The Pathway of China's Integrated Delivery System: Based on the Analysis of the Medical Consortium Policies*

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[Abstract] With the deepening of China's health-care reform, an integrated delivery system has gradually emerged with the function of improving the efficiency of the health-care delivery system. For China's integrated delivery system, a medical consortium plays an important role in integrating public hospitals and primary care facilities. The first medical consortium policy issued after the COVID-19 pandemic apparently placed hope on accelerating the implementation of a medical consortium and tiered health-care delivery system. This paper illustrates the possible future pathway of China's medical consortium through retrospection of the 10-year process, changes of the series of policies, and characteristics of the policy issued in 2020. We considered that a fully integrated medical consortium would be a major phenomenon in China's medical industry, which would lead to the formation of a dualistic care pattern in China.
Key words: health-care reform; integrated delivery system; medical consortium; tiered health-care delivery system; health policy

An integrated delivery system has been deemed to have efficiency through the combination of physicians, hospitals, medical groups, and other elements of the delivery system together with some mechanisms, such as information technology, disease management programs, shared savings program, etc.[1–3]. In 2015, the World Health Organization (WHO) indicated that integrated care ensured people would receive a continuum of health promotions, disease prevention, diagnosis, treatment, disease management, rehabilitation, and palliative care services[4]. An integrated delivery system would also prove helpful in reducing medical costs and improving quality[5–7].

Before the new health-care reform in 2009, the health-care delivery system was fragmented in China. Prevention, primary care, tertiary care, and rehabilitative services were all provided separately. Then scholars suggested China should build an integrated delivery system to integrate a whole range of services[8, 9]. After the completion of the phase of insurance expansion and infrastructure development of the health-care reform, the Chinese Government are now focusing on improving the efficiency of the health-care delivery system through public hospital reform and an integrated delivery system[10].

A medical consortium is considered as the main formation of the integrated delivery system in China. Firstly, the structure and target of the medical consortium would be similar to an integrated delivery system. Secondly, they would all represent a type of union composed of several single care providers through special collaborative protocols. Although first implemented by local governments and medical organizations, the medical consortium would gradually become the key element in the health-care reform policies for its ability in improving primary care and promoting the tiered health-care delivery system.

In order to make China's integrated delivery systems more effective, the General Office of the State Council (GOSC), National Health Commission (NHC), and National Administration of Traditional Chinese Medicine (NATCM) have issued a series of policies about a medical consortium since 2016. In July 2020, the NHC and NATCM jointly released a blockbuster policy, *Notice on Releasing Management Measures for a Medical Consortium (trial)* (Guo Wei Yi Fa [2020] No. 13)[11], which provided a more constructive solution in enhancing the collaboration of all organizations in the medical consortium with full integration, which would transform China's health-care system.

Thus, this paper aims to analyze the characteristics of the policy issued in 2020, and the most possible

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*This project was supported by the National Natural Sciences Foundation of China (No. 71874058 and No. 72174068).

consequences. In order to better understand the context of the policymaking, we followed an analytical framework to combine the development process of the medical consortium and changes of the series of policies in China. We believe our work would help readers to have a better understanding of China's integrated care. Simultaneously, the experience from the development of a medical consortium would generate some inspiration for scholars and policy practitioners.

1 DEVELOPMENT OF A MEDICAL CONSORTIUM IN CHINA

1.1 Early Phase

Before the central government officially specifies the name, an integrated delivery system could be expressed as medical consortia, health-care alliance, hospital alliance, and urban medical group[12, 13].

The earliest medical consortium in mainland China can be traced back to the "Tiexi District First Medical Cooperative Consortium", which was established by the Shenyang Health Bureau and five other local authorities in July 1984. It was composed of 8 hospitals affiliated to enterprises and two primary care stations. After one year of practice, the bed occupancy rate of Shenyang City grew from 52% to 85%, and the staff's monthly health expenditure of the enterprise decreased from 10 000 yuan to 5900 yuan[14].

This horizontal integration broke the barriers among the authorities, excavated the potentialities of current health-care facilities, and kept more patients in primary care stations. In July 1986, the national experience sharing meeting of the medical consortium was held in Shenyang City, at which Gu Yinqi, Deputy Minister of Health at that time, announced that approximately 1600 medical institutions participated in this integration movement, and 984 medical consortiums emerged[15].

After the 1990s, many medical institutions joined in a collaborative partnership to resist the pressure and risk of market competition through a medical group, hospital trusteeship, or technological cooperation. Local governments conducted many of them. Shanghai Renji Medical Group, for instance, was well-known for its commercial hospital trusteeship as early as 2003. Therefore, a medical consortium was one of various collaborative ways, and its biggest difference was the combination among more than two medical institutions compared with a one-to-one pattern of hospital trusteeship or technological cooperation. From the integrated degree of property rights, scholars divided a medical consortium into three types: full-integration, half-integration, and flexible-integration.

In the early phase, the influence of a medical consortium was limited mainly due to the historical background. At that time, the main task of the Chinese medical system was to seek quantitative development and meet the increasing demand for medical services. Furthermore, health-care organizations focused more on their own development rather than the common development of regional medical institutions, which had caused the fragmentation and discontinuity of the health-care delivery system[8].

1.2 Thriving Phase

Since 2010, governments have coincided with tertiary hospitals in the establishment of a medical consortium. Governments began to realize that strengthening the primary and secondary hospitals was the key to building the tiered health-care delivery system, then to resolve the fragmentation and discontinuity of the system. Simultaneously, the tertiary hospitals began to strengthen their influence in the health-care system in order to adapt to the stress in a competitive market.

In March 2011, the Ruijin-Luwan Medical Consortium was established, and attracted wide attention. It was the first medical consortium in Shanghai and first group in China consisting of one tertiary hospital, two secondary hospitals, and four primary care stations[16]. Beijing also tried to construct a regional medical consortium in 2012.

In January 2013, at the National Health Work Conference, Chen Zhu, former Minister of the NHC, proposed that China should actively explore and promote a medical consortium to improve the capacity of primary care[17]. This was possibly the first time that a top health official had declared to include a medical consortium into health-care reform. Two months later after the declaration, Chen Zhu mentioned a medical consortium again in a media interview during the "Two Sessions", which were the annual meetings of the national legislature and the top political advisory body. Chen Zhu pointed out that the next step for China's health-care reform was to improve the capacity of primary care through an integrated framework, in which primary care facilities could interact with large hospitals without any limitations[18].

With the government's endorsement, a medical consortium gradually became popular. Peking University Third Hospital led the largest urban medical consortium of Haidian District with 18 hospitals and seven primary care stations in 2014[19]. As a result, 53 alliances had been established in Beijing by the end of 2016[20]. Under this trend, the establishment of medical consortia flourished all over the country.

In January 2015, the National Health and Family Planning Commission (NHFPC, precursor of the NHC) issued the *Notice on the Key Points of Health and Family Planning Work* in 2015 (Guo Wei Ban Fa [2015] No. 3)[21], in which a medical consortium would be one of the main measures to improve the capacity

of primary care and to push forward the progress of a tiered health-care delivery system. In September, the GOSC issued the *Guidance on Promoting the Construction of The Tiered Health-care Delivery System* (Guo Ban Fa [2015] No. 70)[22], which proposed that a medical consortium should be regarded as a collaborative mode to push forward the progress of a tiered health-care delivery system at the national level. A tiered health-care delivery system was regarded as the key element of health-care reform. Ma Xiaowei, the incumbent Minister of NHC, made the same point during the "Two Sessions" in 2019[23].

Medical consortia with full integration became the reform stars for the good performance in patient referral[12]. In Shenzhen, following the local government's direction, the Luohu Hospital Group was established in 2015. Five district level hospitals and 23 community health stations were integrated into one corporate body with 6 resource sharing centers and 6 administrative centers[24]. In the same year, Tianchang, a county level city in Anhui province, established two county medical communities. One was led by Tianchang People's Hospital, the other was led by Tianchang Hospital of Traditional Chinese Medicine. Sixteen township medical institutions and 152 village clinics could choose to join one of the communities[25].

There are two other types of medical consortia. In 2013, Beijing Children's Hospital founded the Beijing Children's Hospital Group with 1800 hospital members from 24 provinces[26], which played an important role in transmitting medical technology and knowledge. This was called a specialist alliance, for the leading hospital was usually a specialized hospital or had advanced disciplines from general hospitals, while the members were other specialized hospitals or had disciplines from other general hospitals.

Telemedicine collaboration became another type of medical consortium with the advantages of providing technical guidance across space. In 2012, the China-Japan Friendship Hospital set up the Telemedicine Management and Training Center, which had connections with more than 2000 hospitals. The Telemedicine Management and Training Center could provide approximately 5000 remote consultations and 100 online training services annually[27]. The telemedicine collaboration network integrated technical and training resources to improve the capacity of medical services in remote areas.

Medical consortia led by a tertiary hospital belong to the flexible type because the leading hospital cannot break through the boundary of property rights and share human resources, facilities, and finance with other members. Even so, those flexible hospital alliances improved the ability of the primary care facilities through dispatching physicians from hospitals to primary care stations. Nevertheless, others deemed that a flexible partnership guided these alliances to become channels of capturing patients from lower-level hospitals to higher-level hospitals[19].

That is why the Luohu Hospital Group and Tianchang county medical community were outstanding representatives of their own types through full-integration. Due to the different locations, the Luohu Hospital Group belongs to the urban medical group, while the Tianchang county medical community belongs to a county medical community. For the achievement of improving the capacity of primary care, keeping more patients in primary hospitals, and reducing costs[28], the NHC introduced them nationwide.

Then in 2016, the first relevant policy, *Guidelines on the Pilot Work of Establishing Medical Consortia* (Guo Wei Yi Fa [2016] No. 75)[29] released by the NHFPC, officially proposed a medical consortium and identified it into four types: urban medical group, county medical community, specialist alliance, and telemedicine collaboration network. In general, an urban medical group is located in a city, while a county medical community is located in a rural area. We summarized the characteristics of the different types of medical consortia in table 1.

1.3 Current Status

In April 2017, the GOSC issued the *Guidance on Promoting the Construction and Development of Medical Consortia* (Guo Ban Fa [2017] No. 32)[30] based on the previous policy. Both policies provided programmatic guidelines for the construction of a medical consortium. In August 2018, the policy, *Notice on the Work Program for the Comprehensive Performance Assessment of a Medical Consortium*

Table 1 Characteristics of the different types of medical consortia

Name	Characteristics
Ruijin-Luwan Regional Medical Consortium	Flexible medical consortium led by a famous tertiary hospital
Peking University Third Hospital Medical Consortium	Flexible medical consortium led by a famous tertiary hospital
Luohu Hospital Group	An urban medical group with asset and management fully integrated
Tianchang county medical community	County medical community with fully integrated management and shared saving
Beijing Children's Hospital Group	Specialist alliance for medical technology and knowledge transmission
China-Japan Friendship Hospital telemedicine collaboration network	Technical collaboration for remote rural areas by telemedicine

(Trial) (Guo Wei Yi Fa [2018] No. 26)[31], issued by the NHC and NATCM, made arrangements for regular performance assessment. This policy, to some degree, provided concrete behavioral guidance for both the hospitals and local governments. In August 2019, the NHC and NATCM collaborated in issuing a new medical consortium policy. The *Notice on the List of Pilot Cities for the Construction* of an Urban Medical Consortium (Guo Wei Yi Ban Han [2019] No .646)[32] announced 118 pilot cities to participate in the construction of an urban medical consortium, and each city should establish at least one urban medical group with obvious performance. Thus, the flurry of policy announcements shows the government's resolve of leading the development of a medical consortium in a better way. That is a fully integrated medical consortium should be the main pathway by which the capacity of primary care would be enhanced under incentives and constraints.

However, the establishment of a medical consortium is far from being a national program. According to the NHC, by the end of 2019, the Chinese government had been pushing programs of a fully integrated medical consortium in 118 cities and 567 counties. There were 1408 urban medical groups, 3346 county medical communities, 3924 specialist alliances, and 3542 telemedicine collaboration networks. As such, a total of 7840 social medical institutions had participated in the medical consortium programs[28]. Based on the official data from the Ministry of Civil Affairs of the People's Republic of China, there were 293 prefecture level cities, and 1335 counties by the end of 2018[33]. Thus, the proportion of active cities was 40.27%, and the proportion of active counties was 42.27%; both below 50%. By the end of 2019, there were 2749 tertiary hospitals and 9687 secondary hospitals[34], but only 1408 urban medical groups and 3346 county medical communities. Therefore, a number of hospitals were not involved in this program. In terms of the proportion of regional coverage, the progress of China's medical consortium was still on the way.

In July 2020, after the COVID-19 pandemic was gradually under control, the NHC and NATCM jointly issued a policy[11] to accelerate the construction of a medical consortium and gradually realized the grid management in a medical consortium. In addition, policymakers expected that a medical consortium could have a positive effect on pandemic prevention with a tiered health-care delivery system and interactive mechanism. As a consequence, leading hospitals were required to construct an emergency rescue team, emergency stock system, and conduct emergency drills. Leading hospitals were also required to guide primary care facilities in better implementing the public health function, especially in community prevention and early warnings. A specialist alliance for critical medicine, and respiratory and infectious diseases were encouraged actively to improve the capacity of pandemic treatment. This was apparently influenced by COVID-19.

2 CHARACTERISTICS OF THE POLICY ISSUED IN 2020

Based on the experience from three years of pilot work and combating COVID-19, the policy, *Notice on Releasing Management Measures of a Medical Consortium (Trial)* (Guo Wei Yi Fa [2020] No. 13), which was issued in 2020, planned a very clear route for the construction of a medical consortium. The most important issue was to unify the management mode in the urban medical group and county medical community that was full integration and would be the dominant form. While the integrated delivery system had proved the competitiveness in increasing the health-care quality, improving the outcomes, and reducing costs, there was no doubt that flexible cooperation had lost the competition. For this purpose, the policy had behavior boundaries for the participants and made a clear regulation.

2.1 Strengthening the Leading Role of the Government

The policy clarified the responsibilities of the central and local governments. In the policy, the local governments should keep the previous investment pattern and amount for the local medical institutions participating in the medical consortium. On the other hand, the local governments should formulate the plan of establishing medical consortia, and divide the jurisdiction into grids by factors, such as geographical relations, population distribution, people's demand for healthcare, and allocation of health resources. Medical institutions in each grid should be integrated as one medical consortium except hospitals affiliated with the NHC, universities, and the provincial government. The best hospital in each grid would be the leader of the medical consortium. Additionally, all the process should be under the supervision of the local governments.

As the representative of the central government, the NHC acts in the most important role and is responsible for the supervision and guidance of establishing medical consortia nationally, while local health commissions take the responsibilities for the work within their respective jurisdiction. In the government system, the medical consortium program would be led by the central government and performed by local governments[12]. In conclusion, the government would play the roles of director and producer.

2.2 District Level Hospitals and County Level Hospitals: Main Characters

As mentioned above, hospitals affiliated to the NHC, universities, and the provincial government

should not be involved in the fully integrated medical consortium, which means the main characters would be played by district level hospitals and county level hospitals. As such, integration would be easier at the local and district level than the provincial or central level. As the best local hospital in the district or county, such as Luohu District People's Hospital and Tianchang People's Hospital, the leading hospital would take charge of the medical services, quality control, training, finance, human resources, information, and logistics under a special council. In effect, there would be a multi-sites health service system to provide an integrated and continuous service for inhabitants of the grid.

In addition, the urban medical group and county medical community would be conducted through full integration, which would indicate that the Chinese government had chosen full integration over the other two types after years of pilot work. Another evidence was that the NHC chose the Luohu Hospital Group and Tianchang county medical community as excellent cases rather than other famous hospitals, which proved the same result. With full integration, the people would have access to integrated care from the medical consortium within the grid. This would also mean the status quo that a flexible medical consortium had become a channel to capture patients from lower-level medical institutions to top famous hospitals would be restrained.

2.3 Top Tertiary Hospitals Will Play Technical Guidance Roles

Hospitals affiliated to the NHC, universities, and provincial government are generally tertiary hospitals. Those tertiary hospitals are at the top of the Chinese health-care system with strong market competitiveness and solid technological strength. Hence, secondary, and primary care facilities would tend to seek a partnership with them. When becoming members of the medical consortium led by one of those tertiary hospitals, lower-level medical institutions would share their brand influence and attract more patients. In another way, those tertiary hospitals could gain more complicated and severe cases through this kind of flexible collaborative relationship in the name of a green referral channel. Compared with full integration, such alliances based on technical cooperation could not break through the barriers of finance, human resources, and facilities. We could not imagine employees from primary care facilities and tertiary hospitals sharing the same job responsibility and salary level.

Thus, the policy arranged those tertiary hospitals to climb the peak of medical technology independently, and carry out technology dissemination through a flexible medical consortium type, such as specialist alliance and telemedical collaboration network. By doing so, China would truly promote the realization of integrated care and change the phenomena that tertiary hospitals treat their cooperative lower-level hospitals as patient pastures.

As a consequence, top tertiary hospitals would be gradually excluded from the center of the stage. Compared with providing technical guidance to lower-level hospitals directly in the past, they would face fewer leading hospitals representing a cluster of medical institutions in the future. The history of freely choosing partners among lower-level hospitals has been the past. However, top tertiary hospitals might face an intense environment in the race of patient referral (table 2).

Table 2 National policies of a medical consortium

Time	Title	Main content
September 2015	Guidance on Promoting the Construction of the Tiered Health-care Delivery System	A means of collaborativeon to promote a tiered health-care delivery system
December 2016	Guidelines on the Pilot Work of Establishing Medical Consortiums	Officially defined the four forms of a medical consortium
April 2017	Guidance on Promoting the Construction and Development of Medical Consortia	Proposed four guarantee measures for establishing a medical consortium
August 2018	Work Program for the Comprehensive Performance Assessment of a Medical Consortium (Trial)	Formulated the comprehensive performance appraisal plan and process
August 2019	Notice on the List of Pilot Cities for the Construction of an Urban Medical Consortium	Identified 118 pilot cities
July 2020	Notice on Releasing Management Measures for Medical Consortium (Trial)	Accelerated the progress and pushed forward grid management

2.4 One Medical Consortium Corresponds to One Grid

The policy pointed out that the medical consortium would follow the strategy of grid management. That is, one medical consortium, regardless of an urban medical group or county medical community, would serve the people as one grid. The services would include prevention, diagnosis, treatment, nutrition, rehabilitation, nursing, and health management. This would be the application of a modern urban governance method in the field of medical development. Thus, grid management would be the sub-level of a community structure. This could also realize the city-district linkage and social resource sharing through the urban grid management information platform.

During China's fight against COVID-19, grid management for ordinary residents has achieved a positive outcome in community prevention[35].

Therefore, it is reasonable to apply the grid management mode in the medical consortium program. Grid management also takes the population from a specific region as a unit and clarifies the population size covered by a single medical consortium.

In addition, a medical consortium has shown at least three advantages in COVID-19 prevention. Firstly, the medical consortium integrated resources of all the medical institutions belonging to it, and set goals and tasks for every medical institution, such as leading hospitals treating infected patients, and primary care facilities taking the responsibility of checking, observing, and isolating patients. Secondly, leading hospitals dispatched experienced medical professionals to work in primary care facilities and transferred infected patients from care facilities to upper-level hospitals in a timely manner. Thirdly, leading hospitals offered training of wearing protective clothing and other prevention skills to the staff of member hospitals.

3 FUTURE PATTERN OF CHINA'S CARE SYSTEM: DUALIZATION

As mentioned above, the main purpose of China's medical consortium program is to improve the capacity of primary care, then to promote the establishment of a tiered health-care delivery system. As shown in table 3, in the past five years, while tertiary hospitals accounted for less than 3% of the total number of medical institutions, they own about 30% of the beds, and provide approximately 35% of the inpatient service and 20% of the outpatient service. The proportion of tertiary hospitals and other proportion indicators have even increased year-on-year. The trend reveals that people are still more willing to visit tertiary hospitals instead of primary and secondary health facilities[34, 36–39], which was proved by Yip[8]. Nevertheless, there is still a long crusade before the establishment of China's tiered health-care delivery system. Moreover, the facts indicate the goal of increasing the visiting rate to approximately 90% in the county region would be more difficult to achieve. Additionally, the goal was set by the policy, *Opinions on the Comprehensive Reform Pilot of County-level Public Hospitals* (Guo Ban Fa [2012] No. 33), which was issued by the General Office of the State Council in 2012[40].

That is why we need a tiered health-care delivery system. The fundamental purpose of a medical consortium is to improve the capacity of primary care facilities and promote the establishment of a tiered health-care delivery system. Most patients with common diseases would visit primary care facilities and secondary hospitals, while a small number of intractable cases would be transferred to tertiary hospitals.

The policy claimed to fully push forward the grid management and exclude top tertiary hospitals from being a fully integrated medical consortium. Hence, the central government has decided the way to establish a tiered health-care delivery system, in which common diseases with low technical requirements would be treated in an urban medical group or county medical community, and rare and severe diseases with high technical requirements would be treated in top tertiary hospitals. Therefore, a dualistic care pattern would be formed: on one hand, fully integrated medical consortia would serve the majority of the population by providing basic care; on the other hand, top tertiary hospitals would serve a small number of people with rare and severe diseases. This point was manifested in the 2021 policy released by the General Office of the State Council, *Opinions on Promoting High-quality Development of Public Hospitals* (Guo Ban Fa [2021] No. 18). In the part of "establishing a new system", the functions of fully integrated medical consortia and national high-level hospitals were reidentified[41].

As shown in fig. 1, the future health-care service market of China would be dominated by a dualistic care pattern. The government would continue to strengthen the capacity of primary care facilities through the fully integrated medical consortium and make them a better health gatekeeper. The county medical community or urban medical group located in each grid should solve approximately 90% of the health problem within the county and urban district. Simultaneously, top tertiary hospitals would keep improving the diagnosis and treatment ability through technical innovation and large equipment investment, so to solve the remaining rare and severe diseases, which could not be adopted by a fully integrated medical consortium.

The two camps, namely, the fully integrated medical consortium and top tertiary hospitals, would form a cooperative relationship rather than be in competition. When the primary care facilities recognize that they could not handle a patient who needs higher-level treatment, they would refer the patient to a better hospital internally, such as the leading hospital

Table 3 The ratio of tertiary hospitals to total health facilities

Year	2015	2016	2017	2018	2019
Ratio of outpatient visits	19.51%	20.55%	21.15%	22.26%	23.62%
Ratio of hospitalizations	32.44%	33.82%	34.36%	36.51%	39.42%
Ratio of institutions	0.22%	0.23%	0.24%	0.26%	0.27%
Ratio of beds	29.19%	29.87%	29.72%	30.55%	31.54%
Ratio to the total bed occupancy rate	115.69%	115.83%	116.00%	115.80%	116.63%

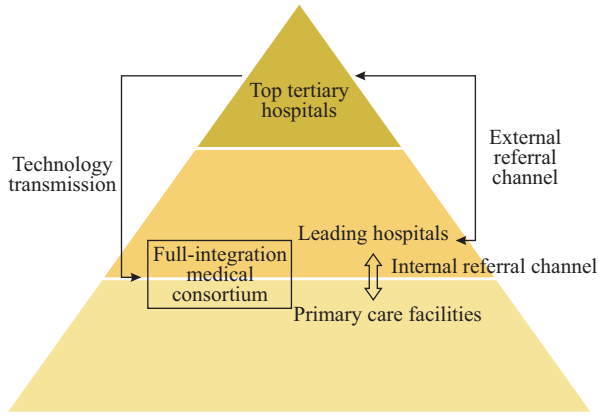

Fig. 1 A dualistic health-care delivery pattern in China

of the medical consortium. When the entire medical consortium finds that it could not cure this patient, the patient would be transferred to top tertiary hospitals. Simultaneously, tertiary hospitals would undertake the tasks of developing and transmitting medical technology and training medical staff for health-care facilities from the county and urban district. Thus, an integrated health-care system would be built, in which the two camps would be connected by two chains: one would be the referral channel; the other would be the technological cooperation relationship.

4 CONCLUSION

With the continuous development of China's economy and society, the voice of carrying out integrated care is getting louder and louder in health-care reform. A medical consortium, the integrated delivery system in China, has attracted much attention from the governments and hospitals, and has been given high hopes in improving the tiered health-care delivery system of China.

We reviewed the development process and a series of national policies of a medical consortium, revealed the internal logic of medical consortium policy evolution, and explained the reasons why full integration could be outstanding. In addition, we made a prediction about how China's integrated delivery system could evolve and indicated the possibility of a dualistic care pattern based on China's medical consortium policy's evolutionary logic.

Furthermore, the experience from China may provide reference for countries which plan to enhance primary care through integrating medical institutions into an organic whole. Moreover, as the pandemic is still raging, integrating medical institutions of local districts to prevent the pandemic, just like what China's medical consortia have done, may be beneficial to countries that are still struggling with COVID-19.

Although the blueprint is perfect, we still recommend that the central government should pursue a more proactive action in view of the current lack of regional coverage. The NHC should also take stronger measures to encourage local governments to take concrete actions in accordance with the policies already promulgated. Additionally, all participants should summarize the systemic problems encountered in the actual work to carry out timely policy adjustment.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

REFERENCES

1 Crosson FJ. 21st-century health-care-the case for integrated delivery systems. N Engl J Med, 2009,361:1324-1325
2 Robinson JC, Casalino LP. Vertical Integration and organizational networks in health-care. Health Aff (Millwood), 1996,15(1):7-22
3 Burns L, Pauly M. Accountable Care Organizations May Have Difficulty Avoiding The Failures Of Integrated Delivery Networks of The 1990s. Health Affairs, 2012,11: 2407-2416
4 WHO. WHO global strategy on people-centred and integrated health services. 2015. Available at: http://apps.who.int/iris/bitstream/handle/10665/155002/WHO_HIS_ SDS_2015.6_eng.pdf?sequence=1. (Accessed Sept 10.20).
5 Richard V. Integrated care: a story of hard won success. BMJ, 2012,344:e3529
6 Shi G, Zhou B, Cai ZC, *et al*. Referral by outreach specialist reduces hospitalization costs of rural patients with digestive tract cancer: a report from medical consortium in China. Rural Remote Health, 2014:2317
7 Su M, Zhou ZL, Si YF, *et al*. Effect of health alliances on the quality of primary care in urban China: a coarsened exact matching difference-in-differences analysis. Lancet, 2019. https://doi.org/10.1016/S0140-6736(19)32422-5.
8 Yip W, Hsiao W. The Chinese Health System At A Crossroads. Health Affairs, 2008,27:460-468
9 Ling L, Yang X, CHEN QL. An integrated healthcare system: The strategic choice of Chinese healthcare reform. Chin J Health Policy (Chinese), 2012,5(9):10-16
10 Yip W, Fu HQ, Chen AT, *et al*. 10 years of health-care reform in China: progress and gaps in Universal Health Coverage. Lancet, 2019,394:1192-1204
11 National Health Commission. Notice on releasing Management Measures for Medical Consortium (Trial); 2020. Available at: http://www.nhc.gov.cn/yzygj/s3594q/202007/62e9df95714741fa95f9074828848f05.shtml. (Accessed Sept 10, 2020).
12 Ye JF, Jiang X, Jing Q, *et al*. International Comparison and Enlightenment of Integrated Health Services Models. Manag Rev (Chinese), 2019,31(6):199-212
13 Liang J, Zheng X, Chen ZY, *et al*. The experience and challenges of healthcare-reform-driven medical consortia and Regional Health Information Technologies in China: A longitudinal study. Int J Med Informat, 2019,131:103954
14 Shenyang Health Bureau. Practice and Experience of

Medical Cooperative Consortium in Shenyang City. Chin Hospital Manag (Chinese),1986,6:5-7
15 Gu YQ. Push health reform and develop horizontal joint: speech at National experience sharing meeting of Medical Cooperation Consortium. Chin Hospital Manag (Chinese), 1986,(9):5-8
16 Qu JM, Li WP, Yan B, *et al*. Research on vertical integration of medical resource in Shanghai. Chin J Hospital Administr (Chinese), 2011,7:499-502
17 Chen Z. Chen Zhu's work report at the 2013 National Health Work Conference. 2013. Available at: http://www.gov.cn/gzdt/2013-02/08/content_2330241.htm. (Accessed Sept 10, 2020).
18 People's Daily Online. Health Minister Chen Zhu: Medical Consortium will be the next priority in Health-care Reform. 2013. Available at: http://theory.people.com.cn/n/2013/0306/c40531-20691843.html (Accessed Sept 10, 2020).
19 China Joint Study Partnership. Deepening Health Reform In China[R]. 2016
20 People's Daily Online. Beijing Municipal Commission of Health and Family Planning: Beijing has established 53 regional medical consortiums. 2017. Available at: http://bj.people.com.cn/n2/2017/0211/c82840-2970-1833.html. (Accessed Sept 10, 2020).
21 National Health and Family Planning Commission. Notice on the key points of health and family planning work in 2015. Available at: http://www.nhc.gov.cn/wjw/ghjh/201503/9667b5c159064c1a9d8fa0476d73d5d8.shtml. (Accessed Sept 10, 2020).
22 Guidance on Promoting the Construction of The Tiered Health-care Delivery System (Guo Ban Fa [2015] No. 70). http://www.gov.cn/zhengce/content/2015-09/11/content_10158.htm. (Accessed Sept 10, 2020).
23 A tiered health-care delivery system for China. Lancet, 2019,393:1178
24 Wang X, Sun XZ, Birch S, *et al*. People-centred integrated care in urban China. Bull World Health Organ, 2018,96:843-852
25 Shen LJ, Hang CF, Li LL, *et al*. Exploration and Practice of County Medical Community Model—Taking Tianchang City, Anhui Province as An Example. Health Econom Res (Chinese), 2018,12:7-11
26 Chinese hospital magazine. The outpatients of Beijing Children's Hospital and medical consortium hospitals had wane and wax. 2019. Available at: https://www.sohu.com/a/296651665_464498 (Accessed Sept 10, 2020).
27 China-Japan Friendship Hospital. Introduction to Telemedicine Management Training Center affiliated to National Health Commission. 2017. Available at: https://www.zryhyy.com.cn/Html/News/Articles/301492.html (Accessed Sept 10, 2020).
28 National Health Commission. Interpretation of the Measures for the Administration of Medical Consortium (Trial). 2020. Available at: http://www.nhc.gov.cn/yzygj/s3594r/202007/0f58f93e3f5a4a26ab9079f78bf2dca5.shtml. (Accessed Sept 10, 2020).
29 National Health and Family Planning Commission. Guidelines on the Pilot Work of Establishing Medical Consortiums. 2016. Available at:http://ggzy.guizhou.gov.cn/ztzl/yycgzc/202003/t20200327_55672002.html. (Accessed Sept 10, 2020).
30 General Office of the State Council. Guidance on Promoting the Construction and Development of Medical Consortiums. 2017. Available at: http://www.gov.cn/zhengce/content/2017-04/26/content_5189071.htm. (Accessed Sept 10, 2020).
31 National Health Commission. Notice on Work Program for Comprehensive Performance Assessment of Medical Consortium (Trial). 2018. Available at: http://www.nhc.gov.cn/yzygj/s3594q/201808/570358dbf0af41238f46bb89e4af538b.shtml. (Accessed Sept 10, 2020).
32 National Health Commission. Notice on the List of Pilot Cities for The Construction of Urban Medical Consortium. 2019. Available at: http://www.nhc.gov.cn/yzygj/s3594q/201908/a3a1723e0bcb49c6a575a101cc0fdc22.shtml. (Accessed Sept 10, 2020).
33 Ministry of Civil Affairs. Statistical Table of administrative Divisions of the People's Republic of China. 2018. Available at: http://xzqh.mca.gov.cn/statistics/2018.html (Accessed Sept 10, 2020).
34 National Health commission of China. Statistical Bulletin on the Development of China's Health Undertakings in 2019. 2020. Available at: http://www.nhc.gov.cn/guihuaxxs/s10748/202006/ebfe31f24cc145b198dd730603ec4442.shtml. (Accessed Sept 10, 2020).
35 Wei XX, Xu YF, Wang CL, *et al*. Research on the emergency management of the grid management of medical personnel in the medical community during the COVID-19 epidemic based on Wuli-Shili-Renli methodology. Chin J General Pract (Chinese), 2020,18(11):1884-1887
36 National Health commission of China. Statistical Bulletin on the Development of China's Health Undertakings in 2015. 2016. Available at: http://www.nhc.gov.cn/guihuaxxs/s10748/201607/da7575d64fa04670b5f375c87b6229b0.shtml. (Accessed Sept 10, 2020).
37 National Health commission of China. Statistical Bulletin on the Development of China's Health Undertakings in 2016. 2017. Available at: http://www.nhc.gov.cn/guihuaxxs/s10748/201708/d82fa7141696407abb4ef764f3edf095.shtml. (Accessed Sept 10, 2020).
38 National Health commission of China. Statistical Bulletin on the Development of China's Health Undertakings in 2017. 2018. Available at: http://www.nhc.gov.cn/guihuaxxs/s10743/201806/44e3cdfe11fa4c7f928c879d435b6a18.shtml. (Accessed Sept 10, 2020).
39 National Health commission of China. Statistical Bulletin on the Development of China's Health Undertakings in 2018. 2019. Available at: http://www.nhc.gov.cn/guihuaxxs/s10748/201905/9b8d52727cf346049de8acce25ffcbd0.shtml (Accessed Sept 10, 2020).
40 Central Government Portal. Opinions on the Pilot Comprehensive Reform of County-level Public Hospitals. 2012. Available at: http://www.gov.cn/zwgk/2012-06/14/content_2161153.htm.(Accessed Sept 10, 2020).
41 General Office of the State Council. Opinions on promoting high-quality development of public hospitals. Available at: http://www.gov.cn/zhengce/content/2021-06/04/content_5615473.htm. (Accessed Sept 10, 2021).

(Received Aug. 11, 2021; Accepted Nov. 4, 2021)