Postprint: A Discussion on Developing Clinical Pathways for Undifferentiated Diseases in Community General Practice

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Abstract

The diagnosis and treatment of community undifferentiated diseases are closely related to the overall service capacity of primary healthcare institutions; however, current research indicates that general practitioners lack the diagnostic and therapeutic capabilities matched to such diseases. By reviewing the historical evolution of introducing the clinical pathway model into China's general practice field, this article demonstrates that the domestic application of clinical pathways is at a critical transition period from simple diseases to complex conditions, and from specialties in general hospitals to general practice in primary healthcare institutions, thereby confirming the broad application prospects of the clinical pathway model in undifferentiated disease diagnosis and treatment. Subsequently, it summarizes the key bottleneck issues currently facing community general practice clinical pathways in China, which mainly include low recognition and acceptance of clinical pathways among medical staff, difficulties in selecting disease types for undifferentiated diseases, and the mismatch between paper-based forms or simple electronic clinical pathways and rapidly developing medical informatization. On this basis, the article further proposes that constructing clinical pathways for community general practice undifferentiated diseases should take general practice thinking as the core, employing approaches such as breaking through specialty thinking, focusing on advantageous disease types, and standardizing community diagnostic coding, while utilizing a regional medical collaborative clinical decision-making information platform as a new model for clinical pathways to conduct further exploration. This article provides a theoretical basis and strategic insights for the future construction of clinical diagnosis and treatment pathways for community general practice undifferentiated diseases.

Full Text

Discussion on the Construction of Clinical Pathways for Diagnosis and Treatment of Medically Unexplained Disease in Community General Practice

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Abstract

The diagnosis and treatment of medically unexplained disease (MUD) in community settings is closely related to the overall service capacity of primary healthcare institutions. However, current research indicates that general practitioners lack the necessary competencies to manage such conditions. This paper examines the historical evolution of clinical pathway models in Chinese general practice, demonstrating that their application is transitioning from simple diseases to complex conditions, and from hospital specialties to community-based general practice. This transition confirms the broad prospects for applying clinical pathways to MUD management. The paper then identifies key bottlenecks in community general practice clinical pathways: low recognition among healthcare staff, difficulties in selecting appropriate MUD categories, and the mismatch between paper-based or simplistic electronic pathways and rapidly advancing medical informatics. Building on this analysis, we propose that constructing community MUD clinical pathways should center on general practice thinking, break through specialty-oriented mindsets, focus on dominant disease categories, standardize community diagnostic coding, and explore new models based on regional medical collaborative clinical decision information platforms. This paper provides a theoretical foundation and strategic framework for future development of community general practice clinical pathways for MUD.

Keywords: Community health services; General practice; Medically unexplained disease; Clinical pathway; General practitioners

1. Search Strategy

We conducted computerized searches of PubMed, Web of Science, CNKI, VIP, Duxiu, Wanfang Data, Google Scholar, and Baidu Academic using Chinese search terms including "临床路径" (clinical pathway), "诊疗路径" (diagnosis and treatment pathway), "关键路径" (critical pathway), "基层" (primary care), "社区" (community), "全科" (general practice), "现况" (current situation), "问题" (problems), and "效果" (effects). English search terms included "Clinic Pathway," "Critical Pathway," "primary care," "community," "general," "current situation," "problem," and "effect." We included literature from database inception to the present on clinical pathway development and current status. Exclusion criteria were: (1) duplicate publications; (2) literature completely unrelated to the research topic; and (3) pure policy interpretations or work experience exchanges. Two researchers independently conducted literature screening and selection, with disagreements resolved through discussion with the corresponding author. The initial search yielded 402 articles; after title/abstract screening (n=263 excluded), duplicate removal (n=28), and full-text review (n=87 excluded), 24 articles were finally included covering clinical pathway applications and challenges in primary care settings.

2. Historical Evolution of Clinical Pathway Models in Chinese General Practice

In 1996, West China University Hospital became China's first medical institution to introduce and pilot clinical pathways. After 1998, clinical pathway research and trials gradually expanded to hospitals in Beijing, Tianjin, Chongqing, Guangzhou, and other cities. Initially, clinical pathways were limited to a few specialties in general hospitals, primarily serving as tools for medical quality and resource management that standardized clinical processes to reduce hospital stays and medical costs. As more positive effects were documented—such as ensuring medical quality, controlling costs, and improving patient satisfaction—clinical pathways rapidly spread across disciplines. Recognizing their effectiveness, the National Health Commission issued the "Guiding Principles for Clinical Pathway Management (Trial)" in 2009, followed by the "Notice on Launching Clinical Pathway Management Pilot Work" and the "National Clinical Pathway Management Pilot Work Summary and Evaluation." These policies marked the beginning of widespread clinical pathway implementation in China. To date, the National Health Commission has issued over 1,212 clinical pathways covering 224 disease categories across 19 specialties. Through continuous revision and improvement, China's clinical pathway model is transitioning from surgical to medical disciplines, from simple to complex diseases, from chronic to acute conditions, and from hospital specialties to community general practice. In 2003, Liang Wannian established and implemented clinical pathways for four chronic diseases with two-way referral mechanisms, demonstrating their effectiveness in cost control and reducing hospital stays. In 2006, He Jiangyan analyzed the application status and management approaches of community clinical pathways.

Recent studies, such as explorations of clinical pathways in community settings and the development of primary care pathways focused on patient symptoms, reflect this profound transition. As community applications increase, the benefits of community clinical pathways have been confirmed: Chen Jinxing et al. showed that hypertension two-way referral pathways improved patient satisfaction, reduced initial consultation time, and decreased revisit rates; Gu Weigang demonstrated improved patient compliance; and Dai Huimin et al. found that electronic clinical pathways for type 2 diabetes standardized general practitioner care, strengthened follow-up management, and enhanced patient satisfaction. Despite expanding applications in community general practice, clinical pathway use for MUD management remains in its infancy, limited to theoretical research on single MUD pathways.

3. Current Status and Influencing Factors of Community MUD Clinical Pathways

3.1 Broad Application Prospects for Clinical Pathways in MUD Management First, government and academic attention to MUD management is increasing. Since the MUD concept was introduced in China, policymakers and researchers have recognized that general practitioners' MUD competencies directly impact primary care service capacity. At the research level, publications such as the "Manual for Diagnosis and Treatment of Common Undifferentiated Diseases in General Practice" by Ren Jingjing et al. and "Clinical Diagnostic Thinking for General Practitioners" by Yu Dehua et al. have established clinical decision-making processes by focusing on key decision points for common symptoms. At the national level, multiple textbooks—including standardized general practitioner training materials—have emphasized symptom-based diagnostic flows and referral criteria rather than disease diagnosis standards. Journals like *Chinese General Practice* and *Chinese Journal of General Practitioners* have published series on general practice diagnostic thinking and primary care guidelines that start from patients' reasons for visit rather than definitive diagnoses, assisting general practitioners in developing treatment plans. Additionally, policy initiatives and training programs related to comprehensive healthcare reform demonstrate growing recognition of the importance of improving community MUD management capacity. The frequent release of primary care guidelines and conference content reveals active efforts to improve MUD management through top-down coordination.

Second, the foundation for constructing community MUD clinical pathways is maturing. Recent textbooks, monographs, and literature have converged on using concise diagnostic flowcharts rather than subjective text descriptions as references for standardized general practice, based on abnormal symptoms, signs, and clinical experience. These flowcharts and their decision nodes constitute essential rule datasets for computer-identifiable clinical pathways. Moreover, with rapid development of big data in general practice, intelligent electronic clinical pathways can overcome the limitations of traditional pathways—such as cum-

bersome application and unsuitability for MUD—enabling functions like precision diagnosis, personalized treatment, critical value alerts, and error analysis. This evolution indicates that electronic clinical pathway research is emerging, and the methodology for constructing community MUD clinical pathways has transitioned from theoretical hypothesis to practical implementation.

3.2 Current Problems and Influencing Factors in Community MUD Clinical Pathway Implementation Despite maturing conditions, several critical issues require resolution.

First, selecting appropriate MUD categories for clinical pathways is challenging. Clinical pathways typically target: (1) common and frequently occurring diseases, and (2) stable conditions with minimal treatment variation. However, MUD encompasses multiple disease categories and systems with high variability and individual differences, failing to meet traditional pathway construction criteria. This may explain why MUD clinical pathway applications have remained unresolved for so long.

Second, community healthcare staff show low recognition and acceptance of clinical pathways. On one hand, few pathway types are suitable for community application, and grassroots promotion is insufficient. On the other hand, previous simplistic and rigid pathway implementation often generated resistance among healthcare workers before benefits could be realized. The main reasons include inadequate understanding of clinical pathways among primary care providers and the burdensome nature of traditional paper-based or simplistic electronic pathways, which paradoxically increase workload and reduce enthusiasm for adoption.

Third, paper-based or simplistic electronic pathways are incompatible with rapidly advancing medical informatics. Besides poor acceptance, these traditional formats cannot synchronize with hospital information development. In recent years, electronic medical record (EMR) and hospital information system (HIS) platforms have become core workflow systems across all healthcare levels. Paper or form-based pathways not only fail to align with this development but also undermine the PDCA (Plan-Do-Check-Act) cycle optimization characteristic of clinical pathways, eliminating their advantages in real-time feedback and optimization. This represents another significant constraint on community MUD clinical pathway development.

3.3 Difficulties in Directly Applying Foreign Clinical Pathway Results Foreign definitions of MUD differ from China's, emphasizing medically unexplained physical symptoms more heavily. This likely reflects Western countries' richer primary care resources, where early-stage undifferentiated diseases can receive comprehensive auxiliary examinations, long-term follow-up, and timely interventions at community health centers. Consequently, foreign clinical pathways for MUD are similar to those for specific diseases in Chinese tertiary hospitals and cannot be directly applied to China's general practice MUD context.

Despite more mature development, foreign pathways face three major adaptation challenges: (1) Significant resource disparities—Chinese primary care institutions cannot match Western community health centers in auxiliary examinations and treatments, and regional economic and healthcare development imbalances create mismatches between pathway requirements and local capabilities; (2) Foreign pathways are built on highly collaborative information systems, while China's primary care informatics remains in its infancy, preventing direct adoption; and (3) Diagnostic classification differences—Western countries primarily use the International Classification of Primary Care (ICPC), whereas China and most Asian and African countries still use ICD and its derivatives due to language barriers and uneven development. However, analyzing trends in Western clinical pathways remains valuable for informing China's development direction, particularly regarding electronic informatization and research approaches.

4. Feasible Directions for Constructing Community General Practice MUD Clinical Pathways

4.1 General Practice Thinking as the Core Construction Principle While clinical pathways can standardize general practitioners' behaviors and improve competencies, constructing community MUD pathways must not overlook the "person-centered," holistic, and systematic thinking of general practice. First, pure cognitive-behavioral or pharmacological therapies for MUD show limited effectiveness, whereas comprehensive therapies integrating multiple treatment modalities—aligned with general practice's systematic approach—demonstrate superior outcomes. Second, MUD often co-occurs with anxiety and depression symptoms. General practitioners' advantage in MUD management likely stems from their proficiency in the bio-psycho-social model and holistic exploration of psychosocial factors. Therefore, community MUD clinical pathways should incorporate psycho-social factors into corresponding databases, enabling general practitioners to leverage these inherent strengths.

4.2 Breaking Through Specialty-Oriented Thinking Given resource limitations in primary care that hinder definitive diagnosis, MUD clinical pathway construction should break through specialty mindsets. Like current community clinical guidelines, pathways should not be diagnosis-based but should instead treat disease identification as one function among many. Pathways should address patients' presenting symptoms while integrating community auxiliary examination results to establish appropriate referral criteria. Only pathways developed from a general practice perspective can truly meet primary care institutions' actual needs.

4.3 Focusing on Dominant Disease Categories Clinical practice shows that setting too many pathway standards reduces operability. Therefore, representative studies of chronic disease pathways and tiered referral systems in China

have typically focused on single diseases or single systems. Multi-province practice attempts demonstrate that this approach is realistic and necessary given China's limited healthcare resources. MUD pathway construction should similarly prioritize top-ranked general practice diagnoses within specific regions, focusing on one type or system of MUD to enhance model specificity and practicality.

4.4 Standardizing Community Diagnostic Coding Currently, no specific diagnostic code exists for "MUD," with symptom codes often used as substitutes. However, primary care institutions have long struggled with non-standardized diagnostics, vague descriptions, substitution of symptoms for diseases (or vice versa), and subjective, arbitrary diagnostic naming. Such inconsistency not only complicates patient follow-up but also prevents construction of effective knowledge bases, model libraries, and rule databases needed to output correct clinical reminders and decision support. Both ICD and ICPC systems provide codes for symptoms, signs, abnormalities, and social conditions to substitute for definitive disease diagnoses, but neither system's primary care application has undergone effective evaluation and optimization. Therefore, from both quality control and MUD pathway construction perspectives, community general practice must urgently promote unified diagnostic coding, develop implementation plans, and strengthen exploration of diagnostic data applications in primary care.

4.5 Regional Medical Collaborative Clinical Decision Platforms as a New Development Model While electronic clinical pathways can mitigate the impact of paper-based systems on clinical workflows, they still require clinicians to interrupt their work to select appropriate pathways. A Shanghai Jiao Tong University study proposed that constructing a clinical decision knowledge base platform based on clinical pathways could enable computers to provide reminders and recommend appropriate treatment plans during clinical encounters. Establishing such regional medical collaborative decision platforms under big data environments can facilitate clinical information sharing across departments and institutions (e.g., within regional medical alliances), maximizing clinical pathways' effectiveness. This may represent a transformative new model for community general practice MUD clinical pathway development.

Conclusion

This study addresses key issues in China's community MUD management through literature analysis. It first reviews the historical evolution of clinical pathway models in Chinese general practice, then clarifies the necessity and feasibility of constructing MUD pathways from a general practice perspective, and finally proposes future directions by analyzing traditional pathways' strengths and weaknesses. The aim is to provide theoretical foundations and strategic guidance for researchers and policymakers. However, the proposed strategies—including promoting standardized community disease coding and applying general practice thinking to pathway construction—remain to be

tested in practice. Future qualitative and quantitative studies are needed to validate and refine these strategies, with continuous monitoring and evaluation of their effectiveness in actual implementation.

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Note: Figure translations are in progress. See original paper for figures.