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Integration of Medical Resources under the Provincial Hospital Trusteeship Model in County-Level Medical Communities: A Case Study of X County, China

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Abstract: *This study explores the pathways and institutional mechanisms for integrating and coordinating high-quality medical resources under the provincial hospital trusteeship model within county-level medical communities. Using X County as a case study, it examines the challenges and opportunities associated with implementing counterpart assistance policies, with a particular focus on the mismatch between resource allocation and local healthcare needs. Guided by the principle of "One Hospital, One Specialty, Differentiated Development," the research proposes strategies to optimize the deployment of counterpart assistance personnel, strengthen resource-sharing mechanisms, and address systemic issues such as workforce shortages, technological disparities, and public distrust in primary healthcare institutions. Through empirical analysis of the restructuring process in X County's medical community and the establishment of a five-tier collaborative framework (provincial hospital–county general hospital–county hospitals–township health centers–village clinics), the paper underscores the importance of long-term incentives, demand-driven support, and regional resource integration in promoting equitable healthcare delivery. The findings reveal significant improvements in primary care capacity, talent cultivation, and technological innovation, offering practical insights for policymakers and healthcare administrators to enhance medical community models nationwide.*

Keywords: *County-level medical community; Primary healthcare institutions; Counterpart assistance; Differentiated development; Regional collaboration*

1. Background

1.1. X County Medical Community Model

The "Guiding Opinions on Promoting the Construction and Development of Medical Consortiums" (2017) and the "Notice on Promoting the Construction of Close County Medical and Health Communities" (2019) explicitly mandate the integration of regional medical and health resources, the sharing of county-level assets, and the downward redistribution of high-quality services to grassroots facilities[1]. In 2019, X County implemented a medical community model led jointly by three county-level hospitals, each responsible for coordinating 16 member units within its geographic area. In 2022, this arrangement was reorganized: leadership was consolidated under X County People's Hospital, merging the previous three-hospital governance into a single, unified county medical community model[2].

However, as the county medical community has developed, a growing number of issues have emerged one after another[3]. X County People's Hospital has experienced patient outflow to nearby large, comprehensive hospitals, leading to both quantitative and qualitative talent shortages. Its specialty services remain weak, disciplinary development is inadequate, and high-quality resources continue to drain away. Moreover, local physicians' limited capabilities have undermined the intended impact of counterpart assistance, while outdated equipment and underdeveloped information systems have been insufficient to support county-wide improvements in service capacity[4]. Although neighboring provincial hospitals possess ample resources, the significant development gap between those institutions and local providers has prevented provincial counterpart support personnel from delivering substantive assistance to primary-care centers, rendering much of the support merely formal.

However, in continued efforts to optimize the model, in December 2023 the X County People's

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Government and a leading provincial tertiary hospital formally signed an agreement to establish an intensive medical community under full trusteeship. Under this arrangement, the X County Medical and Health General Hospital was inaugurated, and a five-tier linkage system—spanning provincial hospitals → X County Medical and Health General Hospital → county hospitals → township health centers → village clinics—was put in place. Since the contract's enactment, the provincial hospital trusteeship has enabled X County to pilot diversified, coordinated development models that advance medical community growth. Through paired assistance programs, elite nursing initiatives, and "medical care at home" services, the community has continuously deepened the integration of high-quality resources, fostered regional collaboration, standardized service delivery, and ensured that X County residents can access advanced medical care nearer to home[5].

1.2. Composition and Current Status of Medical Staff in X County Medical Institutions

X County's medical community comprises 20 member units—four county-level hospitals and 16 primary medical institutions—serving approximately 450,000 residents. An internal audit by the X County Medical and Health General Hospital identified a total of 1,997 medical workers in the community, of whom 1,356 (67.90 %) are classified as healthcare professionals. Their educational backgrounds are as follows: 973 (48.72 %) hold college diplomas, 571 (28.59 %) possess bachelor's degrees, and only 3 (0.48 %) have postgraduate qualifications.

Among the 20 member units, the three county-level hospitals together employ 823 healthcare professionals (60.69 % of the community's total). Notably, one of these county hospitals—located in the old urban district—fields just 50 professionals (3.69 %), reflecting service capacity even weaker than some urban–rural junction clinics. The remaining 16 primary institutions account for 35.62 % of all healthcare professionals. Several of these primary institutions are constrained by geography and catchment population: for example, two facilities at urban–rural junctions maintain moderate staffing levels, whereas clinics in mountainous areas or at inter-county borders suffer severe shortages and serve only small populations.

This preliminary personnel analysis of all 20 member units reveals a pronounced imbalance in clinical staffing at the primary-care level, which currently falls short of meeting the community's basic healthcare needs.

1.3. X County Counterpart Support Problems

X County's health system is unique in that a provincial-level comprehensive tertiary hospital is located within the county, which has impeded the growth of local primary-care institutions, including municipal hospitals. The considerable development gap between these provincial facilities and county-level providers has limited the effectiveness of counterpart support personnel, preventing them from making a substantive impact at the grassroots level.

1.3.1. Lack of Effective Management of Counterpart Support Personnel

Most counterpart support personnel engage in assistance activities primarily to advance their professional titles. In county medical communities, these specialists are often drawn from well-resourced regional hospitals, which can exacerbate patient siphoning back to their home institutions[6]. Moreover, concerns about potential risks have led some recipient units to under-utilize and neglect these personnel. Constrained by limited administrative capacity, primary healthcare facilities lack robust management platforms and have not implemented appropriate performance-incentive mechanisms. Consequently, counterpart support personnel often exhibit low initiative and enthusiasm, reducing their participation to a mere formality and preventing them from leveraging their professional expertise to deliver substantive improvements at the primary-care level.

1.3.2. Primary Healthcare Institutions Do Not Fully Leverage Specialist Talent

Primary healthcare institutions often overlook the strengths of counterpart support personnel, resulting in a "big talent, small use" phenomenon. For instance, neurologists may be assigned to routine public-health duties, while neurosurgeons find themselves at facilities lacking the necessary surgical infrastructure—leading to significant underutilization of human resources. Moreover, outdated facilities and equipment, coupled with a weak technical foundation among existing staff, further limit these institutions' capacity to absorb and deploy high-level specialists effectively.

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1.3.3. Patients' Medical Preferences

Owing to the long-standing uneven development of regional medical resources, the limited service capacity of primary healthcare institutions, and entrenched care-seeking habits among county residents, trust in local clinics remains low, resulting in small patient volumes at these facilities[7]. Concurrently, patients typically rely on familiar physicians at higher-level hospitals and are unfamiliar with counterpart support doctors, which further suppresses outpatient attendance and diminishes the practical value of these support personnel in primary healthcare settings[8].

2. Countermeasures and Solutions for the County Medical Community Model in X County

The current operation of the county-level medical community still faces numerous challenges that impede the realization of its intended objectives and, if left unaddressed, may even lead to deviations from its core mission. Critical issues—such as clearly defining the community's strategic goals, establishing an effective organizational structure, and ensuring sustainable operational mechanisms that remain aligned with those goals—continue to be central to the medical community's development and demand ongoing reflection and adjustment[9]. Drawing on both the widespread challenges encountered in China's county-level medical community reforms and the innovative trusteeship model piloted in X County, the following measures have been implemented to maximize the contribution of counterpart support personnel and to advance the integrated sharing of medical resources within the community framework.

2.1. One Hospital, One Specialty, Differentiated Development

After the provincial-level hospital assumed trusteeship of the X County Medical Community, it launched a series of initiatives to address existing challenges—namely, professional staff shortages, lagging medical technologies, and low research output[10]. In particular, the provincial hospital implemented a "Two Hospitals Supporting One Department" assistance program in X County. By leveraging the expertise of paired-assistance professionals and adhering to the principle of differentiated development—"One Hospital, One Specialty"—the program establishes rigorous performance-evaluation mechanisms to optimize the deployment and impact of these resources.

The provincial hospital aligns its capacity-building initiatives and specialist deployments with the actual needs of each member institution by conducting thorough assessments of their service requirements and professional profiles. By facilitating regular exchanges, collaborative research projects, and other joint activities, it promotes the sharing and complementary use of medical resources[11]. Under the "Two Hospitals Supporting One Department" framework, this initiative fully integrates the provincial hospital's superior assets with counterpart support personnel—enhancing resource utilization while avoiding duplication. Professionals are strategically assigned according to each institution's specific needs and specialty profiles, ensuring that expertise matches demand and that talent-sharing mechanisms function effectively. This approach not only reduces the financial burden on the provincial hospital for specialist staffing but also maximizes the impact of counterpart support personnel. By preventing human-resource waste and addressing the clinical specialty needs of member institutions, it strengthens their service capabilities. At the same time, this model advances the provincial hospital's "Two Hospitals Supporting One Department" strategy by helping member institutions develop distinctive specialty departments and achieve differentiated growth.

2.2. Promoting Medical Resource Integration under the X County Medical Community Model

Promote resource sharing within the community by establishing a unified mechanism that grants all member institutions shared access to medical equipment, pharmaceuticals, and diagnostic and therapeutic technologies[12]. Encourage collaborative clinical practices—such as joint outpatient consultations and multidisciplinary case conferences—among member units to improve the efficiency of resource utilization.

Strengthen informatization by leveraging information technology to create an internal digital platform for the county medical community, enabling the centralized management and sharing of medical resources[13]. Through telemedicine solutions, implement remote consultations, training sessions, and continuing-education activities between provincial-level hospitals and all community institutions, thereby enhancing the diagnostic capabilities and service quality of local healthcare providers.

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2.3. Optimize Staffing Configuration and Establish a Long-term Incentive Mechanism

To enhance the effectiveness of the X County Medical Community, it is imperative to optimize the staffing configuration by establishing a robust selection mechanism for counterpart support personnel[14]. Counterpart support institutions should set stringent criteria for selecting individuals with strong professional skills, rich clinical experience, a strong sense of responsibility, and a dedicated spirit to serve in primary healthcare facilities. This approach ensures that the selected personnel are well-equipped to meet the specific needs of primary healthcare institutions.

Concurrently, enhancing long-term incentive mechanisms is crucial to encourage these personnel to introduce advanced technologies and management expertise from their home institutions to primary healthcare institutions through on-site assignments. This facilitates the transfer of knowledge and elevates the overall capacity of the healthcare system. Implementing a performance-based salary system, as adopted in China's healthcare reforms, can realign incentives to focus on service quality and efficiency rather than volume-based metrics.

Further improvement of the assessment system for counterpart support initiatives involves developing comprehensive evaluation criteria. Regular performance evaluations should be conducted to ensure that counterpart support personnel effectively fulfill their assistance responsibilities. Moving away from previous approaches that granted professional title appointments based solely on participation in support programs, the new system should consider actual contributions to recipient institutions. Essential assessment criteria may include demonstrable improvement in the comprehensive operations of primary healthcare institutions, measurable enhancement in their professional capabilities, and the achievement of research accomplishments applicable to primary healthcare practices.

Based on evaluated performance, counterpart support institutions may provide career advancement opportunities, such as professional title promotions, and benefits like subsidies to incentivize counterpart support personnel. This systematic approach aims to better motivate their engagement and dedication, ensuring effective knowledge transfer and sustainable capacity-building in the primary health service system. Additionally, non-financial incentives, including training opportunities, social recognition, and clear career development paths, have been identified as significant motivators for healthcare professionals.

By implementing these strategies, the X County Medical Community can strengthen its human resource foundation, enhance service delivery, and achieve long-term sustainability in its healthcare initiatives.

2.4. Building Communication Bridges Between Supply and Demand for Precision Support

Enhance communication and collaboration between counterpart support teams and primary healthcare institutions through systematic mechanisms. Prior to deploying support teams, conduct comprehensive needs assessments utilizing mixed-method approaches to identify critical service gaps, capacity limitations, and resource allocation inefficiencies within primary healthcare facilities[15]. Based on diagnostic findings, strategically deploy specialists with domain-specific expertise to deliver customized training curricula and immersive on-site mentorship programs, thereby systematically elevating clinical proficiency and service delivery standards among local healthcare practitioners.

Counterpart support personnel should adopt a service-oriented leadership paradigm characterized by proactive engagement with local staff and institutional stakeholders. Foster formalized institutional partnerships between primary-level facilities and tertiary hospitals through collaborative governance frameworks, enabling bidirectional resource sharing mechanisms. Practical implementations may include establishing interoperable telemedicine networks, implementing unified quality control protocols, and developing cross-institutional case consultation platforms with standardized referral pathways.

Enhancing infrastructure and capacity building requires dual investment in hardware modernization and human capital development. Modernize physical infrastructure through targeted equipment upgrades and clinical environment redesign projects that align with functional workflow requirements. Simultaneously, implement competency-based training programs featuring tiered modules to ensure local staff attain mastery of advanced technologies introduced by counterpart support teams. Develop structured mentorship frameworks incorporating regular skill-building workshops, standardized case review sessions, and real-time clinical decision-making simulations. Encourage proactive knowledge exchange by institutionalizing routine multi-disciplinary case discussions where primary care

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physicians systematically access specialist expertise through scheduled consultations and asynchronous digital platforms.

This integrated approach creates sustainable capacity-building ecosystems that transcend episodic support interventions, establishing continuous improvement loops between technical assistance provision and local institutional development.

2.5. Establishing Sustainable Operational Frameworks and Cultivating Appropriate Healthcare-Seeking Behaviors

Develop sustainable long-term collaboration mechanisms to transition from short-term or fragmented support models, enabling counterpart support personnel to cultivate contextual understanding of primary healthcare institutions' operational realities and establish enduring institutional partnerships. Formalize structured mentorship relationships through multi-year agreements between visiting specialists and primary healthcare staff, institutionalizing longitudinal training programs that integrate clinical coaching, administrative guidance, and leadership development components.

Implement evidence-based feedback mechanisms with multi-source data integration. Systematically collect and triangulate evaluations from frontline providers, administrative staff, and patient cohorts through validated assessment tools. Establish iterative strategy refinement protocols using real-world performance metrics, ensuring support interventions dynamically align with evolving service demands and capacity-building priorities at primary facilities.

Promote patient-centered behavioral interventions through tiered engagement strategies. Design culturally tailored public education campaigns utilizing behavioral economics principles to reshape healthcare-seeking perceptions, emphasizing rational utilization of tiered medical services through evidence-based cost-benefit communications. Enhance policy transparency through participatory community workshops and interactive digital platforms, employing multimedia formats to demonstrate primary healthcare competencies and service quality improvements.

Develop multi-dimensional incentive mechanisms integrating behavioral nudges and system-level reforms. Implement differential reimbursement schemes prioritizing primary care encounters, establish referral credit systems for appropriate first-contact care adherence, and introduce community health worker incentives tied to preventive service completion rates. These interventions should be grounded in health equity principles, ensuring vulnerable populations receive targeted support for primary care access[16].

This integrated framework establishes adaptive governance structures that transform episodic support interventions into institutional development catalysts. By embedding sustainability into operational design and aligning behavioral change strategies with system-level incentives, this approach fosters resilient primary healthcare ecosystems capable of self-directed improvement.

3. Performance Evaluation of the Provincial Hospital Trusteeship Model in X County

3.1. Significant Enhancement of Primary Health Service Capabilities

Leveraging the expertise and management strengths of the provincial hospital, X County has optimized talent deployment, refined performance evaluation, and instituted long-term incentives to maximize the impact of counterpart support personnel. At primary-care units, visiting specialists provide hands-on mentorship and practical training, substantially enhancing local clinicians' procedural skills, diagnostic accuracy, and patient-management capabilities. As a result, frontline facilities have demonstrated marked improvements in service volume, care quality, and patient satisfaction, driving a notable uplift in the county's overall primary-care capacity.

3.2. Initial Achievements in Talent Team Development

The trusteeship model has catalyzed the formation of robust, multidisciplinary talent teams within X County. Through a bidirectional exchange mechanism—where provincial and municipal hospital experts are embedded in township and village clinics, and local practitioners undertake rotations and continuing-education programs at higher-level centers—primary-care staff gain sustained exposure to advanced clinical techniques and research practices. This ongoing collaboration fosters a growing cadre

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of primary-care professionals equipped with both specialized skills and a broader systems perspective, strengthening the community's ability to meet diverse health needs.

3.3. Regional Collaborative Development and Resource Integration

Under the "Two Hospitals, One Department" framework, provincial-level departments and county counterparts co-design service lines and share workloads. By aligning specialist assignments with local demand and enabling joint clinics, multidisciplinary case reviews, and co-managed referral pathways, the model promotes complementary growth across institutions. Distinctive specialty units have emerged at each level—reflecting local epidemiology and resource endowment—while an integrated referral network ensures that patients access the right level of care. This coordinated approach has narrowed regional disparities, optimized resource utilization, and forged durable inter-institutional partnerships capable of tackling complex clinical and public-health challenges.

3.4. Innovation and Advancement of Primary Medical Technologies

The trusteeship arrangement has accelerated the transfer of cutting-edge technologies and treatment protocols into X County's primary-care settings. Counterpart support personnel introduce minimally invasive procedures, tele-imaging diagnostics, and point-of-care laboratory techniques, catalyzing service innovation at the grassroots. Joint research initiatives and pilot programs have further extended these innovations—such as mobile health units and AI-assisted screening—to remote clinics. Collectively, these efforts have elevated the technological sophistication of primary-care services, expanded the scope of locally deliverable interventions, and fostered a culture of continuous improvement and innovation.

4. Conclusions

The counterpart support policy represents a cornerstone of ongoing healthcare reform, driving systemic innovation and fostering a more scientific, rational, and efficient service delivery model. By integrating provincial expertise into county-level communities, this policy enhances both the quality and accessibility of care for the public.

As primary-care institutions' capabilities and standards improve, residents benefit from more convenient, specialized diagnostics and treatments—significantly lowering both financial and time costs associated with seeking care. The establishment of a tiered referral system ensures that routine cases are managed locally, while streamlined pathways and robust insurance coverage facilitate seamless transfers to higher-level hospitals when necessary.

In summary, the synergistic application of differentiated development ("one hospital, one specialty"), strengthened evaluation and incentive mechanisms, and bidirectional collaboration frameworks yields multiple advantages:

Enhanced Primary-Care Capacity: Local facilities develop deeper clinical expertise and service breadth.

Optimized Resource Allocation: Medical equipment, personnel, and technologies are deployed where they are most needed.

Talent Team Strengthening: Sustained exchanges cultivate a skilled workforce capable of addressing diverse community health needs.

Technological Innovation: Grassroots institutions adopt and adapt advanced treatments and diagnostic methods.

System-Level Reform: Continuous data-driven feedback refines policies and operational processes.

Regional Coordination: Integrated networks improve resilience and collective response to public-health challenges.

Together, these measures ensure that counterpart support personnel are strategically utilized and that medical resources are harmoniously integrated. To meet evolving public-health demands and further elevate patient satisfaction, it is imperative to continue refining and expanding these strategies through ongoing evaluation and stakeholder engagement.

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