The Health and Family Planning Commission

Performance assessment and supervision of the community health service centers in Shenzhen overseen by the Health and Family Planning Commission of Shenzhen Municipality. As a local health authority, it is necessary to protect not only the interests of the residents, but also the benefits of its community health service centers. How to make full use of authority reasonably and prevent the government rent-

seeking behavior requires further consideration. Whether to introduce third-party assessment or not, there would be some impact on the actual use of financial funds due to self-interest seeking.

2.6. Medical Insurance Institutions

Medical insurance institutions are directly affected by the implementation of the primary doctor system practice in first diagnosis in community. If a large amount of government funds is put into the community pool, it will affect the investment in medical insurance department which may be a potential loser with fewer invest in insurance. However, with the reduction in the cost of outpatient visits, the health insurance institutions may have improved revenue and can better utilize the medical insurance funds (15, 16).

2.7. Drug Suppliers

The implementation of first diagnosis in community is based on better capabilities of primary health care institutions and supply of drugs is the main content of the improvement. The consistency of drug use among different levels of medical institutions is the basic guarantee for the sustainable development of a hierarchical diagnosis and treatment system. In 2011, the community health service centers in Shenzhen started only be equipped with a list of essential drugs to achieve “Zero Price Addition Policy of Drugs”(26), leading to profit erosion. Given the fundamental goal of any business corporates is to maximize their own profits.

3. Supply and Demand for Community Health Care and Resource Allocation in Shenzhen

In 2016, there were 613 dependent community health service centers and 17 independent community health service centers in Shenzhen (28). Every community health service center served 10,000 -20,000 people, with services including maternal and children health care, planned immunization, chronic disease management, health education, elderly health care, etc.

4. Impact on Public Health Equity

4.1. Community Service Coverage

In 2013, 609 community health centers in Shenzhen provided 14.838 million public health services with an increase of 19.6% over the previous year, achieving 1 million people with the service of two-way referral. The amount of treatment visits reached 34.7 million, which exceeded one third of the total medical treatment volume of medical institutions in Shenzhen(37). Up to December in 2016, 95% of the community health centers in Shenzhen have carried out family doctor services, providing signing services for nearly 785,900 families and 2,236,800 residents. During the period of Twelfth Five-Year Plan (2011-2015), Shenzhen government invested 59.91 billion yuan to promote the standardization of the community health centers and hospital expansion. It has realized that there was at least a tertiary hospital in each district and a community health center in each community.

4.2. Increase of Utilization in Community Health Service Centers

The number of outpatient visits to the community health service centers in Shenzhen has increased year by year from 2005 to 2013 (data of outpatient visits in community health service centers are not available after 2013), which means that the accessibility and demand of primary care is rising. In 2013, community health service centers throughout Shenzhen hosted 30 million outpatients, as compared with 11 million in 2005. In 2010, the number of outpatients by migrant workers reached 13,290,300 person-times, accounting for 47.28% of the total number of outpatients in community health service centers with the medical expense per outpatient of migrant workers as 36.65 RMB. The number of public health services provided by community health service centers reached 6.87 million person-times caring for 2.099 million key population.

4.3. Decrease in Medical Expenditure

In Shenzhen, medical expenditure per outpatient of community health service centers decreased from 59.05 yuan in 2005 to 49.57 yuan in 2010, which is decreased by 16.1%, with a year-on-year decrease of 3.4%(24, 38). With the figure of 49.57 yuan for per outpatient of community health service centers, it only accounts for 38.7% of medical expenditure per outpatient of all the medical institutions in Shenzhen. In 2013, the average medical cost per visit in community health center of Shenzhen declined again with 47.3 yuan, which was only 28.3% of the average medical cost per visit of all medical institutions in Shenzhen.

4.4. Zero Price Addition Policy of Drugs

Since April of 2018, all the community health service centers in Shenzhen have achieved zero price addition of essential drugs, which means patients buy essential drugs in the community health service centers will get 15% cheaper price since the previous addition rate of drug is 15%(40). Governments guide citizens with small illnesses to the community through the price mechanism, to help form a reasonable medical order and reduce the burden of outpatient services in general hospitals.

5. Cost-effectiveness Analysis for Impact on Utilization and Cost Efficiency

The cost-effectiveness analysis is conducted based on the results of these two surveys to evaluate the performance of primary care doctor policy based on PCMH in Shenzhen, which included a random sampling survey conducted by Shenzhen Center for Disease Control and Prevention, randomly sampled 60 community health centers to study the basic situation of Shenzhen in 2013 (26) and another survey in 2008 (41) with 74 community health centers in Futian District stands for the service level of Shenzhen in 2008.

5.1. Revenue

Compare the following 2 charts, the revenue source from government dropped from 38.2% in 2008 to 31.1%. That is to say the PCMH community health service centers in Shenzhen have better ability to operate the center with less proportion of grants from government. It is a good evidence showed to prove the public health cost for government financing saving on community service.

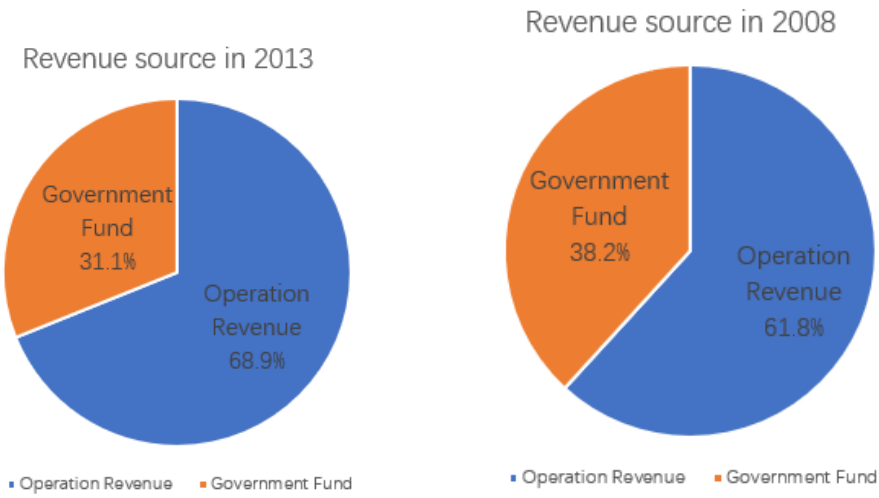

Figure 1. Revenue source of community health service centers in Shenzhen, 2008 and 2013.

5.2. Expenditure

In 2013, regardless of payroll and bonus payments and pharmacy cost, the total operation and management costs of the 60 community health centers in 2013 was 28.89 million yuan, in which the rental cost for housing was 16.54 million, accounting for 57.6% of the total operating management costs.

In 2008, the 74 community health centers spent 136 million yuan including 26.7% for payroll and bonus payments, and 38.1% for pharmacy cost. It means that the total operation and management costs of the 74 community health centers in 2008 was 47.9 million yuan, in which the rental cost for housing and utilities accounting for 47.2% of the total operating management costs.

5.3. Efficiency in cost and utilization

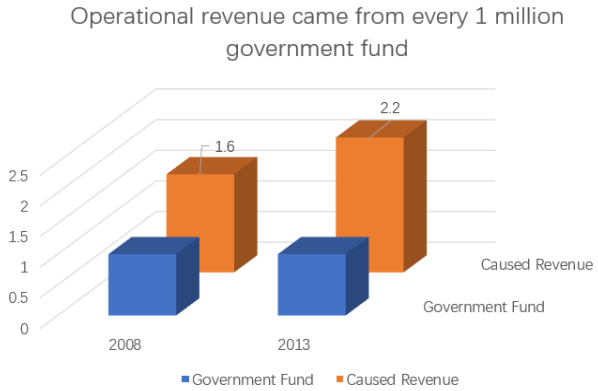

Figure 2. Operational revenue came from every 1 million yuan of government fund of community health centers in Shenzhen, 2008 and 2013

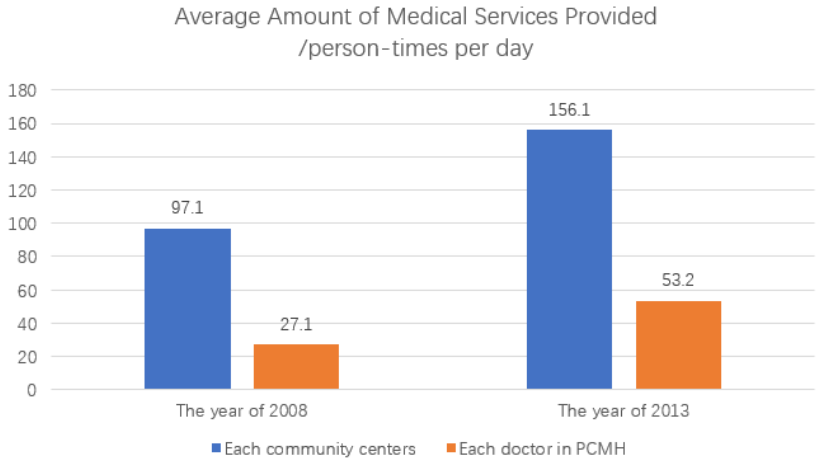

Figure 3. Average amount of medical services provided by each community center and each doctors of centers in Shenzhen, 2008 and 2013.

Compared with the two situations in 2008 and 2013 in Chart 8, every 1 million from government found brings 2.2

million in operational revenue in 2013, with 0.6 million more than that in 2008, which show us the improvements in cost efficiency. In Chart 9, the average amount of medical services provided by each community center is 156.1 person-times per day in 2013 which is 59 units more than that in 2008. Similarly, the figure in each doctor of PCMH centers in Shenzhen is increased from 27.1 to 53.2 person-times per day before and after the introduce of PCMH model in community centers. The increase in such two figures prove the improvements with more efficient utilization of services in PCMH.

6. Conclusion

Since 2009, the Shenzhen Health Administration Department formulated a pilot program for the family doctor responsibility system based on PCMH in Shenzhen, and improvements in community health service have been seen in which the implementation of first diagnosis in community and dual referral system of community health service are important parts of the strategy to achieve the goals.

Based on the findings from this policy evaluations, it appears that the introduction of PCMH model in public health may improve health care equity, efficiency of service utilization and cost saving in Shenzhen. However, the extent in which PCMH might be useful also depends on the stakeholders' effort, as well as the validity of the data used in this evaluation report.

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