

# Expert consensus on quality control indicators for integrative medicine in rheumatoid arthritis (2023 version)

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## Abstract

The rising costs of cancer care and subsequent medical financial hardship for cancer survivors and families are well documented in the United States. Less attention has been paid to employment disruptions and loss of household income after a cancer diagnosis and during treatment, potentially resulting in lasting financial hardship, particularly for working-age adults not yet age-eligible for Medicare coverage and their families. In this article, the authors use a composite patient case to illustrate the adverse consequences of cancer diagnosis and treatment for employment, health insurance coverage, household income, and other aspects of financial hardship. They summarize existing research and provide nationally representative estimates of multiple aspects of financial hardship and health insurance coverage, benefit design, and employee benefits, such as paid sick leave, among working-age adults with a history of cancer and compare them with estimates among working-age adults without a history of cancer from the most recently available years of the National Health Interview Survey (2019–2021). Then, the authors identify opportunities for addressing employment and health insurance coverage challenges at multiple levels, including federal, state, and local policies; employers; cancer care delivery organizations; and nonprofit organizations. These efforts, when informed by research to identify best practices, can potentially help mitigate the financial hardship associated with cancer.

## KEYWORDS

indicators, integrated Chinese and Western medicine, medical quality, rheumatoid arthritis

## INTRODUCTION

Rheumatoid arthritis (RA) is a chronic, systemic autoimmune disease characterized by inflammatory arthritis and extra-articular involvement that can lead to cartilage and bone damage and disability [1, 2]. Compared to the general population, patients with RA are at a higher risk of serious infections, respiratory diseases, osteoporosis,

cardiovascular diseases, cancer, and death [3, 4]. Studies have shown that the global prevalence of RA is about 1% [5], and the prevalence in Chinese mainland is about 0.42% [6]. RA has a high incidence of disability and functional limitation, which increases gradually with the disease duration [7]. These hazards impose a significant life, medical, and economic burden on patients, healthcare providers, and society [8–10].

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RA belongs to the “Wang Bi” in Chinese medicine, and the integrated treatment of RA with Chinese and Western medicine has characteristics and good clinical effects, which can help improve clinical symptoms, delay disease progression, and improve patients’ quality of life [11, 12]. At present, the integration of Chinese and Western medicine is widely used in the treatment of RA throughout the country, but due to differences in medical conditions and clinical operations, the clinical management of RA in some regions is not yet standardized, which affects the clinical efficacy and is not conducive to the development of the specialty and discipline of integrated Chinese and Western medicine in rheumatology. In 2021, initiated by the Center for Integrative Medicine of China-Japan Friendship Hospital, led by the Traditional Chinese Medicine (TCM) Department of Rheumatology of China-Japan Friendship Hospital, relying on the Rheumatology Branch of the Beijing Association of the Integrating of Traditional and Western Medicine, which used the Delphi method to systematically collect suggestions from experts in integrative rheumatology in Beijing and write expert consensus (Beijing Association of the Integrating of Traditional and Western Medicine Standardization Expert Consensus Filing Number: 2021Z031A1) [13]. However, the outdated consensus could not meet the changing clinical realities over the time. To adapt to the latest stage of clinical diagnosis and treatment of RA and to promote progress in the quality of medical care, the project team has relaunched the preparation of the consensus by adding new items to the original version and preparing a new “Expert Consensus on Quality Control Indicators for Integrative Medicine in Rheumatoid Arthritis (2023 Version)”. This project aims to provide a reference for rheumatologists and hospital administrators on the clinical management and comprehensive management of RA.

## METHODS

The Center for Integrative Medicine of China-Japan Friendship Hospital has established the Steering Committee for Quality Control of Integrative Medicine (the Committee), which is responsible for systematically developing a medical quality control indicator system for the superior diseases of integrative medicine. Based on the clinical level and patient management experience, the committee established a Quality Standard (QS) group for integrated Chinese and Western medicine in rheumatology. The QS group is responsible for developing a quality control indicator system for RA that is clinically applicable and reflects the characteristics of the patient’s disease. The QS group organized rheumatologists from the China-Japanese Friendship Hospital to draft the “Rheumatoid Arthritis Quality Control

Indicators for Integrated Medicine” based on clinical experience and literature evidence. Then, experts of high seniority in the Rheumatology Branch of Beijing Association of the Integrating of Traditional and Western Medicine were invited to discuss and revise the draft quality control indicators article by article through expert consultation. The result was the unanimously agreed “Expert Consensus on Quality Control Indicators for Integrative Medicine in Rheumatoid Arthritis (2023 Version)”. Each quality control indicator in the consensus has a clear definition and is measured in a way that can be quantified by ratios, while illustrating the clinical significance of the quality control indicators. In the expert evaluation, “A” stands for important and recommended for inclusion, “B” stands for average, and “C” stands for unimportant and not recommended for inclusion. A total of 101 rheumatologists participated in the consensus formation process, and 101 valid questionnaires were returned. Due to the reliability of the 2021 version, this update is only justified for newly added items.

## RESULTS

The consensus included 14 quality control indicators, and the agreement rate of expert recommendations was 72.3%–100% with high consistency (Table 1).

### Proportion of RA patients assessed for disease activity during hospitalization

The condition of RA should first be clarified, and the treatment plan should be developed after a comprehensive assessment. The commonly used clinical criteria for assessing disease activity in RA patients are DAS28, CDAI, SDAI, etc. These indicators reflect the normality of the diagnosis of RA and are the basis for standardized treatment.

### Proportion of RA patients with autoantibody testing within 1 year

Completion of relevant autoantibody tests is one of the indispensable steps in the diagnosis and monitoring of RA patients. The most used autoantibodies include rheumatoid factor, anti-citrulline protein antibody, and antinuclear antibodies. These antibodies not only serve as biomarkers at the time of diagnosis but also as evidence reflecting different levels of disease activity. It is generally recommended that patients be retested over a six-month to one-year period, but it is also important to note the presence of seronegative RA [14].

**TABLE 1** Quality control indicators for integrative medicine in rheumatoid arthritis (2023).

Number	Indicators	Definition	Clinical significance	Explain	Recommendation strength <sup>a</sup>	Agreement rate <sup>b</sup>
1	Proportion of RA patients assessed for disease activity during hospitalization	Number of inpatients with disease activity assessment in unit time as a proportion of total inpatients in the same period	Reflects the normality of the diagnosis	Commonly used clinical criteria for assessing RA disease activity are DAS28, CDAI, SDAI, etc.	A: 76 B: 0 C: 0	100%
2	Proportion of RA patients with autoantibody testing within 1 year	Number of RA patients completing autoantibody testing over a 1-year period as a proportion of the total number of RA patients over the same period	Reflecting the normative status of disease surveillance and condition assessment	Autoantibody tests include rheumatoid factor, anti-citrulline protein antibody, and other autoantibody tests.	A: 86 B: 15 C: 0	85.2%
3	Proportion of RA patients with joint imaging evaluations during hospitalization	Number of inpatients with joint imaging completed in unit time as a proportion of total inpatients in the same period	Assessing the patient for structural damage to the joint	Joint imaging assessment including joint ultrasound, x-ray, CT, MRI, etc.	A: 54 B: 3 C: 0	94.7%
4	Proportion of RA patients completing joint function rating	Number of RA patients completing joint function rating per unit of time as a proportion of the total number of RA patients in the same period	Response to joint function and ability to live with RA	Grade I: Joint function is intact, no obstacles to general activities; Grade II: Joint discomfort or obstacles but still able to complete general activities; Grade III: Functional activities are obviously limited, but most of the life can be taken care of; Grade IV: Life cannot be taken care of or bedridden.	A: 96 B: 5 C: 0	95.1%
5	Proportion of RA inpatient quality-of-life evaluations	Number of inpatients using the SF-36 scale for quality-of-life assessment in unit time as a proportion of total inpatients in the same period	Assessing the patient's quality of life	Quality of life is assessed using the SF-36 scale	A: 74 B: 2 C: 0	97.4%
6	Inpatient or outpatient RA patients taking Chinese herb decoction (Chinese patent medicine) usage rate	The proportion of patients taking Chinese herb decoction (Chinese patent medicine) in unit time for inpatients or outpatients to the total number of	Participation in Chinese medicine for RA	Chinese herb decoction (Chinese patent medicine) should be relevant for the treatment of RA	A: 71 B: 3 C: 2	93.4%

(Continues)

TABLE 1 (Continued)

Number	Indicators	Definition	Clinical significance	Explain	Recommendation strength <sup>a</sup>	Agreement rate <sup>b</sup>
		inpatients or outpatients in the same period				
7	Inpatient or outpatient RA patient TCM external treatment rate	The proportion of inpatients or outpatients using external Chinese medicine treatment to the total number of inpatients or outpatients in the same period in unit time	External Chinese medicine for RA participation	External treatment should be for RA	A: 66 B: 7 C: 3	86.8%
8	Treat to target rate of RA	The proportion of patients who achieved remission or low disease activity after treatment in unit time compared to the total number of patients in the same period	Effectiveness of integrated Chinese and Western medicine in the treatment of RA	Common clinical assessment tools include the DAS28, CDAI, and SDAI scores	A: 76 B: 0 C: 0	100%
9	Utilization of biologic or targeted synthetic DMARDs in RA patients with inadequate response to conventional DMARDs therapy	Proportion of patients using biologics or targeted synthetic DMARDs per unit of time in a population of RA patients with an inadequate response to treatment with conventional DMARDs as a proportion of the total number of patients in the same time period	Therapeutic capacity in RA patients with inadequate response to conventional DMARDs	Biologic DMARDs include tumor necrosis factor $\alpha$ inhibitors, tocilizumab, etc.; targeted synthetic DMARDs include tofacitinib, baricitinib, etc.	A: 92 B: 9 C: 0	91.1%
10	Proportion of RA patients in remission without severe organ disease hospitalized	The number of patients admitted in remission without serious organ disease as a proportion of the total number of patients admitted in the same period in unit time	Knowledge of the indications for hospitalization of patients with RA and management of medical resources management of healthcare resources	Patients in remission without serious organ disease are those with RA who neither have serious organ disease nor are in the active phase of the disease	A: 64 B: 10 C: 2	84.2%
11	Incidence of adverse events in inpatient RA patients	Number of inpatients with adverse events during treatment as a proportion of the total number of inpatients in the	Competence in RA treatment options and early warning of adverse events	Adverse events are events in the course of medical treatment that may affect the outcome of treatment, increase the suffering and	A: 56 B: 1 C: 0	98.3%

TABLE 1 (Continued)

Number	Indicators	Definition	Clinical significance	Explain	Recommendation strength <sup>a</sup>	Agreement rate <sup>b</sup>
		same period in unit time		burden of patients and lead to medical disputes, and affect the normal operation of medical work		
12	Patient satisfaction assessment completion rate	Number of patients completing a satisfaction assessment in unit time as a proportion of the total number of patients in the same period	RA integrated level of management	Use of hospital satisfaction assessments	A: 62 B: 12 C: 2	81.6%
13	RA patient follow-up completion rate	Number of patients completing follow-up visits in unit time as a proportion of the total number of patients in the same period	RA level of follow-up management	Follow-up includes: DAS28 assessment every 3 months; joint imaging every 12 months	A: 70 B: 5 C: 1	92.1%
14	Percentage of inpatient RA patients whose medical costs exceed or are significantly below DRG payment criteria	Proportion of RA inpatients with all costs incurred in the course of medical treatment during a single hospitalization that exceeded or were significantly below the DRG payment criteria as a proportion of the total number of RA inpatients admitted during the same period of hospitalization	The level of standardized treatment of different cases and the level of medical cost control in the diagnosis and treatment of RA	Medical expenses include examination fees, treatment fees, drug fees, etc., and the DRG payment criteria are based on the current year's criteria of the national health Security Bureau.	A: 73 B: 26 C: 2	72.3%

<sup>a</sup>"A" stands for important and recommended for inclusion, "B" stands for average, and "C" stands for unimportant and not recommended for inclusion.

<sup>b</sup>Agreement rate = number of experts recommending A/total number of experts.

### Proportion of RA patients with joint imaging evaluations during hospitalization

Synovitis and destruction of joint structures are the main pathogenic features of RA. The damage of joint structure is an important condition for disability. In-depth evaluation of the extent of structural damage to the joints by imaging is important for the assessment of RA disease and the choice of treatment options. The statistics of the proportion of RA patients who underwent joint imaging evaluation during hospitalization can objectively reflect the structural damage of the patient's joints during integrated Chinese and Western medicine

treatment. This reflects the standardization of RA treatment.

### Proportion of RA patients completing joint function rating

The joint function rating is used to measure a patient's joint function and ability to live and is a direct response to the effectiveness of treatment. It is a much simpler way for doctors to determine the condition of a joint than an imaging test. To avoid serious adverse outcomes, such as disability, joint function rating should be one of the indicators that are monitored regularly to help

doctors understand the patient's condition and choose appropriate treatment.

### **Proportion of RA inpatient quality-of-life evaluations**

RA is a chronic, progressive, and inflammatory disease with joint pain and structural damage as its main manifestations, which seriously affects the quality of life of patients. In the process of integrated Chinese and Western medicine treatment of RA, the percentage of inpatient quality of life evaluation can reflect the comprehensive assessment and management of patients and the SF-36 scale is recommended.

### **Inpatient or outpatient RA patients taking Chinese herb decoction (Chinese patent medicine) usage rate**

The integrated treatment of Chinese and Western medicine has significantly improved the clinical symptoms and prognosis of RA [15]. After a clear diagnosis and evaluation of the disease, the treatment plan should be selected according to the patient's wishes, fully utilizing the characteristics of integrated Chinese and Western medicine in rheumatology. The statistical rate of Chinese herb decoction (Chinese patent medicine) usage can reflect the involvement of Chinese medicine in the treatment of RA.

### **Inpatient or outpatient RA patient TCM external treatment rate**

Acupuncture point application, ion introduction, wet wrapping, and other TCM external treatment methods can significantly relieve the symptoms of RA and improve the quality of life and prognosis of patients to a certain extent [16]. The utilization rate of TCM external treatment methods can reflect the participation of TCM external treatment in the treatment of RA.

### **Treat to target rate of RA**

RA is incurable, chronic, and progressive with a high disability rate and a serious impact on patients' quality of life. Attainment therapy is currently the main treatment strategy for RA. The goal of treatment is complete remission or low disease activity, with standardized treatment to control the immune abnormalities and inflammatory changes of RA, thereby controlling symptoms, stopping progression, preventing joint

destruction, and maximizing the patient's quality of life [17, 18]. Commonly used clinical assessment tools include the DAS28, CDAI, and SDAI scores. The statistical achievement rate of RA treatment can reflect the effectiveness of integrated Chinese and Western medicine in the treatment of RA.

### **Utilization of biologic or targeted synthetic DMARDs in RA patients with inadequate response to conventional DMARDs therapy**

For those patients who, despite treatment with conventional DMARDs, fail to achieve the desired low disease activity or clinical remission standards based on the DAS28, CDAI, or SDAI indices, it is advisable to consider combining their therapy with biologic DMARDs or targeted synthetic DMARDs, in order to further alleviate clinical symptoms and mitigate joint damage. Currently, several related drugs, including tumor necrosis factor  $\alpha$  inhibitors, tocilizumab, and Janus kinase inhibitors, have been approved for use in China. During their use, their side effects need to be closely detected and evaluated.

### **Proportion of RA patients in remission without severe organ disease hospitalized**

Patients with RA in remission without significant organ disease should be treated on an outpatient basis depending on the severity of the disease. Hospitalization of this group of patients means that limited healthcare resources are used up resulting in unnecessary health care costs. This indicator reflects the ability to manage the indications for hospitalization of patients with RA and the management of health care resources.

### **Incidence of adverse events in inpatient RA patients**

Adverse medical events refer to any factors and events in clinical treatment activities and hospital operation that may affect the outcome of treatment, increase the pain and burden of patients, and may lead to medical disputes and affect the normal operation of medical work [19]. The incidence of adverse events in the integrated treatment of RA can reflect the ability to control the choice of RA treatment and the ability to warn of adverse events, further safeguarding the life and health of patients and medical safety.

## Patient satisfaction assessment completion rate

The treatment of RA requires the cooperation of medical and nursing staff, supporting departments, and management. The completion rate of patient satisfaction assessment in the process of integrated Chinese and Western medicine treatment of RA can reflect the level of comprehensive management of RA. It contributes to the improvement of the service capability of the rheumatologists specialized in the integration of Chinese and Western medicine.

## RA patient follow-up completion rate

Due to the chronic course and recurrent exacerbations of the disease, long-term follow-up and standardized management of RA patients is particularly important. The completion rate of follow-up visits can reflect the level of long-term management of patients with RA during integrated Chinese and Western medicine treatment.

## Percentage of inpatient RA patients whose medical costs exceed or are significantly below diagnosis-related groups (DRGs) payment criteria

Diagnosis-related group (DRG) payment is the current national key to promote the health insurance payment reform, the application is gradually widespread, and plays a certain role in the fine management of general hospitals and optimization of medical resources. The treatment of RA varies depending on the clinical habits of the physician and the individuality of the patient, and overall, the clinical pathway should be tailored to the characteristics of the DRG payment. It is recommended that similar clinical pathways be adopted to reduce the number of nonessential medical procedures. Pathway compliance should be strengthened, and quality control management should be enhanced for priority cases of over and underachievement.

## CONCLUSION

RA is difficult to cure, is repeatedly aggravated, and has a disability rate of more than 50%, bringing a huge burden of life, medical care, and economic burden to patients, healthcare institutions, and society [7, 20, 21]. There are approximately 5 million people with RA in Chinese mainland [6]. However, due to differences in medical conditions and disease awareness, the status of RA treatment in China is still not optimistic [22–24]. This is a preliminary version of the consensus based

on the clinical experience and literature evidence of integrated Chinese and Western medicine rheumatologists in the Beijing area. It will be revised and updated regularly in line with academic developments, and we hope that colleagues will provide valuable comments.

## AUTHOR CONTRIBUTIONS

**Qingwen Tao:** Conceptualization; data curation; formal analysis; funding acquisition; investigation; methodology; project administration. **Jinping Wang:** Writing – original draft. **Zihan Wang:** Writing – review & editing. **Yuan Xu:** Resources; software; supervision. **Jianming Wang:** Validation; visualization. **Yingze Zhang:** Methodology; project administration.

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## CONFLICT OF INTEREST STATEMENT

All authors declare that there are no conflicts of interest.

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