

Analysis of the Current Status and Challenges of Medical–Prevention Integration: Comparative Findings from CDC and Hospital Staff

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Abstract

Background

Health systems globally struggle to integrate clinical care and public health, but CDCs and hospitals in China operate under divergent structures that hinder collaboration. This study adopts a comparative dual-perspective approach to assess the current status and challenges of medical-prevention integration among CDC and hospital staff in the Xinjiang Production and Construction Corps, providing empirical evidence to inform systemic reforms.

Methods

This cross-sectional survey was conducted in November 2025 across all 14 divisions of the Xinjiang Production and Construction Corps. A convenience sampling method was adopted, in which all staff members present at the participating CDCs and healthcare institutions during the survey period were invited to participate voluntarily. A total of 7602 electronic questionnaires were collected via the Questionnaire Star platform. Chi-square tests were used to compare responses between CDC and hospital staff. Multiple response analysis was applied to multiple-choice questions, with percentages based on valid respondents. Propensity score matching (PSM) was performed to verify the robustness of the findings.

Results

Both groups held positive surface-level attitudes toward integration and strongly endorsed information sharing, yet they differed significantly in participation patterns, perceived collaboration effectiveness, and relationship satisfaction (all $P < 0.001$). The most frequently cited problems were insufficient public health physicians at primary-level institutions, alongside difficulties in changing mindsets and lack of consensus as the leading obstacle to advancing integration. Regarding collaboration barriers, unclear entry points and poor communication due to equal administrative levels ranked highest, with a clear mutual-attribution pattern: CDC staff more often blamed hospitals' lack of cooperation, while hospital staff more frequently cited insufficient CDC guidance capacity.

Conclusions

An institutional perception-practice divide persists in medical-prevention integration within the XPPC. Despite shared positive attitudes, CDC and hospital staff differ substantially in participation and perceived collaboration quality, alongside a pattern of mutual attribution and workforce shortages. Advancing integration requires a phased approach targeting collaboration mechanisms, workforce capacity, and health information infrastructure.

Background

Health systems around the world struggle to connect two essential functions: medical services, which focus on diagnosing and treating individual patients, and public health services, which aim to protect populations from disease[1]. When these two domains operate separately, care becomes fragmented, chances for prevention are missed, and resources are used inefficiently[2, 3]. Medical-prevention integration seeks to solve this by bringing clinical and public health activities into a single, coordinated system[4], a goal that has gained international attention as a practical way to bridge the longstanding clinical–public health divide[5, 6]. In China, this ambition has been formally endorsed in national health reform policies, most notably the Healthy China 2030 plan[7].

Hospital and public health agencies have complementary roles[8]. Hospitals see patients day after day and, in doing so, generate large volumes of individual-level health data—information that can help public health agencies spot population-level risks early[9]. Public health agencies, in turn, analyze population data and produce evidence-based guidance that supports clinical decisions and preventive care inside hospitals[10]. In theory, therefore, coordination between these two sectors is a straightforward path toward better integration[11].

In practice, multiple barriers stand in the way. At the structural level, CDCs and hospitals in China operate under separate administrative systems. This divide shapes their work in concrete ways. CDCs are public health institutions funded primarily through government budgets and evaluated on population-level outcomes such as disease surveillance, outbreak control, and chronic disease management. Hospitals, by contrast, are medical service providers that operate under both health administration and medical insurance frameworks. Their revenue depends largely on clinical service volume and reimbursements from social health insurance schemes, and their performance is measured by indicators of clinical efficiency, service volume, and patient satisfaction. These divergent regulatory, financial, and accountability systems mean that the two sectors follow fundamentally different operational logics and answer to different institutional expectations[12, 13]. Financial incentives reinforce this divide. Hospitals have little economic motivation to invest in prevention, since their income is tied to treatment volume and fee-for-service payments. CDCs, on the other hand, operate on fixed government budgets that provide few, if any, rewards for cross-sectoral work. As a result, neither side is incentivized to reach across the institutional boundary[14]. Information sharing, though functional within each vertical system, remains poor across the horizontal divide between CDCs and hospitals. Separate data platforms, incompatible standards, and the absence of shared information protocols have created persistent "information islands" that deprive both sides of the data needed for coordinated action[15].

While these structural barriers are increasingly well documented, less is known about how CDC and hospital staff perceive each other's roles and challenges. Most studies to date have examined medical-prevention integration from a single angle—either the CDC side or the hospital side—and therefore cannot capture how the two groups perceive one another or reveal the mutual attributions that shape their working relationship[16]. Successful collaboration between organizations depends not only on

compatible structures and incentives, but also on mutual trust, shared understanding, and a sense of reciprocal accountability. When these conditions are weak, staff in each organization may develop divergent—and sometimes self-serving—explanations for why collaboration is difficult, a pattern consistent with a principal–agent perspective[17, 18]. Against this backdrop, the present study adopts a dual perspective, drawing on data from both CDCs and hospitals, to systematically analyze the current status and challenges. This study examines the interface between these two institutional actors to identify barriers to collaboration, resource sharing, and service coordination, and to provide empirical evidence that can guide systemic reforms.

Methods

Study Participants

The data used in this study were derived from a cross-sectional survey conducted in November 2025 across the 14 divisions of the Xinjiang Production and Construction Corps, covering hospital and CDCs at all levels. Convenience sampling was adopted to select participants. Eligible participants were in-service staff from the surveyed CDCs and hospitals. All qualified on-the-job employees were invited to voluntarily complete the electronic questionnaire distributed via Questionnaire Star platform. The final sample consisted of all participants who consented to take part and completed the questionnaire in full, constituting a voluntary response sample of the target population. A total of 10,130 questionnaires were collected. After excluding those with very short response times, obviously patterned answers, or missing key information, 7602 valid questionnaires were retained, yielding an effective response rate of 75.04%.

Measurement

A self-administered questionnaire was developed for this study. The design process involved a review of relevant literature and policy documents, combined with the practical features of medical-prevention integration[19, 20]. It was distributed online, and participants from each institution completed it on their own. The complete questionnaire is provided in Supplementary Material 1. The questionnaire consisted of three sections as described below.

Attitudes

This section examined participants' awareness of and attitudes toward medical-prevention integration. Specifically, respondents were asked to indicate their overall attitude toward the current state of medical-prevention integration. Specifically, respondents were asked to indicate their overall attitude toward the current state of medical-prevention integration and their perceived importance of information sharing between CDCs and hospitals. Both items used a binary response format: attitude was measured as positive or negative, and perceived importance of information sharing was measured as important or unimportant.

Practice and collaboration

This section assessed participants' actual involvement in integrated service delivery and their evaluations of cross-sectoral collaboration. Respondents reported their level of involvement in medical-prevention integration, categorized as only public health services, only medical services, both, or neither. In addition, two single-item measures were used to capture perceived effectiveness of current collaboration (smooth or not smooth) and satisfaction with the collaborative relationship between CDCs and hospitals (satisfied or dissatisfied).

Perceived barriers and obstacles

The final section comprised a series of multiple-choice questions addressing three thematic areas: (1) perceived major problems in current medical-prevention integration efforts; (2) perceived reasons underlying collaboration barriers between CDC and hospital staff; and (3) perceived obstacles to advancing medical-prevention integration. For each question, participants could select multiple applicable options from a predefined list.

Sociodemographic characteristic

Information was collected on participants' gender, age, educational background, professional title, and type of workplace. These variables were selected to characterize the sample composition.

Analytical strategies

Statistical measures included frequencies, proportions, and response percentages. Chi-square tests were used to analyze the current status of medical-prevention integration by Xinjiang Production and Construction Corps, with statistical significance set at $P \leq 0.05$. Response percentage analysis was applied to multiple-choice questions. Response percentages for these items were calculated by dividing the number of times each option was selected by the total number of selections across all options. Because respondents could select multiple options, percentages do not sum to 100%.

To account for demographic differences between CDC and hospital staff, propensity score matching (PSM) was conducted in R (version 4.4.1). A logistic regression model estimated propensity scores with institution type (CDC = 1, hospital = 0) as the outcome and gender, education, professional title, and age group as covariates. A 1:1 nearest-neighbor matching algorithm was applied without replacement, using a caliper of 0.2 standard deviations of the logit of the propensity score. Covariate balance was evaluated with standardized mean differences (SMD), with values below 0.1 considered adequate. All 305 CDC staff were successfully matched to 305 hospital staff, yielding a matched analytic sample of 610. Sensitivity analyses were performed by repeating chi-square tests on the matched sample to assess the robustness of the primary findings. SPSS 27.0 was used to conduct statistical analysis.

Results

Characteristics of the Participants

A total of 7602 healthcare workers participated in this study. The sample was predominantly female (74.5%), with the largest age group being 30–49 years (48.1%). Most held an associate or bachelor's degree (91.6%) and had a primary professional title (61.8%). The vast majority worked in hospital (96.0%), with only 4.0% from CDCs. Detailed sociodemographic characteristics are presented in Table 1.

Table 1
Characteristics of survey respondents (N = 7602)

Characteristic	Number	Proportion (%)
Gender		
Male	1942	25.5
Female	5660	74.5
Age		
< 30	2542	33.4
30–49	3658	48.1
≥ 50	1402	18.4
Education		
High school or technical secondary school	518	6.8
Associate or bachelor's degree	6963	91.6
Master's degree or above	121	1.6
Professional title		
Primary	4701	61.8
Intermediate	2087	27.5
Associate senior	718	9.4
Senior	96	1.3
Workplace		
Medical institution	7297	96.0
CDC	305	4.0
Attitude toward current medical-prevention integration		
Positive	7526	99.0
Negative	76	1.0
importance of information sharing		
Important	7450	98.0
Unimportant	152	2.0
involvement in medical-prevention integration		
Only public health services	908	11.9

Characteristic	Number	Proportion (%)
Only medical services	1065	14.0
Both	5479	72.1
Neither	150	2.0
Collaboration effectiveness		
Smooth	6731	88.5
Not smooth	871	11.5
Relationship satisfaction		
Satisfied	6720	88.4
Dissatisfied	882	11.6

Status of medical-prevention integration: a comparison between CDC and hospital staff

Before matching, CDC and hospital staff did not differ significantly in their attitudes toward medical-prevention integration ($P = 0.252$) or in the perceived importance of information sharing ($P = 0.196$). In contrast, the two groups differed markedly in participation patterns, perceived collaboration effectiveness, and satisfaction with the collaborative relationship (all $P < 0.001$). In the matched sample, differences in attitudes ($P = 0.725$) and perceived importance of information sharing ($P > 0.999$) remained non-significant, while significant differences persisted in participation patterns ($\chi^2 = 108.373$, $P < 0.001$), perceived collaboration effectiveness ($\chi^2 = 26.158$, $P < 0.001$), and relationship satisfaction ($\chi^2 = 18.048$, $P < 0.001$). These findings confirm that the primary results were robust to covariate imbalance between groups. Detailed results are presented in Table 2.

Table 2
Comparison of medical-prevention integration status between CDC and hospital staff before and after PSM

	Before PSM		χ^2	P	After PSM		χ^2	P
	CDC [n (%)]	Hospital [n (%)]			CDC [n (%)]	Hospital [n (%)]		
Attitude toward current medical-prevention integration			1.313	0.252			0.127	0.722
Positive	300 (98.4)	7226 (99.0)			300 (98.4)	302 (99.0)		
Negative	5 (1.6)	71 (1.0)			5 (1.6)	3 (1.0)		
Importance of information sharing			1.673	0.196			< 0.001	> 0.999
Important	302 (99.0)	7148 (98.0)			302 (99.0)	301 (98.7)		
Not important	3 (1.0)	149 (2.0)			3 (1.0)	4 (1.3)		
Participation in medical-prevention integration			415.394	< 0.001			108.373	< 0.001
Only public health services	146 (47.9)	762 (10.4)			146 (47.9)	38 (12.5)		
Only medical services	9 (3.0)	1056 (14.5)			9 (3.0)	41 (13.4)		
Both	136 (44.6)	5343 (73.2)			136 (44.6)	221 (72.5)		
Neither	14 (4.6)	136 (1.9)			14 (4.6)	5 (1.6)		
Collaboration effectiveness			43.769	< 0.001			26.158	< 0.001
Smooth	234 (76.7)	6497 (89.0)			234 (76.7)	280 (91.8)		
Not smooth	71 (23.3)	800 (11.0)			71 (23.3)	25 (8.2)		

	Before PSM				After PSM			
	CDC [n (%)]	Hospital [n (%)]	χ^2	P	CDC [n (%)]	Hospital [n (%)]	χ^2	P
Relationship satisfaction			39.901	< 0.001			18.048	< 0.001
Satisfied	235 (77.0)	6485 (88.9)			235 (77.0)	274 (89.8)		
Dissatisfied	70 (23.0)	812 (11.1)			70 (23.0)	31 (10.2)		

Major problems perceived in current medical-prevention integration

When asked about the main problems hindering medical-prevention integration, both CDC and hospital staff consistently identified "insufficient public health physicians at primary-level institutions" as the most prominent problem across all comparisons. Before PSM, this issue was selected by 25.5% of CDC staff and 26.3% of hospital staff; after matching, the corresponding proportions were 25.5% and 28.5%. The next two highly ranked problems—"lack of diagnostic and treatment skills among existing public health staff" and "lack of public health knowledge and skills among clinical doctors"—also maintained their relative positions before and after matching. Overall, the rank order of all eight problems remained stable between the two groups in both the original and matched samples, supporting the robustness of these perceptions. Detailed results are shown in Table 3.

Table 3

Perceived major problems in medical-prevention integration reported by CDC and hospital staff (before and after PSM)

	Before PSM		After PSM	
	CDC (n = 305)	Hospital (n = 7297)	CDC (n = 305)	Hospital (n = 305)
Primary-level institutions lack sufficient public health physicians	174 (25.5)	4422 (26.3)	174 (25.5)	177 (28.5)
Existing public health staff lack diagnostic and treatment skills	121 (17.7)	3488 (20.7)	121 (17.7)	107 (17.2)
Existing clinical doctors lack public health knowledge and skills	108 (15.8)	2637 (15.7)	108 (15.8)	87 (14.0)
Lack of integrated working and incentive mechanisms	101 (14.8)	2347 (14.0)	101 (14.8)	91 (14.7)
Current income distribution system discourages doctors from disease prevention	62 (9.1)	1154 (6.9)	62 (9.1)	45 (7.2)
Clinical doctors have no time for disease prevention	32 (4.7)	1156 (6.9)	32 (4.7)	45 (7.2)
Clinical and public health services currently work in silos	51 (7.5)	890 (5.3)	51 (7.5)	42 (6.8)
Public health physicians lack clinical treatment qualifications	34 (5.0)	716 (4.3)	34 (5.0)	27 (4.3)

Reasons for collaboration barriers between CDC and hospital staff

The rank order of collaboration barriers was broadly consistent between CDC and hospital staff, and remained stable after propensity score matching. In both the original and matched samples, "unclear entry points for collaboration" was the most frequently cited barrier, followed by "poor communication due to equal administrative levels," and then "workflow conflicts." A clear mutual-attribution pattern also persisted. CDC staff were substantially more likely than hospital staff to view "lack of cooperation from hospital" as a barrier (13.8% vs. 3.3% after matching), whereas hospital staff were more likely to cite "insufficient guidance capacity of CDCs" (15.8% vs. 9.1% after matching). Detailed results are shown in Table 4.

Table 4

Perceived reasons for collaboration barriers reported by CDC and hospital staff (before and after PSM)

	Before PSM		After PSM	
	CDC (n = 305)	Hospital (n = 7297)	CDC (n = 305)	Hospital (n = 305)
Unclear entry points for collaboration	203 (31.1)	4963 (33.1)	203 (29.7)	195 (29.6)
Poor communication due to equal administrative levels	162 (24.8)	3791 (25.3)	162 (23.7)	153 (23.2)
Workflow conflicts	127 (19.5)	2776 (18.5)	127 (18.6)	110 (16.7)
Insufficient guidance capacity of CDCs	62 (9.5)	2829 (18.9)	62 (9.1)	104 (15.8)
Lack of cooperation from hospital	94 (14.4)	415 (2.8)	94 (13.8)	22 (3.3)
Others	4 (0.6)	230 (1.5)	4 (0.6)	11 (1.7)

Perceived main obstacles to advancing medical-prevention integration

When asked about the main obstacles to advancing integration, both groups consistently identified "difficulties in changing mindsets and lack of consensus" as the top barrier across all analyses. The overall rank order of obstacles remained stable after matching, though the two groups continued to emphasize different concerns. CDC staff were more likely to identify "poor cross-sectoral collaboration" as a major obstacle, whereas hospital staff placed greater weight on "shortage of human resources" (17.9% before matching, 18.4% after matching) and "low health awareness and low participation among residents" (11.5% before matching, 10.8% after matching). These patterns were consistent between the original and matched samples, indicating that they were not driven by demographic differences between the two groups. Detailed results are shown in Table 5.

Table 5
Perceived obstacles to advancing medical-prevention integration reported by CDC and hospital staff
(before and after PSM)

	Before PSM		After PSM	
	CDC (n = 305)	Hospital (n = 7297)	CDC (n = 305)	Hospital (n = 305)
Difficulties in changing mindsets and lack of consensus	189 (23.8)	4287 (23.8)	189 (23.8)	185 (25.2)
Poor cross-sectoral collaboration	171 (21.5)	3117 (17.3)	171 (21.5)	119 (16.2)
Shortage of human resources	115 (14.5)	3231 (17.9)	115 (14.5)	135 (18.4)
Inadequate information platform and poor data sharing	92 (11.6)	1989 (11.0)	92 (11.6)	76 (10.4)
Insufficient leadership attention	75 (9.4)	1362 (7.5)	75 (9.4)	51 (7.0)
Lack of policy support	57 (7.2)	1534 (8.5)	57 (7.2)	66 (9.0)
Low health awareness and low participation among residents	54 (6.8)	2075 (11.5)	54 (6.8)	79 (10.8)
Incomplete performance evaluation mechanisms	38 (4.8)	354 (2.0)	38 (4.8)	15 (2.0)
Others	3 (0.4)	98 (0.5)	3 (0.4)	7 (1.0)

Discussion

Main Findings

This study yielded four main findings. First, CDC and hospital staff shared a near-universal positive attitude toward medical-prevention integration and strongly endorsed the importance of information sharing, yet their practical experiences of collaboration differed markedly. CDC staff were far more likely to be engaged only in public health work and perceived collaboration as less smooth and less satisfactory than did hospital staff. These differences remained clear even after propensity score matching, pointing to an institutional perception-practice divide. Second, a clear mutual-attribution pattern emerged: CDC staff were more inclined to blame a lack of cooperation from hospital, whereas hospital staff more often pointed to insufficient CDC guidance capacity. Third, both groups identified insufficient public health physicians at primary-level institutions as the top problem, alongside persistent skill mismatches in both the public health and clinical workforces. Fourth, difficulties in changing mindsets and lack of consensus were ranked as the foremost obstacle to advancing integration, despite the broadly shared positive attitudes.

Staff in both CDCs and hospitals hold strongly positive attitudes toward integration, and almost all recognize the importance of information sharing. These findings are in line with a growing body of evidence from China showing widespread support for the idea of integration among health workers[21, 22]. Yet this shared understanding does not translate into a shared practical experience. CDC staff were far more likely to be engaged only in public health work. They also saw collaboration as less smooth and were less satisfied with the cross-institutional relationship than their hospital colleagues. These differences remained clear even after propensity score matching. We see this as an institutional perception-practice divide: there is little disagreement about whether integration matters, but the everyday experience of working together remains deeply divided along institutional lines.

The roots of this gap lie in the structural separation between clinical and public health systems. CDCs and hospitals in China answer to different administrative bodies, follow different rules, and are judged by different standards[23]. These conditions create distinct professional realities. CDC staff, whose main task is population surveillance, naturally concentrate on public health services. Hospital staff, driven by clinical demand and more recent reform efforts, have increasingly taken on both medical and public health roles. As a result, the two groups differ not only in what they do, but also in how they experience and judge cross-sectoral work. When a shared consensus is not backed by equally shared practice, commitment to integration can remain an abstract ideal rather than a working guide for collaboration. Similar patterns have been reported in earlier research on inter-organizational cooperation[24].

The most striking sign of this gap is the mutual-attribution divide that emerged when staff were asked about barriers to collaboration. CDC staff were clearly more inclined to blame a “lack of cooperation from hospital.” Hospital staff, in turn, were more likely to point to the “insufficient guidance capacity of CDCs.” This mutual blame pattern persisted after propensity score matching, embodying the characteristics of intergroup attribution bias: each group attributes collaborative failures to the flaws of the opposing group rather than systemic constraints. From the perspective of the principal-agent relationship, this can also be attributed to misaligned incentive and accountability mechanisms. In addition, the lack of mutual trust and shared professional identity across institutional boundaries may also exert adverse impacts.[25]. To work well, CDC guidance must be woven into the daily routines of hospital. When it is not adopted, CDC staff see a failure of cooperation. Hospitals, as frontline service providers, judge integrated measures by how well they work in practice. If they find CDC advice disconnected from clinical realities, they conclude that the CDC lacks the needed capacity. When neither side sees the other as a reliable partner, the two barriers that both groups ranked highest—“unclear entry points for collaboration” and “poor communication due to equal administrative levels”—become structurally hard to resolve. This finding echoes broader evidence that cooperation in healthcare networks often breaks down not because of technical obstacles but because of gaps in mutual understanding and reciprocal accountability[26].

Workforce shortages and skill mismatches add to this trust deficit. Both groups of staff identified “insufficient public health physicians at primary-level institutions” as the top problem. This matches national evidence of an absolute shortage of grassroots public health personnel[27]. In the XPCC, the

shortage is likely felt even more keenly. The region's vast geography, scattered population clusters, and the Corps' special organizational structure all place extra demands on an already thin workforce. Alongside this, staff noted two further concerns. Public health workers often lack diagnostic and treatment skills, while clinical doctors often lack knowledge and skills in population health. These point to a structural mismatch created by the separate training tracks for health professionals. Public health education has long stressed population-level prevention and policy, leaving graduates with weak clinical skills. Clinical education remains focused on treating individual diseases. As a result, clinicians have limited ability to manage health at a population level or carry out preventive interventions[28]. This dual skills gap is not just a training flaw. It is a fundamental obstacle to the "both medical and public health services" model that integration aims to achieve.

When asked about the main obstacles to moving integration forward, both groups ranked "difficulties in changing mindsets and lack of consensus" at the top. This may appear puzzling given the almost universally positive attitudes reported. Yet it can be interpreted as a form of reflective awareness among staff: they recognize that agreement with integration in principle has not yet been accompanied by the deeper shift in norms and expectations that sustained collaboration requires. In this context, changing mindsets means moving from passive acceptance of integration as a policy goal toward a sense of shared responsibility that cuts across institutional boundaries. The other highly ranked obstacles—poor cross-sectoral collaboration, human resource shortages, and weak information platforms—can be understood both as structural conditions that make practical collaboration difficult and as factors that reinforce the feeling that integration remains aspirational rather than fully realized.

4.2 Implications

Taken together, these findings point to a phased strategy that deals with both the structural and the relational sides of integration. In the short term, the two sectors could develop joint standard operating procedures for routine cross-sectoral tasks. Examples include notifiable disease reporting, outbreak investigation, and chronic disease follow-up. These would clarify the entry points that staff currently find so unclear. Regular meetings between institutions could start to ease the communication problems and, just as important, create the face-to-face contact that builds professional trust. In the medium term, workforce training should be reformed. Adding core clinical content to public health education and population health modules to clinical curricula would help close the skills gaps that both groups consistently named. Performance evaluation also needs to be restructured, so that cross-sectoral work is formally recognized rather than treated as unpaid extra effort. In the longer term, investment in health information systems that link CDC and hospital data horizontally remains essential. This would help overcome the "information islands" that previous research has documented and make the kind of routine, data-driven collaboration that both sides currently struggle to sustain far more feasible. Across all three phases, close attention must be paid to the relational dimension of integration. Without deliberate efforts to build mutual trust and a shared professional identity that reaches across institutional lines, even the best-designed structural reforms may fail to bridge the institutional perception-practice divide that this study has revealed.

Limitations

Several limitations should be considered when interpreting these results. First, the cross-sectional design precludes causal inferences, and the observed associations between institutional affiliation and perceptions may be influenced by unmeasured confounders not included in the PSM model. Second, the matched analytic sample (n = 610), while methodologically rigorous, represents only 8.0% of the original sample; This substantial reduction may limit statistical power for detecting smaller effects and may affect the generalizability of findings to the broader XPCC healthcare workforce. Third, the near-universal endorsement of attitudes toward integration and the perceived importance of information sharing suggest possible social desirability bias. Fourth, all attitudinal and satisfaction measures relied on single-item binary indicators, which may lack the sensitivity, reliability, and multidimensional coverage of validated multi-item scales. Fifth, the convenience sampling approach may have introduced selection bias, as participation was voluntary and limited to staff present during the survey period. Finally, the study was conducted within a single administrative region (XPCC) with a unique organizational structure; therefore, findings may not generalize to other Chinese provinces or countries with different healthcare governance arrangements.

Conclusion

This study reveals an institutional perception-practice divide in medical-prevention integration within the XPCC. Despite a shared consensus on the value of integration, CDC and hospital staff diverge in their participation and perceived collaboration quality, alongside mutual attribution and workforce deficiencies. Coordinated efforts targeting collaboration mechanisms, workforce capacity, and health information systems are needed to bridge this gap.

Declarations

Ethics approval and consent to participate

This study was conducted in strict adherence to the ethical principles outlined in the Declaration of Helsinki, as adopted and amended by the World Medical Association. The studies were reviewed and approved by Ethics Committee of the First Affiliated Hospital, Shihezi University School of Medicine. All participants provided written informed consent to participate in this study. Ethical approval number:KJ2025-357-01

Consent for publication

Not Applicable

Availability of data and materials

The data supporting this study are not publicly available due to ethical and privacy restrictions. De-identified data may be requested from the corresponding author with permission from the ethics committee.

Competing interests

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as potential conflicts of interest.

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Author contributions

Yaling Du conceived and designed the study. Yuanfeng Rao, Xin Shi, and Subinuer Nuermaiti conducted the surveys and collected data. Silin Li analyzed and interpreted the data and wrote the first draft of the article. Shangfeng Tang critically revised the article for important intellectual content. All authors contributed to the article, reviewed the manuscript, and approved the submitted version.

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