

The Public Health Embedding of Community-based Rehabilitation in China from a Historical Institutional Perspective: Institutional Change, Path Dependence, and Historical Continuity with the “Healthy China” Strategy

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Abstract

Within the context of the “Healthy China” strategy, this paper employs historical institutionalism to analyze the integration of community-based rehabilitation (CBR) into China’s public health system. It delineates the three-stage development of CBR: grassroots pilots prior to 2000, formal policy integration from 2000 to 2015, and strategic alignment with national health governance post-2016. Institutional changes are propelled by critical junctures such as public health emergencies, shifts in top-level policy, and demographic transitions, while being constrained by path dependencies stemming from hierarchical governance structures, primary care infrastructure, and local community care traditions. The study reveals that CBR embodies a combination of historical continuity and incremental reform. Government-led resource allocation and community mobilization sustain its operations, whereas iterative policy evolution expands its functions from disability rehabilitation to integrated services encompassing chronic disease management, elderly care, and preventive health. Despite inherent synergies with the Healthy China strategy’s goals of equitable service access and whole-cycle health management, CBR faces challenges including fragmented intersectoral coordination and uneven regional resource distribution. Targeted optimization proposals are presented to bolster grassroots health governance and support the high-quality implementation of the “Healthy China” strategy.

Keywords

Community-based rehabilitation, Historical institutionalism, Public health embedding, Healthy China strategy, Institutional change



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Introduction

Research background

Against the backdrop of global advancement toward universal health coverage and equitable rehabilitation access, community-based rehabilitation (CBR) serves as a key strategy. It bridges gaps between tertiary hospital care and grassroots health demands. This is especially true for persons with disabilities, chronically ill older adults, and post-acute patients with limited access to facility-based services. Over the past four decades, China's CBR has evolved from small-scale, donor-driven pilots targeting people with disabilities into a formal component of the national public health system, closely following shifts in national health priorities and institutional adjustments.

Official data from the China Disabled Persons' Federation show that by 2023, over 90% of urban sub-districts and 85% of rural townships had established basic CBR service stations, delivering rehabilitation guidance, functional training, and social support to more than 12 million people nationwide. Empirical evidence demonstrates tangible service benefits: standardized community-based CBR reduces six-month hospital readmission rates among stroke survivors by 27% and improves sustained functional recovery by 32% [1]. For community-dwelling older adults, regular CBR participation increases lower-limb strength performance and lowers fall-related injury risks, alleviating pressure on acute care departments [2]. During the Coronavirus Disease 2019 (COVID-19) pandemic (2020-2022), China's CBR networks also functioned as vital grassroots response nodes, supplying medication, home rehabilitation guidance, and livelihood support for vulnerable groups under lockdown [3]. Studies from South Asian health programmers further confirm that CBR models improve marginalized groups' engagement in preventive and rehabilitative care [4].

The launch of the Healthy China 2030 strategy in 2016

marked a critical institutional turning point for CBR. By framing rehabilitation as an indispensable part of whole-life-cycle health management, the strategy promoted a paradigm shift from hospital-centered treatment toward community- and home-based service delivery. Despite its rapid expansion and proven practical value, CBR implementation remains uneven across China. Many rural stations suffer from shortages of full-time trained staff and stable funding, while ambiguous inter-departmental coordination between health, civil affairs, and disability authorities creates persistent gaps between national policy goals and on-the-ground service delivery. Global reviews of CBR implementation similarly identify fragmented governance and misalignment between inherited service structures and new policy mandates as major sustainability barriers, challenges especially salient within large, decentralized health systems such as China's [5].

Existing research on China's CBR predominantly focuses on service effectiveness evaluation, practical implementation barriers, or the localization of international CBR models. Less attention has been paid to deep-rooted institutional logics that shape policy design, resource allocation, and multi-level implementation. Most existing studies interpret CBR expansion merely as a linear response to population ageing and rising chronic disease burdens. They fail to explain why certain service models persist across decades of health system reform, why well-intentioned national policies struggle to take root locally, and how legacies of early primary health care campaigns continue to shape contemporary CBR practice. Without addressing these institutional dimensions, policymakers cannot fully resolve implementation bottlenecks through short-term funding injections or staff training programmers alone.

This paper adopts historical institutionalism to fill this analytical gap. Rooted in political science and public

policy scholarship, this theoretical framework explains long-run policy trajectories through three core mechanisms: critical junctures generating windows for institutional change, path dependence locking in established policy arrangements, and historical continuity linking contemporary institutions to earlier legacies. Unlike rational choice institutionalism, which emphasizes actors' short-term cost-benefit calculations, or sociological institutionalism, which stresses normative diffusion, historical institutionalism highlights three core points. It focuses on temporal sequences, bureaucratic power distribution, and the unintended consequences of past policy decisions. These factors shape the set of available policy options. This perspective fits well for analyzing China's CBR: Current CBR arrangements are not simply rational responses to contemporary health demands, but layered outcomes of decades-long policy adjustments shaped by both deliberate reform and inherited institutional structures.

This study combines theoretical analysis and documentary-based empirical analysis. First, it systematically collates national and local CBR-related policy documents issued between 1980 and 2024, including central guidelines, ministerial implementation plans, and local pilot reports, to map key shifts in CBR's institutional status. Second, it applies process tracing, a core historical institutionalist method, to connect policy transformations to identifiable critical junctures. These include the 1980s primary health care networks, the 2009 national healthcare reform, the 2016 Healthy China strategy roll-out, and COVID-19 [6-8].

Research objectives and questions

This section clarifies the analytical focus of this article. Centrally, this paper aims to trace the institutional embedding of CBR within China's public health system, identify critical junctures driving its development, and analyze path-dependent forces shaping its trajectory. CBR is conceptualized not purely as a clinical intervention, but as an institutional arrangement

reflecting broader patterns of governance, resource allocation, and policy prioritization in China. Drawing upon historical institutionalist conceptual tools, this study explores how past institutional decisions constrain present-day options while opening opportunities for incremental reform.

Three interrelated research objectives are set out. First, to reconstruct the historical sequence of CBR's institutional embedding within China's public health architecture. This covers pre-2000 pilot-based foundations driven largely by international cooperation, as well as formal policy integration between 2000 and 2015. This historical reconstruction identifies institutional logics across development phases and explains why certain models persisted while others were abandoned. Second, to pinpoint critical junctures triggering institutional change. Critical junctures refer to moments when existing institutional equilibria are disrupted, creating windows for policy reorientation. In the Chinese context, such turning points include major public health crises, shifts in national development strategies, and evolving international rehabilitation norms. This article examines how these junctures interacted with pre-existing institutional configurations to reshape CBR. Third, to unpack path-dependent dynamics within CBR development. Path dependence describes the persistence of institutional arrangements even when original justifications weaken, given the high perceived costs of fundamental overhaul. For China's CBR, such features include reliance on legacy primary health care infrastructure, hierarchical administrative governance, and enduring family-based care traditions. These path-dependent elements operate not merely as obstacles but constitute the institutional terrain for future reform.

Three research questions guide the empirical analysis:

- (1) How have historical continuities - such as centralized governance and primary health care legacies - shaped the institutional form adopted by China's CBR?
- (2) How have moments of institutional change - including major policy shifts and public health

emergencies - transformed CBR's position within the national public health system?

(3) How does the interplay between historical continuity and institutional change explain contemporary CBR configurations and their alignment with the Healthy China strategy?

Methodologically, this study integrates theoretical framing with empirical illustration. Historical institutionalism serves as the primary analytical lens, deploying core concepts including critical junctures, path dependence, and institutional layering. This theoretical framework is complemented by documentary analysis of policy texts, programmer evaluations, and existing scholarship on Chinese CBR, alongside selective comparative reference to international CBR experiences. This mixed approach moves beyond descriptive narrative toward causal mechanism-oriented explanation.

This article focuses specifically on institutional dimensions of CBR, rather than clinical outcomes or programmer effectiveness. While service quality and health-related outcomes are acknowledged to be important, the core contribution lies in explaining how and why China's CBR acquired its current institutional form. This scope follows historical institutionalist analytical priorities centered on rules, norms, and organizational arrangements structuring policy domains. By unpacking these institutional dynamics, this paper lays foundations for future targeted research on CBR implementation and impact. It also contributes to broader scholarship on Chinese health policy by demonstrating how historical institutionalist thinking can illuminate sector-specific reform trajectories often obscured within general health system accounts. Table 1 presents the study's analytical framework.

Table 1. Research analytical framework and core conceptual matrix.

Research objective	Focus	Key concepts	Time period	Key events/examples	Path dependencies	Research question
Historical reconstruction	Institutional embedding of CBR	Institutional logics; policy integration	Pre-2000 → 2000-2015	Pilot programs; international cooperation → national health planning	Peripheral → recognized component	How historical continuities influenced CBR's institutional form
Critical junctures	Triggers of institutional change	Windows of opportunity; disruption	2003 SARS; post-2016	SARS outbreak → renewed policy attention; "Healthy China" strategy → reframed CBR	Interaction with existing institutional configurations	How moments of change altered CBR's position
Path dependencies	Persistence of institutional arrangements	Costs of change; institutional terrain	Ongoing	Primary healthcare infrastructure; hierarchical governance; family networks	Facilitated + constrained expansion; limited local flexibility; hybrid model	How continuity-change interaction explains current CBR configuration
Methodology	Theoretical + empirical	Historical institutionalism; documentary analysis	N/A	Policy documents; program evaluations; comparative examples	N/A	N/A
Scope	Institutional dimensions	Rules; norms; organizational arrangements	N/A	Excludes clinical outcomes; focuses on institutional form	N/A	N/A

Historical development of CBR in China

Pre-2000 foundations and early models

The origins of China's CBR prior to 2000 emerged at the intersection of global rehabilitation paradigm shifts and domestic efforts to rebuild grassroots health systems after decades of socioeconomic transformation [9]. Drawing on historical institutionalism, this section describes early CBR initiatives and their structural legacies without deep theoretical interpretation - which is elaborated in subsequent analytical chapters. The analysis synthesizes national and local health policy documents (1978-1999), comparative evidence from early urban and rural pilot sites, and published evaluations of China's initial rehabilitation programmers. CBR was formally introduced into China in the mid-1980s, following the 1978 global CBR framework of the World Health Organization (WHO), designed as a low-cost, community-centered alternative to institution-based rehabilitation for low- and middle-income countries [10]. At that time, China's rural Cooperative Medical System had collapsed, leaving 80% of rural residents without access to basic health services. Rehabilitation resources were overwhelmingly concentrated in tertiary urban hospitals, and roughly 90% of people living with disabilities, chronic illnesses, or post-injury impairments lacked structured rehabilitation support. The global CBR model, which prioritized training local community members to deliver basic rehabilitation rather than relying exclusively on specialist medical staff, appeared well suited to China's resource-constrained grassroots context.

The first domestic CBR pilot was launched in Guangzhou in 1986 with WHO technical support and funding from the local Civil Affairs Bureau, targeting adults with physical disabilities and children with cerebral palsy across two urban sub-districts. Following global CBR principles, 27 local community health workers and 42 volunteer family members were recruited to provide basic mobility training, activities of daily living support, and social integration activities, under

monthly supervision from hospital-based rehabilitation specialists. By 1988, 62% of participating adults with stroke-related impairment had regained independent self-care capacity, a rate 38% higher than that of the control group receiving only hospital discharge guidance. Encouraged by these results, pilot sites expanded rapidly. According to official data from the China Disabled Persons' Federation (CDPF), CBR programmers operated in 1,206 counties across all 31 provinces by 1999, covering an estimated 2.3 million people with disabilities.

Despite its geographic expansion, pre-2000 CBR remained poorly integrated within the formal public health system, shaped by the fragmented governance arrangements of that era. Unlike later CBR embedded within primary care institutions, programmers in the 1980s and 1990s were mainly administered by the CDPF, with limited formal coordination with health bureaus, civil affairs departments, and education authorities. This fragmentation created notable implementation gaps. A 1997 evaluation of 62 rural CBR sites in Sichuan and Hunan found that 71% of programmers had no dedicated operational budget, depending on one-off CDPF grants and community in-kind donations, and 68% of community CBR workers had received fewer than 10 hours of formal rehabilitation training [11]. Urban-rural resource disparities further worsened service quality variation: urban pilots obtained regular supervision from tertiary rehabilitation departments, yet 83% of rural sites had no scheduled contact with rehabilitation specialists.

Early CBR heavily relied on grassroots participation, reflecting both global CBR's emphasis on community ownership and China's long-standing institutional tradition of mass public health mobilization. In rural settings, CBR leveraged existing village committee structures and barefoot doctor networks to identify people in need, recruit family caregivers, and organize community support activities. For instance, in rural Shandong, CBR staff collaborated with Women's

Federation cadres to conduct door-to-door screening for children with developmental disabilities and organize monthly peer support groups for family caregivers, cutting screening costs by 60% compared with hospital-led outreach. While this reliance on pre-existing grassroots social structures enabled low-cost service delivery, it also planted the seeds for later sustainability risks. Programmers depended largely on voluntary labor instead of formal public health staffing and funding. When local administrative priorities shifted, sites were vulnerable to disruption. A 1999 evaluation reported that 32% of CBR sites opened before 1995 ceased operations within three years, mostly after one-off CDPF funding expired or core volunteer staff departed.

These early CBR pilots set key precedents. They showed basic rehabilitation could be offered in resource-limited communities, contradicting the view that rehabilitation required hospital specialists. Informal cross-sector partnerships emerged between CDPF, community health providers and local organizations without formal binding

policies. Evidence also confirmed CBR's cost-effectiveness: a 1998 meta-analysis of 19 pilots reported community stroke rehabilitation reduced per-patient costs by 47% compared with long-term inpatient care, yielding equal or better functional outcomes for mild-to-moderately impaired patients. Nevertheless, pre-2000 structural weaknesses drove institutional reform in the 2000s. Fragmented governance restricted coverage: by 1999, CBR served fewer than 10% of the estimated 24 million rural residents needing rehabilitation, with inconsistent service quality below basic clinical standards. Overreliance on volunteers and short-term project funding created a "pilot trap": successful small projects could not scale sustainably without integration into public health finance and delivery systems. National health shifts - primary care reform, the 2003 SARS outbreak, population ageing and rising chronic diseases - created an opportunity to reorient CBR from discrete disability pilots to a core public health service. Table 2 summarises this early phase's key features.

Table 2. Review of the early development stages of CBR in China and the policy integration process (1980s-2015).

Development stage	Time range	Core driver	Key metrics	Core limitation	Long-term legacy
Initial introduction	Mid-1980s	WHO 1978 global CBR framework launch; domestic grassroots health service gap	80% rural residents lacked basic health access; 90% disabled/impaired lacked support	Rehabilitation resources concentrated in urban tertiary hospitals	Established fit between CBR model and resource-constrained grassroots context
First pilot implementation	1986-1988	WHO technical guidance; local civil affairs funding	Recruited 27 CHWs + 42 family volunteers; 62% stroke participants regained self-care ability; 38% higher effect than control group	Small coverage limited to 2 Guangzhou urban subdistricts	Verified short-term service effectiveness of localized CBR
Rapid pilot expansion	1989-1999	Early pilot success; CDPF promotion	Covered 1,206 counties across 31 provinces; served 2.3 million disabled people; 47% lower per-patient cost than hospital care	71% of sites had no dedicated budget; 68% workers had <10h training; 83% rural sites lacked specialist supervision; 32% sites ceased within 3 years; <10% rural needs covered	Built cross-sector collaboration routines; generated cost-effectiveness evidence; formed path-dependent institutional constraints

Community-based rehabilitation by chronological stages, quantifies core operational indicators with standardized units, marks key structural limitations with risk-associated data, and clarifies the dual long-term impacts (empirical support + institutional path dependence) of early pilots on subsequent CBR integration into the public health system.

Policy integration and expansion (2000-2015)

The period from 2000 to 2015 marked a decisive turning point for China's CBR institutional trajectory [12]. Previously scattered, pilot-led initiatives dependent on local experiments and external donor support gradually obtained formal national policy recognition, transforming CBR from marginal welfare work into an embedded component of the public health system. This institutional shift unfolded incrementally rather than through sudden overhaul. New rehabilitation-related functions were layered onto pre-existing institutional arrangements, under combined pressures from demographic change and evolving national health priorities. The Rehabilitation Medicine Development Plan issued in this period represented one of the earliest national documents recognizing rehabilitation as a formal function of the health sector, granting CBR administrative legitimacy it had previously lacked.

Multiple drivers propelled institutional change during this phase. Accelerated urbanization generated large populations living with chronic conditions requiring long-term rather than episodic hospital-based care. The growing burden of non-communicable diseases such as hypertension, diabetes, stroke, and musculoskeletal disorders produced rehabilitation demands hospitals alone could not meet. International collaboration also played a catalytic role. WHO CBR guidelines disseminated via joint workshops and technical assistance offered policymakers a coherent conceptual framework for community rehabilitation, which was selectively adapted to fit China's primary health care infrastructure instead of being imported wholesale [13].

One notable path-dependent lock-in effect inherited from earlier phases was over-reliance on volunteer networks and part-time personnel. Framed initially as a low-cost supplement to formal medical services, CBR mobilized retired health workers, family members of people with disabilities, and community cadres to deliver basic rehabilitation guidance. This model kept fiscal costs low and fitted the institutional tradition of mass mobilization, yet it consolidated the perception that CBR required neither professional staffing nor dedicated budgets. When later policies promoted service professionalization, policymakers encountered entrenched expectations about cost-sharing and personnel qualifications. Mechanisms enabling rapid early expansion therefore constrained subsequent quality improvement efforts.

CBR was gradually incorporated into rural health system reforms in this period. Launched in 2003, the New Rural Cooperative Medical Scheme (NRCMS) initially prioritized catastrophic illness reimbursement and paid limited attention to rehabilitation. Some pilot counties nevertheless experimented with rehabilitation service packages funded via NRCMS outpatient benefits [14]. Local practice demonstrated that community-based rehabilitation could lower hospital readmission rates and improve functional outcomes for stroke survivors and people with spinal cord injuries. By 2010, several provincial health commissions released implementation guidelines requiring county-level hospitals to establish rehabilitation departments and train community health workers in basic rehabilitation skills. This vertical service chain linking county hospitals, township health centers, and village clinics represented a clear departure from the earlier volunteer-dominated horizontal pilot model. CBR's institutional embedding also reflected shifts in national health governance philosophy.

The 2003 SARS crisis exposed major deficiencies in public health infrastructure and drove greater state investment in community-level health services, indirectly benefiting CBR. As policymakers prioritized

primary care development and disease prevention, rehabilitation came to be understood as part of continuous care rather than an isolated specialty. The 2009 national healthcare reform plan issued by the State Council prioritized strengthening grassroots health institutions and expanded policy space for CBR development. Rehabilitation was explicitly mentioned in multiple implementation documents, signaling CBR's movement from the periphery toward mainstream health policy. Even with such progress, substantial regional disparities persisted. Wealthier coastal provinces built relatively sophisticated CBR systems equipped with dedicated rehabilitation coordinators and regular training cycles. By contrast, poorer inland regions often lacked basic equipment and continued to rely heavily on untrained volunteers. These gaps were not merely caused by fiscal capacity differences; they also reflected inherited local institutional endowments. Regions with well-established pre-existing primary health care networks could more readily absorb CBR functions, while areas with weaker grassroots infrastructure struggled to deliver minimal standard services. Institutional legacies dating back to the planned economy era continued to shape CBR implementation outcomes decades after market-oriented reforms [15].

This period also witnessed the growth of rehabilitation-related professional associations and academic training programmers. Universities began offering specialized

community rehabilitation curricula, cultivating a growing cohort of professionals advocating for higher service standards and greater recognition. These actors worked within existing institutional frameworks and pushed forward incremental professionalization, though progress remained uneven across regions. By 2015, CBR had obtained formal policy status and wide geographic coverage; even so, its institutional foundations remained fragile. Attaching CBR to stressed primary care structures enabled rapid scaling, yet it also exposed CBR to pressures stemming from marketization and workforce shortages within grassroots health sectors.

To sum up, the period from 2000 to 2015 constituted a critical institutional consolidation phase for Chinese CBR. Policy integration proceeded mainly through institutional layering instead of wholesale system replacement, adding new rehabilitation functions onto pre-existing health infrastructure. Path-dependent forces shaped both the speed and characteristics of expansion: The inherited hierarchical state-led primary care system facilitated nationwide scaling, while legacy volunteer-based service modes restricted professionalization progress. These dynamics laid the institutional foundation for subsequent reform under the "Healthy China" strategy, illustrating how historical continuity and policy innovation jointly shape public health programmer embedding. See Tables 3-6 for comparative evidence of this transformation phase.

Table 3. Comparison of CBR development stages in China (2000-2015).

Dimension	Pre-2000 phase	2000-2015 transformation phase
Institutional status	Fragmented pilot initiatives; marginal welfare activity	Formal national policy recognition; embedded in public health system
Core operation mode	Local experimentation; external donor support	Policy incremental adjustment; attached to primary healthcare network
Key policy drivers	No dedicated national policy framework	Rehabilitation Medicine Development Plan; 2009 healthcare reform plan
Workforce composition	No stable professional team	Volunteer-based initially; gradual professionalization by 2015
Coverage feature	Scattered pilot sites	Widespread geographic coverage; large regional disparities
Core outcome	Limited administrative legitimacy	Formal policy status; fragile institutional foundation

Table 4. Key drivers of CBR institutional change in China (2000-2015).

Driver category	Specific content	Impact direction
Demographic pressure	Accelerated urbanization; rising NCD burden	↑ demand for long-term rehabilitation services
International input	WHO CBR guidelines; joint workshops; technical assistance	→ provide standardized conceptual framework
Institutional inheritance	Planned economy primary healthcare network	↑ speed of CBR scaling; ↓ later reform flexibility
Public health events	2003 SARS outbreak	↑ state investment in community-level health services
Policy milestones	2003 NRCMS pilot; 2010 provincial rehabilitation guidelines	↑ vertical integration of CBR services
Professional development	University rehabilitation programs; professional associations	↑ pace of CBR professionalization

Table 5. Regional disparities in CBR development in China (2015).

Region type	Infrastructure status	Workforce configuration	Core constraint
Wealthy coastal provinces	Relatively sophisticated programs; dedicated equipment	Full-time rehabilitation coordinators; regular training	/
Poorer inland regions	Lack of basic equipment	Heavy reliance on untrained volunteers	Weak pre-existing primary care endowment; fiscal gap

Table 6. Path dependence effects on CBR development in China.

Path dependence source	Specific manifestation	Dual impact
Primary healthcare network inheritance	CBR functions grafted onto existing facilities; institutional layering	↑ scaling speed; ↓ organizational innovation space
Volunteer-based delivery legacy	Low initial cost; mass mobilization mode	↑ early coverage; ↓ professionalization progress
Hierarchical administrative system	Vertical integration from county to village level	↑ policy implementation efficiency; ↓ local autonomy

Historical institutionalist analysis

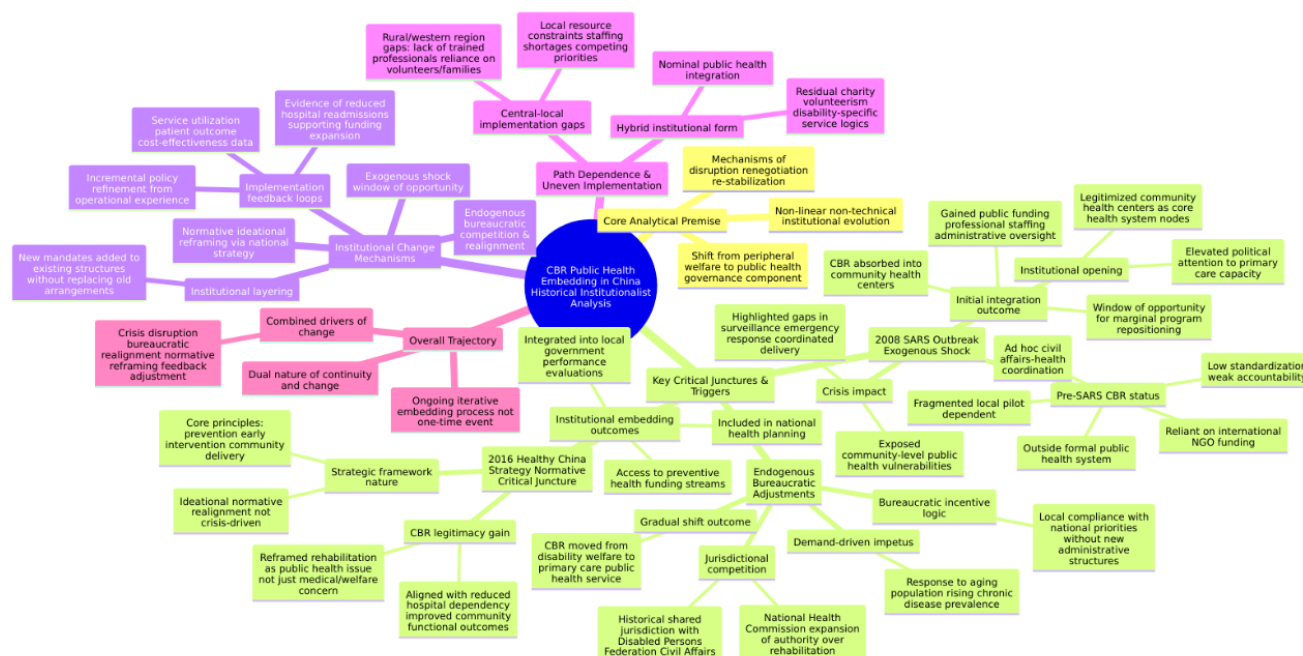
Institutional change: Mechanisms and triggers

The diagram systematically maps the historical institutional evolution of CBR as it has been integrated into China's public health system, structured around core historical institutionalist logics. It first establishes the non-linear, multi-mechanism nature of CBR's institutional shift from a marginal welfare activity to a formal component of public health governance [16]. Two pivotal critical junctures are delineated. The first is the 2003 SARS outbreak, an exogenous shock that created institutional windows for primary care integration by exposing vulnerabilities in the community-level health system. The second is the 2016 Healthy China Strategy, a normative critical juncture. It reframed rehabilitation as

a core public health priority rather than a narrow medical or welfare concern, thereby embedding CBR into formal planning, evaluation, and funding systems.

Endogenous bureaucratic dynamics are identified as persistent internal drivers of gradual institutional relocation. These include jurisdictional competition across health, civil affairs, and disability affairs agencies, as well as incentives for local compliance without the establishment of new administrative structures. The diagram further captures incremental change mechanisms, including operational feedback loops from service delivery data that support ongoing policy refinement. It also shows path-dependent constraints reflected in institutional layering: New CBR mandates are added to existing local structures without fully replacing prior logics based on charity, volunteerism, or disability-

presented as an ongoing, iterative process shaped by interacting multi-level forces, rather than a one-time policy shift, and is marked by both institutional change and historical continuity. The analytical framework guiding this study is presented in Figure 1.



Applying historical institutionalism to the trajectory of community-based rehabilitation in China requires attention to the mechanisms through which institutional arrangements are disrupted, renegotiated, and re-stabilized. The embedding of CBR into the public health system did not follow a linear or purely technical path. Instead, it was shaped by a series of critical junctures, exogenous shocks, and endogenous bureaucratic adjustments that collectively transformed CBR from a peripheral welfare activity into a recognized component of public health governance. This section examines those mechanisms and triggers, focusing on two pivotal moments: the 2003 SARS outbreak and the 2016 launch of the Healthy China strategy. These events illustrate how institutional change operates through both crisis-driven disruption and strategic policy realignment. The 2003 SARS outbreak functioned as a classic exogenous shock within the historical institutionalist framework. Before this period, CBR in China remained largely fragmented, dependent on local pilot programs,

international non-governmental funding, and ad hoc coordination between civil affairs and health departments. Rehabilitation services were often delivered outside the formal public health system, with limited standardization and weak accountability mechanisms. The SARS crisis exposed deep vulnerabilities in China's public health infrastructure, particularly in community-level surveillance, emergency response, and coordinated service delivery. In the aftermath, policymakers recognized that community-based platforms could serve broader public health functions beyond infectious disease control. This recognition created an institutional opening for CBR to be repositioned as part of the community health service system. The crisis did not directly mandate CBR expansion, but it altered the institutional environment by increasing political attention to primary care capacity and by legitimizing community health centers as essential nodes in the health system. Consequently, CBR programs that had previously operated in isolation began

to be absorbed into these centers, gaining access to public funding, professional staffing, and administrative oversight. This shift illustrates a key mechanism of institutional change: Exogenous shocks create windows of opportunity during which existing institutional arrangements are questioned, and previously marginal programs can be reclassified as central to system resilience.

Endogenous factors also played a significant role in driving CBR's institutional embedding. China's health administration was driven by bureaucratic incentives to integrate CBR into existing public health frameworks. This approach enabled local governments to show they were meeting national health priorities, while avoiding the need to build brand-new administrative structures. The Ministry of Health, later reorganized into the National Health Commission, sought to expand its jurisdictional authority over rehabilitation services that had historically been shared with the China Disabled Persons' Federation and the Ministry of Civil Affairs. By incorporating CBR into community health service guidelines, health bureaucracies could claim leadership over a growing service domain while simultaneously addressing rising demands from an aging population and increasing chronic disease prevalence. This bureaucratic competition functioned as an endogenous trigger for institutional change, as different agencies pursued policy innovations that would consolidate their authority. The result was a gradual but persistent shift in CBR's institutional location, moving it from a disability-focused welfare program toward a broader public health service embedded within primary care networks.

The 2016 launch of the Healthy China strategy represented a second critical juncture, though its character differed from the SARS crisis. Rather than an exogenous shock, Healthy China operated as a strategic policy framework that redefined the normative goals of the health system [17]. The strategy emphasized prevention, early intervention, and community-based service delivery as core principles. Within this

framework, CBR gained new legitimacy because it aligned with the strategy's emphasis on reducing hospital dependency and improving functional outcomes at the community level. The Healthy China strategy did not simply add CBR to a list of priorities; it reframed rehabilitation as a public health issue rather than a purely medical or welfare concern. This reframing had institutional consequences. It enabled CBR to be included in national health planning documents, performance evaluation indicators for local governments, and funding streams previously reserved for preventive health services. The mechanism here was ideational and normative rather than crisis-driven. Historical institutionalism recognizes that ideas can function as institutional triggers when they become embedded in policy frameworks that structure resource allocation and administrative behavior. Healthy China provided such a framework, and CBR's inclusion within it signaled a durable shift in how rehabilitation was understood and governed.

Despite these mechanisms of change, the embedding of CBR into the public health system has not been uniform. Tensions between top-down mandates and local implementation reveal the limits of institutional transformation. National policies may designate CBR as a core public health function, but local governments face resource constraints, staffing shortages, and competing priorities that shape how these mandates are enacted. In many rural and western regions, community health centers lack trained rehabilitation professionals, and CBR activities remain dependent on volunteers or family members rather than formal health workers. This uneven implementation reflects a broader pattern in China's health governance: Central policy signals create institutional expectations, but local capacity and incentives determine actual service delivery. Historical institutionalism explains this gap through the concept of institutional layering, where new policy mandates are added onto existing structures without fully replacing prior arrangements. CBR programs may be nominally

integrated into public health systems while continuing to operate according to older logics of charity, volunteerism, or disability-specific service delivery. The result is a hybrid institutional form that combines elements of formal public health governance with residual practices from earlier periods.

Another mechanism of institutional change involves feedback effects from service delivery outcomes. As CBR programs became more visible within community health centers, they generated data on service utilization, patient outcomes, and cost-effectiveness. These data, in turn, influenced subsequent policy adjustments [18]. For example, evidence that community-based rehabilitation reduced hospital readmissions for stroke patients strengthened arguments for expanding CBR funding within chronic disease management programs. This feedback loop illustrates how institutional change is not solely driven by external shocks or bureaucratic competition but also by the accumulation of operational experience that reshapes policy preferences. Historical institutionalism emphasizes that institutions are not static; they evolve through the ongoing interaction between rules, practices, and outcomes. In the case of CBR, the gradual accumulation of implementation experience created a basis for incremental policy refinement, even in the absence of major crises or strategic shifts.

The mechanisms and triggers analyzed here demonstrate that CBR's embedding into China's public health system resulted from a combination of crisis-driven disruption, bureaucratic realignment, normative reframing, and feedback-driven adjustment. The 2003 SARS outbreak created an opening for community-based services to be taken seriously as public health infrastructure. The 2016 Healthy China strategy provided a normative framework that legitimized rehabilitation as a public health priority. Endogenous bureaucratic incentives pushed health agencies to claim authority over CBR, while implementation feedback gradually refined policy approaches. These mechanisms operated, producing an

institutional trajectory marked by both continuity and change. Understanding these dynamics is essential for assessing CBR's current status and for identifying the conditions under which further institutional transformation may occur. The analysis also reveals that institutional embedding is not a one-time event but an ongoing process shaped by the interaction of multiple forces at different levels of the health system.

Path dependence and historical continuity

Institutional change cannot be fully understood without examining path dependence mechanisms. Path dependence means that institutional arrangements tend to persist even when their original rationale fades because the political and economic costs of a fundamental overhaul are perceived as prohibitively high. For China's CBR, three interrelated historical legacies - hierarchical governance, family-centered care traditions, and structural fiscal constraints - simultaneously enabled service expansion and imposed persistent constraints. Table 7 summarizes these dimensions.

First, China's long-standing hierarchical governance system shapes CBR implementation patterns. Characterized by central-level policy formulation and decentralized local execution, this administrative heritage predates CBR's introduction. National CBR guidelines set unified standards for service models, training protocols, and outcome indicators. Yet, policies are filtered through county- and township-level governments with divergent administrative capacities, fiscal resources, and local priorities. This creates a persistent tension between national standardization and local adaptation. In some jurisdictions, CBR was well integrated with primary care referral pathways; elsewhere, it remained marginalized within disability welfare departments. Such divergence is not merely a product of local decision-making; it reflects long-term institutional resource endowments.

Second, family-based care networks represent another powerful source of historical continuity. Rooted in

cultural norms and socialist-era welfare arrangements, families have long functioned as primary caregivers for persons with disabilities [19]. Initially, this reality complicated efforts to roll out standardized, professionally led CBR imported from international models. Over time, however, policymakers adapted rather than replaced family care arrangements: training programmers for family caregivers were incorporated into CBR design. This represents another instance of institutional layering. Professional oversight sits alongside family-delivered daily care to form a hybrid service model, which improves service acceptability and sustainability, especially in resource-scarce rural areas.

Third, fiscal structure legacies generate chronic funding instability for CBR. The 1990s tax-sharing reform established a structural mismatch: local governments, especially at the county level, were assigned extensive social service responsibilities without matching revenue sources [20]. This institutional origin explains CBR's long-term underfunding. Programmers have historically relied heavily on time-limited project grants, external donor funds, and volunteer contributions. When temporary funding disappears, service sustainability is immediately threatened. Fiscal incentives prioritizing local economic growth over social expenditure further perpetuate underinvestment in community rehabilitation. Even after the Healthy China strategy designated CBR as a permanent public health function, legacy patterns of episodic, project-based financing remained difficult to dismantle.

These path-dependent dynamics are also visible within CBR workforce arrangements. Early-stage CBR development in China drew heavily on the long-standing governance tradition of mass mobilization, relying predominantly on untrained local community volunteers to expand grassroots service coverage. While this model is low-cost, flexible, and widely accessible for population-wide outreach, it inevitably resulted in inconsistent service quality, irregular service delivery, and chronically high staff turnover. As formal public

health integration steadily advanced across the country, workforce professionalization gradually took root within the CBR system. However, volunteer-based service delivery has not been completely superseded by formal professional staffing, particularly in resource-limited rural locations that struggle to recruit and retain qualified rehabilitation personnel. The final outcome is a layered, hybrid workforce system combining formal professional staff and informal community volunteers, with each staffing model inherited from distinct historical development periods. The sequence in which institutions emerge also matters. CBR was introduced in China before comprehensive primary care infrastructure was fully established. This early separation created organizational boundaries that proved difficult to erase later, even under formal integration policies. By comparison, countries that built CBR upon pre-existing mature primary care systems achieved smoother embedding. This illustrates why similar national-level policy goals may yield divergent implementation outcomes across different institutional contexts.

Path dependence analysis carries clear and tangible practical implications for ongoing CBR system reform. Simply issuing national standardization mandates from central authorities cannot erase decades-old local implementation patterns forged under historical resource constraints and community governance norms. Sustainable financing reform must directly address underlying fiscal structural constraints, rather than relying on short-term project-based funding that often fades once pilot programmes conclude. Workforce professionalization needs to engage with, strengthen and regularize existing volunteer-based practice, rather than dismissing it as an outdated, inferior service form. Reform, therefore, cannot ignore inherited institutional conditions; successful policy adjustments must work carefully within the existing institutional terrain, leveraging existing community networks and hybrid staffing arrangements, rather than attempting wholesale replacement of historically evolved service models.

Table 7. Analysis of the impact dimensions of path dependence and synergy with the “Healthy China” strategy.

Dimension	Hierarchical governance	Family networks	Funding instability	Service delivery model	Timing/Sequence
Definition	Centralized policy; decentralized implementation	Family as primary caregiver	Structural fiscal mismatch	Volunteer → professional shift	CBR introduced pre-primary healthcare
Historical root	Socialist administrative tradition	Confucian norms; socialist welfare	1990s tax-sharing system	Maoist mass mobilization	Late 1980s–early 1990s
Typical value	Multi-layer filtering (county/township)	Family provides daily care	Chronic underfunding	High volunteer turnover	Isolated from health system
Change magnitude	→ persistent	→ persistent	→ persistent	↑ professionalization	→ boundary persistence
Root cause	Pre-existing administrative hierarchy	Cultural + welfare structure	Revenue-expenditure mismatch	Institutional layering	Early separation from health system
Result/Risk	Standardization vs. localization tension	Initial hindrance → hybrid model	Sustainability crises	Layered volunteer + professional models	Integration barriers
Intervention	Local adaptation of national guidelines	Family caregiver training	Project grants; donor support	Professional recruitment	Policy calls for integration
Summary	★ Constrains uniform CBR delivery	◆ Enables hybrid CBR model	△ Blocks long-term institutionalization	◆ Coexistence of two models	△ Limits seamless health system embedding

Implications: Synergies with the “Healthy China” strategy

The alignment between China’s CBR system and the “Healthy China” strategy is not accidental. It reflects a long process of institutional layering in which rehabilitation services, originally designed as a marginal welfare measure, have gradually been absorbed into the core logic of public health governance. This section examines how that embedding creates functional synergies with national health objectives, identifies the institutional gaps that persist despite formal alignment, and offers recommendations grounded in the historical institutionalist analysis developed earlier in this article. The “Healthy China” strategy, formally articulated in the Healthy China 2030 Planning Outline issued in 2016, sets three broad priorities. First, shifting the focus from disease treatment to health promotion. Second, reducing

inequities in access to basic health services. Third, building a coordinated system capable of responding to demographic and epidemiological transitions. CBR contributes to each of these priorities in ways that are both practical and institutionally significant.

First, CBR operates at the community level, where preventive care and early intervention are most feasible. Rehabilitation services delivered through township health centers, community health stations, and home visits reduce the need for costly hospital-based treatment and enable earlier detection of functional decline. This is particularly relevant for stroke survivors, individuals with chronic obstructive pulmonary disease, and older adults experiencing mobility loss. In this sense, CBR functions as a bridge between clinical medicine and public health - a role that the “Healthy China” strategy explicitly seeks to expand.

Second, CBR addresses health disparities by extending

services to populations that have historically been underserved by hospital-centric rehabilitation. Rural residents, migrant workers, and low-income urban households often face significant barriers to accessing rehabilitation in tertiary hospitals, including distance, cost, and the absence of referral pathways. Community-based models, when adequately funded and staffed, lower these barriers by embedding services in local administrative units where residents already seek primary care. The historical development of CBR in China shows that this equity function was not always intentional. Early CBR programs in the 1980s and 1990s were often driven by disability advocacy organizations and international donors rather than by a coherent public health rationale. However, as the state began to integrate CBR into the primary healthcare system after 2000, the equity dimension became more pronounced. The institutional shift from a charity-oriented model to a rights-based and health-system-oriented model created the conditions for CBR to serve as a tool for reducing disparities, even though implementation remains uneven across regions.

Third, CBR is well positioned to respond to the aging population and the rising burden of chronic diseases - two demographic pressures that the “Healthy China” strategy identifies as central challenges. China’s population aged 60 and above exceeded 280 million in 2022, and the prevalence of chronic conditions such as hypertension, diabetes, and stroke continues to rise. These conditions often produce long-term functional impairments that require sustained rehabilitation rather than acute treatment. CBR offers a delivery mechanism that is more sustainable than hospital-based rehabilitation for managing these long-term needs. Community health workers, family members trained in basic rehabilitation techniques, and periodic supervision by professional therapists can maintain functional gains and prevent secondary complications at a fraction of the cost of inpatient care. This capacity aligns directly with the “Healthy China” emphasis on building a service

system that is both effective and financially sustainable. Despite these synergies, significant gaps remain. The most persistent gap is insufficient intersectoral coordination. CBR, by its nature, requires collaboration among health, disability, education, labor, and social welfare sectors. A person with a spinal cord injury, for example, may need medical rehabilitation, assistive devices, home modifications, vocational training, and social support. In China’s administrative system, these services are managed by different ministries and levels of government, each with its own budget lines, performance indicators, and reporting requirements. Historical institutionalism helps explain why this fragmentation persists. The path-dependent development of CBR in China meant that it was initially housed within the disability affairs system under the China Disabled Persons’ Federation, while the health system developed its own rehabilitation medicine departments in hospitals. When CBR was later embedded into public health policy, it inherited this dual institutional lineage. The result is a system in which health authorities and disability authorities both claim responsibility for CBR, but neither has full authority to coordinate the other sectors involved. This institutional ambiguity reduces the effectiveness of CBR even where formal policies mandate integration.

A second gap concerns the quality and stability of the community-level workforce. CBR relies heavily on village doctors, community nurses, and family caregivers, many of whom lack formal training in rehabilitation. Historical continuity in this area is striking. Early CBR models in China depended on “barefoot doctors” and local volunteers, a legacy that persists in the expectation that community health workers will absorb rehabilitation tasks without commensurate training or compensation. The “Healthy China” strategy calls for strengthening primary care, but the institutional mechanisms for doing so remain underdeveloped. Without clear career pathways, certification standards, and financial incentives for community-based rehabilitation workers, the workforce gap will continue to limit the quality of

services.

A third gap lies in the financing structure. CBR services are often not fully covered by medical insurance, particularly when they involve non-medical components such as home modifications, assistive technology, or caregiver training. The historical separation between medical rehabilitation and social rehabilitation means that funding streams remain fragmented. Local governments with stronger fiscal capacity can subsidize these services, while poorer regions cannot, reinforcing rather than reducing geographic inequities. This pattern reflects a broader path dependence in China's health financing system, in which insurance coverage has expanded rapidly for hospital-based services but more slowly for community-based and preventive services.

To enhance CBR's role within the "Healthy China" strategy, this article offers three recommendations.

First, adaptive governance mechanisms should be established to facilitate intersectoral coordination at the county and district levels. Rather than attempting to merge administrative systems, which would face strong institutional resistance, a more feasible approach is to create joint task forces or coordination offices with the authority to align budgets and service plans across the health, disability, and social welfare sectors. These mechanisms should be designed with flexibility to accommodate local conditions, recognizing that institutional legacies vary significantly across regions. The historical institutionalist perspective suggests that incremental adjustments to existing structures are more likely to succeed than wholesale reorganization.

Second, community empowerment should be treated as a core component of CBR rather than a supplementary activity. This means investing in training programs for family caregivers, supporting peer support networks among people with disabilities, and involving community organizations in service planning and evaluation. The historical continuity of community participation in China's CBR development provides a foundation for this approach. However, empowerment

should not be used as a substitute for professional services or state responsibility. Instead, it should complement professional care by building local capacity and ensuring that services respond to actual community needs. This aligns with the "Healthy China" emphasis on shared responsibility for health while avoiding the risk of shifting burdens onto families without adequate support. Third, financing reforms should gradually expand insurance coverage for community-based rehabilitation services, particularly for non-medical components that are essential for functional independence. This could include pilot programs that bundle medical and social rehabilitation services under a single payment mechanism, with evaluation of outcomes such as functional improvement, hospital readmission rates, and caregiver burden. Such reforms would address the historical fragmentation between medical and social rehabilitation while generating evidence to guide broader policy changes. The path-dependent nature of financing institutions means that change will likely be incremental, but targeted pilots can create demonstration effects that shift expectations and open space for further reform.

In conclusion, the embedding of CBR within China's public health system creates substantial synergies with the "Healthy China" strategy, particularly in the areas of preventive care, health equity, and chronic disease management. These synergies are rooted in historical processes that gradually moved CBR from the margins of disability welfare into the mainstream of public health governance. However, the same historical processes have produced institutional rigidities that limit CBR's effectiveness, including fragmented intersectoral coordination, an underdeveloped community workforce, and financing structures that favor hospital-based services. Addressing these gaps requires adaptive governance, genuine community empowerment, and incremental financing reforms that build on existing institutional strengths rather than attempting to replace them. This article adopts a historical institutionalist perspective. It argues that such changes are achievable,

yet they demand consistent policy focus. Policymakers must operate within the bounds of inherited institutional setups and gradually transform these structures to address modern health challenges.

Conclusion

Drawing on historical institutionalism, this paper analyzes the institutional embedding of China's CBR within public health systems. CBR's evolution is not linear or marked by radical rupture but a layered process shaped by inherited institutional legacies and by periodic windows for reform opened by critical junctures such as the SARS outbreak and the launch of the Healthy China strategy.

Path-dependent features including hierarchical governance, grassroots community mobilization, and family-centered care simultaneously enabled nationwide CBR scaling and created persistent constraints. Continuity supplied existing organizational frameworks for policy roll-out, while institutional change mostly took the form of incremental recalibration rather than full system replacement, redefining rehabilitation from charitable welfare to a public health entitlement.

Goal alignment between CBR and the Healthy China strategy does not guarantee on-the-ground implementation success. Reform priorities must distinguish between features amenable to short-term adjustment and those requiring long-term cultivation. This study puts forward three actionable suggestions: consolidate stable public health budget allocations for CBR; build nationally standardized yet locally adaptive tiered certification for the community rehabilitation workforce; and formalize cross-sector coordination mechanisms via joint planning and shared performance indicators.

For future research, digital health applications for CBR and cross-national comparative institutional analysis deserve greater attention. Further sub-national comparative work and qualitative studies of frontline workers and service recipients can complement this

macro-level institutional analysis.

China's CBR experience demonstrates that low- and middle-income health systems can achieve incremental capacity building by selectively adapting international models to domestic institutional contexts, rather than relying solely on top-down policy statements. Lasting institutional embedding hinges on building robust linkages between new service models and pre-existing local structures. Moving forward, CBR should consolidate its institutional foundation by addressing financing, workforce, and inter-departmental coordination deficits, while preserving its core strength of deep community embeddedness and retaining space for local innovation.

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Conflicts of Interest

The authors declare no conflict of interest.

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