



Spectrum *of* Health

June 2018

Rheumatoid Arthritis: An Evidence-Based Framework and Roadmap for Detection, Evaluation, and Management

Highlights:

- Understanding the Patient Perspective
- Best Practices to Implement in Your Practice
- Patient Education and Self-Management Tips and Tools
- HEDIS Quality Reporting Requirements for Rheumatoid Arthritis

RHEUMATOID ARTHRITIS: An Evidence-Based Framework and Roadmap for Detection, Evaluation, and Management

Dear Colleague:

Twenty-two percent (22%) of all U.S. adults are living with some form of arthritis. The majority of these patients are diagnosed with osteoarthritis (OA), which represents an important, and often debilitating, disease burden for the adult patients in your care, including Healthfirst members.

Rheumatoid arthritis (RA) is the most common form of inflammatory arthritis in the adult population, with a prevalence of approximately 1%. There have been recent advances in clinical practice standards and an enhanced understanding of the journey that patients take with their doctors toward diagnosis and effective management of RA.

From the clinical perspective, once a diagnosis of RA is established, systematic, timely, and evidence-based management is warranted.

Initiating disease-modifying treatment in the very early course of rheumatoid arthritis leads to the most effective outcomes

(Singh et al., 2015).

From a patient's perspective, the pain attributable to OA and RA is similar, as are the resultant decline in physical function and quality of life (Chua, Gibson, & Pincus, 2017), **with patients using over-the-counter treatments to self-manage until these are no longer tenable** (Townsend, Backman, Adam, & Li, 2013). It is now clear that collaboration and trust between physicians and their patients who are living with RA is critical. This type of attention to each patient's perspective has been associated with improved adherence as well as with activation of self-management pathways that influence good treatment responses (Larsson I., 2017). The foundation of this trust is the addressing of patient perceptions and concerns about RA, which leads to higher rates of belief that the treatment is necessary, and greater likelihood of adherence to systemic medications (Michetti et al., 2017).

In this *Spectrum of Health* bulletin, we discuss:

1. An evidence-based framework for management of these complex patients, including medication adherence to DMARDs based on current American College of Rheumatology guidelines for rheumatoid arthritis. The focus is on timely, patient-centric, and collaborative diagnosis and treatment to achieve long life with quality.
2. A pragmatic roadmap summarizing best practices for your practice's management of the presentation and ongoing needs of patients with symptoms of arthralgia, signs of an inflammatory arthritis, and ultimately a definitive diagnosis of rheumatoid arthritis.
3. Tips for appropriate ICD10 Coding for musculoskeletal pain, arthralgia, and rheumatoid arthritis.
4. The HEDIS requirements for reporting the management of your patients with rheumatoid arthritis.

Patients with rheumatoid arthritis require a significant investment of time, attention, and trust-building through patient education, careful monitoring, and treatment to target. Healthfirst quality data reveal considerable variation in the pathway to diagnosis and timely management of this condition. I believe that this is an opportunity for a significant change in the trajectory of outcomes for patients at risk for, and ultimately discovered to have, rheumatoid arthritis.

I look forward to working closely with you to promote optimal health outcomes for our members—your patients—and the communities that we jointly serve who are living with this complex condition.

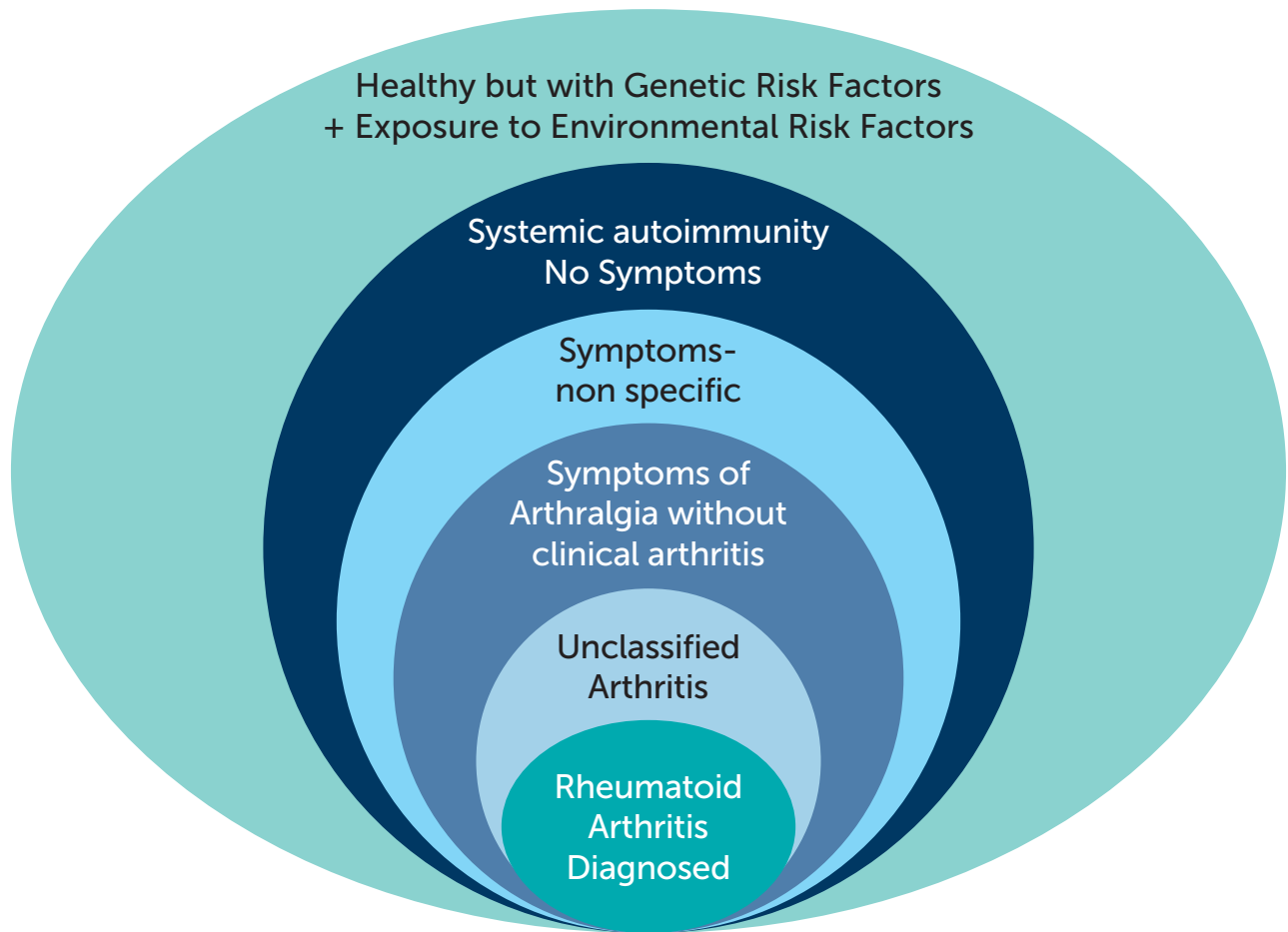
Warm regards,



Susan J. Beane, M.D.
Vice President and Medical Director
Clinical Partnerships
1-212-823-2437 | sbeane@healthfirst.org

Rheumatoid Arthritis: Framework for Management

It is widely agreed that there is a cascade of autoimmune events leading to this complex disease process prior to any manifestation of RA with symptoms and signs. Approximately 1% of all people screened in a general population were Anti-Citrullinated Protein Antibodies (ACPA) test positive.



*Rheumatoid Arthritis: Clinical Phases. Adapted from van Steenberg, Huizinga, and van der Helm-van Mil, *The Preclinical Phase of Rheumatoid Arthritis: What is Acknowledged and What Needs to be Assessed?*, 2013; Gerlag, et al., 2012; Boeters, Raza, and van der Helm-van Mil, 2017.*

The plan for patients with joint pain begins with close monitoring, and determining those who are at risk for RA. The patient trusts the primary care physician to carefully monitor for early warning signs and symptoms and to perform appropriate diagnostic testing for RA.

Collaboration with patients for timely initiation of evidence-based treatment is the critical step for PCPs.

Quality of Life with Rheumatoid Arthritis

Patients feel a responsibility for driving a good response to treatment based on adherence and self-management. This requires balancing the complexity of their lives once the RA diagnosis is made (Larsson I., 2017).

One of the toughest challenges for patients living longer than six months with RA is the lifelong risk of exacerbations. Flurey et al. (2014) studied the daily life of 30 patients with established RA, paying particular attention to the experience of managing disease flares. The authors suggest that clinicians may wish to understand how patients tend to respond to the impact of RA. Patients seem to experience life based on their construct of understanding life with RA, depending on the preponderance of negative thoughts and feelings, and identification with effective self-management. The study found essentially four phenotypes: Feeling Good, Taking Active Control, Keeping RA in its Place, and Constant Struggle. Clinicians may use this as a construct for determining which patients may need extra, ongoing education and support (Flurey C.A. et al., 2014).

Most importantly, patients are prompted to seek help based on the quantity and severity of symptoms (Flurey C.A. et al., 2014). Since disease flares are associated with both symptom intensity and development of radiographic progression (Markusse et al., 2015), **it is worthwhile assessing patients on a routine basis both clinically (with an objective tool such as the SDAI) and by perception (using an objective tool such as the HAQ) to address flares in disease activity early and treat appropriately.**

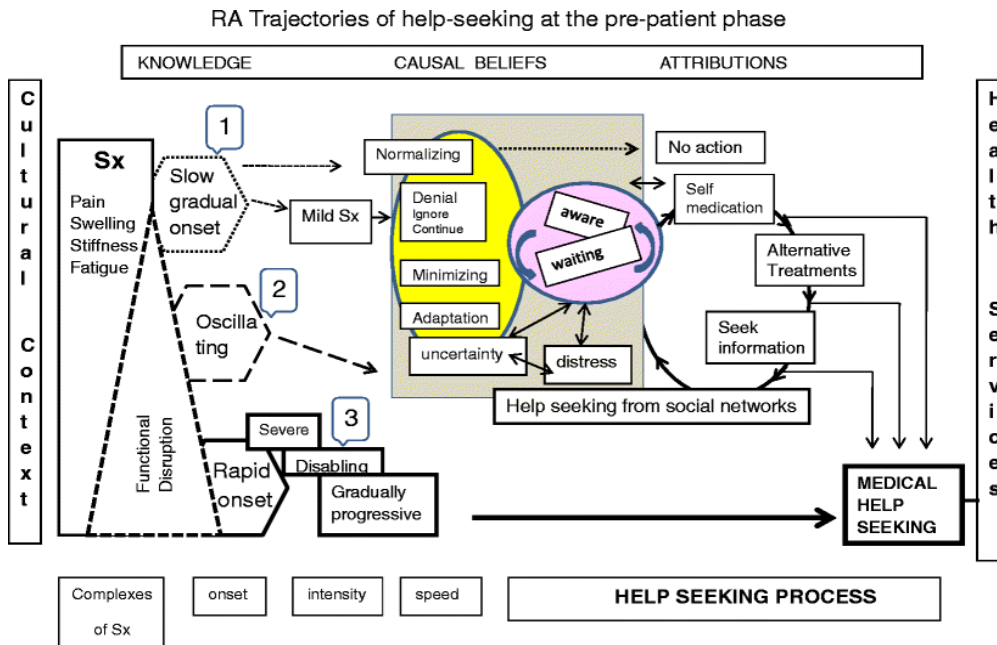
A patient with arthritis certainly desires to be alive, free of pain, functioning normally, experiencing minimal treatment toxicity, and financially solvent. These five measures ... form a structure by which patient outcome may be represented.

(Fries, Spitz, Kraines, & Holman, 1980)



Understanding the Patient Perspective: Symptoms and the Illness Experience

The “preclinical” phase of rheumatoid arthritis represents the portion of a patient’s health journey that is initiated with the onset of musculoskeletal symptoms.



From the patient perspective, this is the time before medical help is requested, or the “pre-patient” phase, and ends with active medical help-seeking or the “patient” phase (Pelaez, Infante, & Quintana, 2015). The decision to seek help is a complex one for rheumatoid arthritis patients—a combination of what can be known or learned about the condition, the beliefs of their trusted social networks, and the desire to manage this condition through alternative treatments or self-medication or no action at all (Flurey C., Morris, Richards, Hughes, & Hewlett, 2014).

From (Pelaez, Infante, & Quintana, 2015)
Three RA trajectories of help-seeking at the pre-patient phase

“Pre-Help-Seeking” Phase: Three Trajectories

This decision-making process, or “pre-help seeking” phase of the RA journey, is highlighted in a review of the literature by Pelaez et al. (2015). It suggests that the RA experience may begin with a wide range of responses to the development of abnormal symptoms of pain, swelling, stiffness, and fatigue, and patients may react with denial, minimization, adaptation, and disclosure. The authors suggest that this occurs in a social “network” context, with influencers that can include friends, relatives, neighbors, and others. These social influences continue even after a patient engages with the healthcare delivery system.

The model proposed by Pelaez et al. (2015) is summarized into three (3) trajectories for patients with potential RA.

Slow or Stable Illness Trajectory

Patients may normalize or minimize symptoms and delay seeking medical attention because of little impact on daily life and the fact that the symptoms do not seem serious.

"Good Days and Bad Days" Trajectory

Patients may normalize or minimize symptoms and delay seeking medical attention because the symptoms wax and wane, leading the individual to "wait and see." Patients are uncertain and have some distress but lean toward minimizing the severity of the disease. Patients may use alternative treatments and seek information from the social network.

Deterioration Trajectory

The severity, rapidity, or abruptness of the onset of symptoms will accelerate the seeking of medical attention. There is little opportunity to normalize, minimize, or seek out social networks. There is significant functional impairment, so that even for patients who invest in self-care or get used to the pain, there is interference with work and daily activities, thus leading to earlier medical attention.

In a study by Simons et al. (2017), patients were interviewed using examples of chronic condition vignettes to understand perceived urgency of help-seeking. Overall, if there was a vignette describing the sudden onset of symptoms, the interviewees reacted with the intention to seek help immediately. For the vignettes that portrayed symptoms of RA, interviewees indicated that they might attempt to live with the symptoms and not seek attention at all, or wait for a few weeks, and up to several months, before seeking medical attention. The urgency to seek care was more apparent when the vignette included swelling of multiple joints.

In the same study, when RA was compared to other conditions like bowel cancer or angina symptoms, there was a significant difference in response. Respondents would seek care more quickly for either bowel cancer or angina symptoms than for any combination of RA symptoms (Simons et al., 2017).

CASE STUDIES: Do you recognize these patients?

■ A 48-year-old construction worker, married, with a young family that you have known for 12 years. He presents for annual physical and doesn't quite seem himself. "No real problems, Doc. Just getting old, I guess." On further inquiry, he reports that he seems to hurt all over, whether he works out or not, and can barely make it through the workday without being exhausted. It takes him more than an hour to "get going" in the morning, and by the time he is home, he has no appetite or energy to play with the kids. "I don't feel sad, Doc, just tired of hurting all the time." Wife pushed him to keep his checkup appointment.

■ A 67-year-old retired educator presents today as a walk-in for help with pain in her right knee, hands, and feet. She is taking maximum doses of acetaminophen. "I wouldn't bother you, but suddenly this week my right knee starting swelling out of the blue and I can barely put any weight on it. It is so severe it wakes me up at night. I hate medicine, but nothing is working." The knee is wrapped in two bandages, with an application of a liniment type cream.

Readiness of the Medical System for Help-Seeking: How Accessible Is Care?

Through help-seeking, the patient essentially expands the “social network” to include the physician and practice team. This extended “social network” provides, from the clinical point of view, “a social identity ... emotional support, material aid, services, information, and interpersonal relations” (Pelaez, Infante, & Quintana, 2015).

Just as a social network is a “fit” for the patient’s individual and population-based characteristics, the medical care delivery system will meet a patient’s “help-seeking” needs if it is accessible in the following dimensions:

- **Geography** – the patient is able to travel to the medical site and has the means to do so
- **System entry and continuity** – the medical system chosen presents no struggle for initial and subsequent appointments. The medical caregivers provide a timely response to the patient’s illness trajectory
- **Cost effective** – the patient is not economically burdened by medical fees, or by loss of time due to waiting, service interruptions, medication access, lab testing, and time out of work

Joint Pain and the Challenge of Declining Function

M25.50 Pain in Unspecified Joint; M79.6 Pain in Limb

Pain—musculoskeletal and joint associated—is a pervasive complaint in the lives of patients and in clinical practice. In 2016, 42.8% of U.S. adults ≥ 18 years reported experiencing pain on “some days,” while 19.6% reported pain on “most or every day” (Zelaya, Dahlhamer, & Lucas, 2017). The management of chronic pain is a subject of concern and debate. Chronic and widespread pain may signal fibromyalgia or other non-rheumatologic condition (Hauser, Perrot, Sommer, Shir, & Fitzcharles, 2017). But for a subset of these patients, pain is central to the beginning of the trajectory that leads to rheumatoid arthritis.

In both primary care and rheumatology practice, assessing, monitoring, and managing pain is a primary goal of treatment. Recording a patient’s concept of experienced pain is a challenge that requires the practitioner to trust that the patient self-report, and then to translate what the patient is describing into clinically meaningful data. The following extract (Keele, 1948) describes a scale that meets both the qualitative and quantitative parameters needed to assess a patient’s pain:

The assessment of pain is of prime importance and necessarily depends on the patient’s statement and the observer’s judgment (Keele, 1948).

Rubric for History Taking: Recording and Translating Patient’s Pain (Adapted from [Keele, 1948])

Patient’s most commonly used words for pain	Degree of severity
Nil/no pain	Unaware of any pain
Slight pain	Awareness of pain without distress
Moderate pain	Distracts attention from a routine occupation such as reading or homework
Severe pain	Pain fills the field of consciousness to the exclusion of other events; often accompanied by visceral reflexes
Agonizing pain	May be accompanied by “observed” signs such as motor effects, restlessness

Preclinical Joint Pain: Functional Limitations

In a longitudinal study of 241 patients with recent onset of joint pain of hands or feet who are at risk for progression to RA, those who developed clinical arthritis had similar functional limitations during the “pre-arthritis” phase as they did following the emergence of clinical arthritis (ten Brinck et al., 2017).

Effective and efficient tools for practice have been tested, validated, and adopted for use at every visit (Chua, Gibson, & Pincus, 2017). Simple assessments of patient function—number of joints affected, grip strength, walking time—can provide objective baseline data to support diagnostic and treatment considerations. However, equally helpful “scientific data,” and perhaps more relevant to overall outcomes, is patient self-report of function and pain. Recording and responding to the patient’s presenting symptoms can serve as a catalyst to consider aspects of the history and examination that might represent the hallmark of arthralgia and/or inflammatory arthritis.



Early Detection of Clinically Suspected Arthralgia and Inflammatory Arthritis

M25.50 Pain in Unspecified Joint; M79.6 Pain in Limb

M06.4 Inflammatory polyarthropathy

Arthritis is a common condition, so in the “preclinical” phase of RA the presence of widespread “aches and pains” may not initially lead a provider to consider risk for progression to Clinically Suspect Arthralgia (CSA). But pain that localizes to one or more joints deserves careful attention.

Osteoarthritis (OA) is a common consideration in a primary care practice. The clinical presentation of osteoarthritis and rheumatoid arthritis may be similar in both signs and symptoms. In a review of five studies that used the same objective tool(s) to assess practice patients with either osteoarthritis or rheumatoid arthritis, four of those studies indicate poorer clinical function as manifested by higher scores in OA versus RA on a visual scale. Observations based on physical function and quality of life generally indicate similar scores in patients with OA or RA. “Nonetheless, the composite evidence—that many patients with OA experience a severe disease burden in a similar or greater range as patients with RA (and vice versa for some individual patients)—may not be consistent with current beliefs concerning OA and RA” (Chua, Gibson, & Pincus, 2017), (El-Haddad et al., 2017).

When chronic widespread pain might suggest a systemic inflammatory arthritis:

- Defined time of onset
- Progressive increase in symptoms
- Morning stiffness that lasts more than an hour
- Constitutional symptoms such as fever, decrease in appetite, weight loss
- Pain that focuses on joints
- Family history of rheumatic diseases
- Joint tenderness

From (Hauser, Perrot, Sommer, Shir, & Fitzcharles, 2017)



Ask the Patient

Based on these findings, use of a standard patient questionnaire by each patient at each visit provides the practice with a pragmatic tool to compare and track the disease burden in different rheumatic diseases [for example, OA v. RA].

The Health Assessment Questionnaire (HAQ) is standardized and validated as a meaningful tool to understand patient-oriented outcomes and has been widely used and accepted since its introduction in 1980 (Fries, Spitz, Kraines, & Holman, 1980) (Bruce & Fries, 2005).

Diagnostic Testing

When a patient has articular pain, swelling, mechanical symptoms, or boggy joints suggesting synovitis, additional studies may reliably assist and support the evaluation for potential inflammatory disease (McAlindon et al., 2012).

Anti-citrullinated protein antibodies (ACPA) and rheumatoid factor are the most prominent autoantibodies detected in serum of RA patients. The presence or absence of ACPA is linked to differing risk factors and outcomes (Derksen, Huizinga, & Woude, 2017).

A EULAR task force was convened to develop recommendations for imaging use as part of the clinical management of RA (Colebatch et al., 2013). The task force, consisting of rheumatologists, radiologists, and other experts from 13 countries, published recommendations for the use of joint imaging, including the following:

- Confirming a diagnosis of RA in patients with at least one joint with clinical synovitis using conventional radiology (CR), ultrasound, or MRI
- Predicting progression of undifferentiated inflammatory arthritis to clinical RA
- Detecting and assessing joint inflammation. Although CR of the hands and feet should be used initially, ultrasound and/or MRI may be used to detect damage when CR is negative, including at an earlier timepoint
- Inflammation in imaging may predict patients most likely to respond to treatment. MRI, in particular, may be useful in monitoring disease activity
- Monitoring of functional instability of the cervical spine should be performed with lateral radiographs in RA patients with clinical suspicion of cervical instability and risk for subaxial subluxation

The presence of functional symptoms and disability, combined with radiologically detected subclinical inflammation and/or positive antibody tests, marks with a degree of confidence the progression to inflammatory arthritis (ten Brinck et al., 2017). This matters, as it becomes the moment that initiation of disease-modifying anti-rheumatic drug therapy (DMARD) becomes a priority.

Patients who are Anti-Citrullinated Protein Antibodies (ACPA) test positive:

- Are more likely to have “joint complaints,” that is, pain and/or stiffness in hands and/or feet even without meeting the criteria for rheumatoid arthritis (van Zanten et al., 2017).
- May be ACPA positive up to four years before disease onset (Derksen, Huizinga, & Woude, 2017).
- May present with non-specific musculoskeletal symptoms. Of these, in one study, 46.6% progressed toward inflammatory arthritis (Hunt et al., 2016)

In Newly Diagnosed Rheumatoid Arthritis, the Goal is Clinical Remission

M05. [0–9] XX Rheumatoid arthritis with rheumatoid factor;
M06.0 [1–9] X Rheumatoid arthritis without
rheumatoid factor

The aim for patients newly diagnosed with RA is to achieve remission as quickly as possible, while at the same time building and sustaining patient trust. A survey of Dutch patients with RA yielded the following (Mahmood et al., 2017):

- Adjustment of therapy based on disease activity
- Interest in the personal life of patients
- Shared decision making
- Education regarding the disease course
- Insight into comorbidity and medication

This will mean early initiation of DMARD therapy after a new RA diagnosis, with close attention to tracking of disease activity using both clinical indicators (such as the SDAI) and patient perception of disease activity using the HAQ.

Treat to Target: Overarching Principles

The following principles are critical to implementing treatment and management according to clinical standards (Smolen et al., 2016):

The treatment of RA must be based on a shared decision between patient and rheumatologist/physician. The primary goal of RA treatment is to maximize health-related quality of life through control of symptoms, prevention of structural damage, normalized function, and participation in social and work-related activities. Nullification of inflammation is the center of achieving these goals.

The principle of treat to target applies to both new-onset and to established RA patients (those with RA > six months). The medication most commonly used as the foundation for initial treatment is methotrexate (MTX), a medication associated with a 70% reduction in mortality risk for patients with RA (Wasko, Dasgupta, Hubert, Fries, & Ward, 2013).

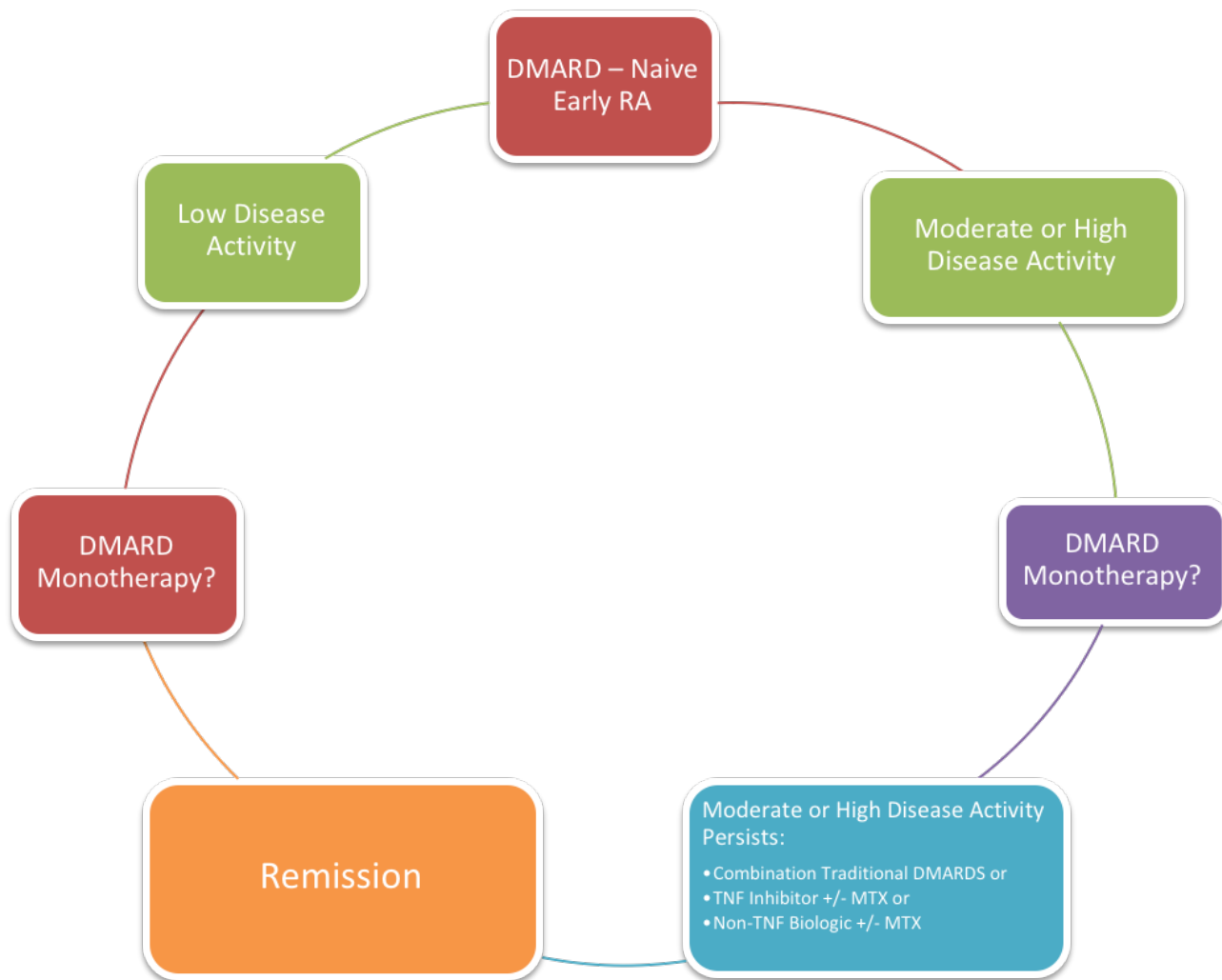
Voice of Patients in Early RA

“The methotrexate cleared all the symptoms of rheumatoid ... right away. Like eventually, it was just the side effects I couldn’t tolerate ... It created a whole host of other symptoms that were not weighing up the benefits ... it... alters your psyche...it’s harder to dig your happy self out of that” (Flossie).

“The methotrexate and sulfasalazine so changed my personality. I was miserable. When I think back on the nine months, it’s like a blur. It’s like something I don’t really want to remember. I just quit the medication and then I went back to see [the rheumatologist] and he said: ‘Well you had a reaction.’ And he kept pooh, poohing me off. He’s very dedicated. But he just needs to crawl into his patients’ shoes sometimes” (Sharon).

“We talked a little bit about ... treatment and things that might help and he (the rheumatologist) asked me how I felt about medications ... Because I struggle with other health issues and I take so many different medications already, I asked if we might be able just to try managing things on our own ([family physician] and me) before we got into a big treatment sort of plan and he said that was fine. He did prescribe a pain killer that was a little bit more than what my family physician had given me and he said:... “See how you do, and if you need to come back before, call me; but otherwise we’ll see you in two months.”... But things didn’t get a lot better, and I still missed the odd day of work...So when I went back to the “rheumatologist” I said...I need help... So then we started talking about treatment options...He put me on a treatment program (DMARDS)...The medication has been a good thing because I tried to go without it and I couldn’t.” (Nicole)

- (Townsend, Backman, Adam, & Li, 2013)



2015 American College of Rheumatology Guideline for the Treatment of Rheumatoid Arthritis. *Arthritis Care & Research.* (Singh et al., 2015)

Early Control is Crucial in Determining Longer-term Outcomes for Patients with RA

“Only 17% of patients were referred by their [PCP] within three days of first presentation. Specialist rheumatology assessment occurred within three weeks of referral in 38% of patients. The target of DMARD initiation within six weeks of referral was achieved in 53% of RA patients... Since early control of inflammation is crucial in determining longer-term outcomes, it is of concern that only slightly more than one-quarter of patients achieve the treatment target set from their first appointment within three months of follow-up” (Ledingham J. M. et al., 2017, p. 231).

“This audit demonstrates that most RA patients have severe disease at the time of presentation to rheumatology services and that a significant number continue to have high disease activity after three months of specialist care” (Ledingham J. M. et al., 2017, p. 223).

Tracking the Response to DMARD Treatment: Evaluating Disease Activity to Improve Outcomes

A 'treat to target' approach to patients with rheumatoid arthritis requires attention to a consistent definition of remission as an outcome measure (Felson et al., 2011). The target organs for this disease process are the joints; therefore, a clinical definition of "remission" focuses on disease activity in the joints. (Aletaha & Smolen, 2005).

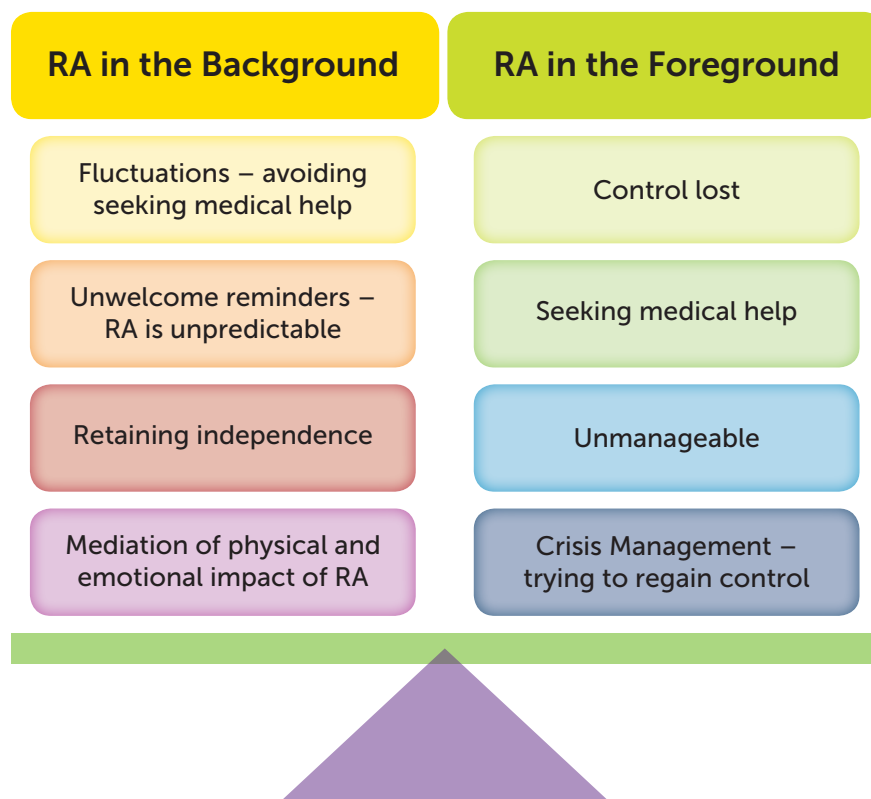
Treat-to-target Recommendations: What do i tell my patient?

"Treat to target" for RA is best achieved by shared decision-making with patients and following the current standard for timely and hierarchical flow of treatment. The physician can consider a statement to patients such as:

"Most people in your situation would want the recommended [treat-to-target] course of action and only a small proportion would not."

(Singh et al., 2015)

RA Patients: Trying To Maintain Balance



Adapted from (Flurey C. , Morris, Richards, Hughes, & Hewlett, 2014)

Managing Rheumatoid Arthritis: Collaboration Between Patient and Clinicians

Physician clinical assessment differed in 36% of cases with their patient's perception of disease activity in a study conducted by Barton et al. (2010). It is the patient's experience with the symptoms of RA that will drive overall outcomes. In this study, depressive symptoms were common among patients who assessed disease activity as more severe than the purely clinical assessment. Non-English language and functional status were also drivers of discordance between physicians and patients (Barton et al., 2010). In focus groups conducted in three urban outpatient clinics in the United Kingdom between 2005 and 2008, RA patients, their caregivers, generalists, and specialists were interviewed to determine major barriers to high-quality care (Pollard, Graves, Scorr, Kingsley, & Lempp, 2011). The concordant themes regarding collaboration between patients and clinicians were:

- Lack of RA-specific knowledge, and unclear role in monitoring by the patients' generalist [PCP]
- Delays in referral from PCP to specialist, especially if blood or diagnostic testing is ordered before that appointment is made
- Difficulty in finding enough time with the specialist to avoid flares, and difficulty in accessing care during a disease flare
- Lack of coordination between specialists and generalists

Overcoming these barriers could enhance timeliness and seamlessness of care across the continuum for RA patients (Peabody, Strand, Shimkhada, Lee, & Chernoff, 2013).

Promoting Treatment Adherence: the Patient's View of DMARDs

In a qualitative assessment of pre- versus post-diagnosis management, Townsend et al., 2013, describe a phenomenon called “paradox and ambivalence.” Prior to diagnosis, patients report reliance on over-the-counter (OTC) medications to manage excruciating pain and to facilitate a normal life. After diagnosis, the switch to requisite prescribed medications generated ambivalence. Even though the symptoms and disease activity may rapidly improve, the side effects may lead to a host of struggles that are new and unexpected, such as mental health effects and the ongoing fear of toxicity (Townsend, Backman, Adam, & Li, 2013).

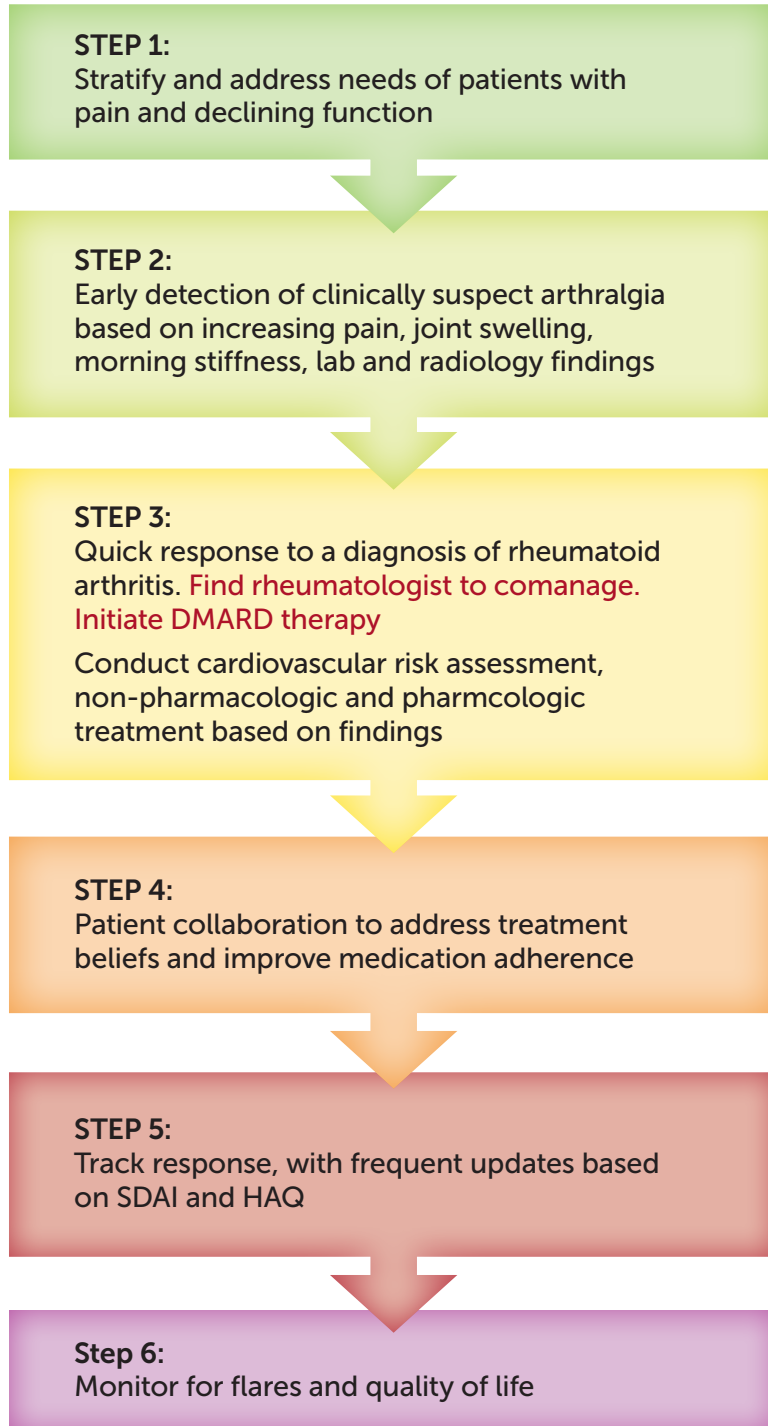
Patient support programs are one way to improve adherence for patients with RA. In a study of RA, patients receiving a biologic (bDMARD) treatment were offered participation in a 12 (twelve)-month, multifaceted program of support that included participation in one or more of the following program components:

- Consultation with a registered nurse
- Financial assistance
- Injection training, travel, and disposal kits and/or
- Medication reminders

There was an increase in bDMARD adherence and persistence for the participants, as well as lower medical and overall healthcare costs compared to the non-participating cohort (Rubin et al., 2017).



Practice Roadmap: Detection, Evaluation, and Management of Rheumatoid Arthritis



Quick Reference: Healthfirst recommendations for improving management and reporting of rheumatoid arthritis

- Review the current American College of Rheumatology guidelines:**
Smolen JS, Landewe R, Bijlsma J, Burmester G, Chatzidionysiou K, Dougados M, van der Heijde D (2017). EULAR recommendations for the management of rheumatoid arthritis with synthetic and biological disease-modifying antirheumatic drugs: 2016 update. *Ann Rheum Dis*, 76, 960–977. doi:960–977.
- Review your EMR and/or encounter forms to ensure that they are consistent with appropriate ICD-10 Coding Guidelines for arthritis and rheumatoid arthritis. Update if necessary and retrain** all clinical staff, residents, and coders to accurately describe your patients' conditions. Here are some of the relevant ICD-10 codes:
 - M25.50 Pain in unspecified joint;
 - M79.6 Pain in limb
 - M06.4 Inflammatory polyarthropathy
 - M05. [0–9]XX Rheumatoid arthritis with rheumatoid factor
 - M06.0 [1–9] X Rheumatoid arthritis without rheumatoid factor
- Referral to network rheumatologists (highly recommended) and physiatrists as appropriate** for consultation and/or comanagement in the diagnosis and treatment of your patients who are, or may be, living with rheumatoid arthritis
- Audit a sample of your patients with any of these diagnoses for consistency with the 2015 ACR Guidelines for Treatment of Rheumatoid Arthritis**

Smolen JS, Landewe R, Bijlsma J, Burmester G, Chatzidionysiou K, Dougados M, van der Heijde D (2017). EULAR recommendations for the management of rheumatoid arthritis with synthetic and biological disease-modifying antirheumatic drugs: 2016 update. *Ann Rheum Dis*, 76, 960–977.

The Role of the Primary Care Physician

From the desk of

Diego Ponieman, MD, MPH

Chief Medical Officer

SOMOS Community Care

The role of the primary care physician is key in the treatment of rheumatoid arthritis. We can still make a difference in our patients' lives by considering and focusing on the following, as outlined in the Roadmap:

1. Patient education and counseling: PCPs provide valuable support to our patients living with a chronic condition. Many common questions are around the need for, and benefits versus risk of, immunosuppressive drugs, like methotrexate.
2. Stress the importance of continuing to keep up with the rheumatologist and his/her recommendations.
3. Engage some voluntary agencies, such as the Arthritis Foundations, self-help groups, etc. for enhanced social support... it is helpful to have contact phone numbers handy.
4. Evaluate for depression, assessing and referring if needed; as much as possible, integrate behavioral health into primary care in this population.
5. Emphasize rest and sleep, particularly for this subpopulation.
6. Promote exercise and even physical therapy — Pain and stiffness often lead patients to avoid using affected joints. It is important that patients exercise regularly. Relaxation techniques to relieve secondary muscle spasm are also helpful.
7. Nutrition and dietary therapy — Even mild excess weight increases the stress upon joints involved.
8. Ensure that patients are up to date with prevention, including all screenings and immunizations like influenza and pneumococcal vaccine. Prepare them for what to expect regarding "red flags" and early warnings for infections.

Frequently Asked Questions About the Management of RA

1. These guidelines are very complex and sometimes my patients don't want to discuss DMARD treatment.

What does Healthfirst recommend?

Some Healthfirst specialty pharmacies provide RA education, care monitoring, coordination, and support to ensure that patients have an easier time with adherence.

Healthfirst has a robust network of rheumatology specialists that can provide the assistance that you and your patients require to create an optimum treatment plan, to ensure disease control, prevent progression, and encourage the best outcomes.

For more information about in-network rheumatologists, please see the Healthfirst Provider Online Directory or contact your Healthfirst Network Management Representative or call Healthfirst Provider Services at **1-888-801-1660**. Check with your pharmacy when you are ordering treatment to determine if Care Support is available.

2. My patient has been referred for workup of joint pain and other signs and symptoms. Should I document and code for "rule out" rheumatoid arthritis?

Not in the case that you describe. In the outpatient setting, document your impression based on your level of certainty. Therefore, it is appropriate to document and code for the signs, symptoms, and diagnosis which the patient has at the time of the visit. For example, when your patient has signs and symptoms in the joints, consider a descriptive ICD-10 code such as:

- o *M25.50 Pain in unspecified joint*
- o *M79.6 Pain in limb*
- o *M06.4 Inflammatory polyarthropathy*

3. I have audited my practice's medical records, and, indeed, we did not use the most accurate ICD-10 code on some claims. What's my next step?

Contact Autumn Kerr, Director, Clinical Quality, at **1-212-823-2463** or **AKerr@healthfirst.org** to discuss performance-improvement measures you should take. Or contact Healthfirst Provider Services at **1-888-801-1660** regarding specific claims.

4. Based on the discussion in this bulletin, we should plan to see our RA patients frequently to treat to target, in collaboration with rheumatology. How should we instruct our patients regarding flare up of symptoms in between visits?

RA patients do equally well when patient-initiated, open-access visits are offered, especially during flares. These visits empower the patient to monitor their disease activity using a tool such as the HAQ and may add in a positive way to the overall patient experience (**Fredriksson, Ebbevi, Waldheim, Lindblad, & Ernestam, 2016**).

Frequently Asked Questions About the Management of RA *(continued)*

5. In my office we offer nurse-led visits to patients with chronic conditions to enhance education about the disease process and to monitor disease activity. Is this of value for patients with RA?

Nurse-led visits replacing one or more of the annual pre-planned rheumatology visits have been shown to result in no degradation in clinical outcomes but are valuable to the practice in promoting increased efficiency in managing these patients. **(Larsson et al., 2015)** believe that this is due to a focus “on the patient’s resources and needs” during these visits, allowing the nurse to discuss and plan care and treatment more effectively. This type of intervention is also effective in promoting patient self-assessment of disease activity **(Dougados et al., 2015)**.

6. I am concerned that my RA patients may avoid even light physical activity because of their pain and limitations. What should I do?

Consider motivational counseling and/or text messages for your patients. **(Thomsen et al., 2017)** discovered that RA patients who were offered three individual motivational counseling sessions and text messages aimed at reducing sedentary behavior over 16 weeks had a decrease in daily sitting time of 1.61 hours when compared with the control group.

7. One of the most frequent complaints and concerns among my patients with RA is fatigue. What is effective in addressing this issue?

The origin of fatigue in RA patients is complex, and not necessarily driven by the inflammatory nature of the disease **(van Steenbergen, Tsonaka, Huizinga, Boonen, & van der Helm-van Mil, 2015)**. Interventions to consider include addressing sleep quality and careful attention to managing joint pain. Adjustment of pharmacotherapy to include a combination of anti-inflammatory, DMARDs, immunosuppressant and biologic drugs may reduce the severity of fatigue **(Szady, Baczyk, & Kozłowska, 2017)**.

8. Some of my patients with rheumatoid arthritis have complex psychosocial needs and could use some Care Coordination or Care Management support. Can Healthfirst help?

We encourage you to contact the **Healthfirst Case Management Team**. Call our toll-free number: **1-866-237-0997**.

APPENDIX AND TOOLKIT

Summary of HEDIS Requirements: Disease-Modifying Antirheumatic Drug (DMARD) Therapy for Rheumatoid Arthritis (ART)

Measure Description	The percentage of members who were diagnosed with rheumatoid arthritis and who were dispensed at least one ambulatory prescription for a disease modifying antirheumatic drug (DMARD).
Ages	18 years and older as of December 31 of the measurement year.
How members are identified	Two face-to-face encounters with different dates of service in an outpatient or non-acute inpatient setting on or between January 1 and November 30 of the measurement year with any diagnosis of rheumatoid arthritis.

To learn more about your practice's current HEDIS performance for this or other measures, or for assistance in compliance with the HEDIS guidelines, contact: Autumn Kerr, Director – QI
AKerr@healthfirst.org

What are DMARD medications?	Description	Prescription	
	5-Aminosalicylates	• sulfasalazine	
	Aminoquinolines	• hydroxychloroquine	
	Anti-rheumatics	• auranofin • gold sodium thiomalate • leflunomide	• methotrexate • penicillamine
	Immunomodulators	• abatacept • adalimumab • anakinra • etanercept	• golimumab • infliximab • rituximab
	Immunosuppressive agents	• azathioprine • cyclosporine	
	Tetracyclines	• minocycline	

Assessing Disease Activity from the RA Patient's Point of View

The tool used most widely to assess functional limitations over time is the Stanford Health Assessment Questionnaire" (HAQ) (Fries, Spitz, Kraines, & Holman, 1980), (Bruce & Fries, 2005).

The STANFORD HEALTH ASSESSMENT QUESTIONNAIRE©
Stanford University School of Medicine, Division of Immunology & Rheumatology

HAQ Disability Index:

In this section we are interested in learning how your illness affects your ability to function in daily life. Please feel free to add any comments on the back of this page.

Please check the response which best describes your usual abilities OVER THE PAST WEEK:

	<u>Without ANY</u> <u>difficulty</u> ⁰	<u>With SOME</u> <u>difficulty</u> ¹	<u>With MUCH</u> <u>difficulty</u> ²	<u>UNABLE</u> <u>to do</u> ³
DRESSING & GROOMING				
Are you able to:				
-Dress yourself, including tying shoelaces and doing buttons?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-Shampoo your hair?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ARISING				
Are you able to:				
-Stand up from a straight chair?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-Get in and out of bed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
EATING				
Are you able to:				
-Cut your meat?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-Lift a full cup or glass to your mouth?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-Open a new milk carton?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WALKING				
Are you able to:				
-Walk outdoors on flat ground?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-Climb up five steps?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please check any AIDS OR DEVICES that you usually use for any of these activities:

- | | |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Cane | <input type="checkbox"/> Devices used for dressing (button hook, zipper pul long-handled shoe horn, etc.) |
| <input type="checkbox"/> Walker | <input type="checkbox"/> Built up or special utensils |
| <input type="checkbox"/> Crutches | <input type="checkbox"/> Special or built up chair |
| <input type="checkbox"/> Wheelchair | <input type="checkbox"/> Other (Specify: _____) |

Please check any categories for which you usually need HELP FROM ANOTHER PERSON:

- | | |
|------------------------------------------------|----------------------------------|
| <input type="checkbox"/> Dressing and Grooming | <input type="checkbox"/> Eating |
| <input type="checkbox"/> Arising | <input type="checkbox"/> Walking |

Please check the response which best describes your usual abilities **OVER THE PAST WEEK**:

	<u>Without ANY difficulty⁰</u>	<u>With SOME difficulty¹</u>	<u>With MUCH difficulty²</u>	<u>UNABLE to do³</u>
HYGIENE				
Are you able to:				
-Wash and dry your body?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-Take a tub bath?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-Get on and off the toilet?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
REACH				
Are you able to:				
-Reach and get down a 5-pound object (such as a bag of sugar) from just above your head?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-Bend down to pick up clothing from the floor?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GRIP				
Are you able to:				
-Open car doors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-Open jars which have been previously opened?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-Turn faucets on and off?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ACTIVITIES				
Are you able to:				
-Run errands and shop?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-Get in and out of a car?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-Do chores such as vacuuming or yardwork	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please check any **AIDS OR DEVICES** that you usually use for any of these activities:

- | | |
|------------------------------------------------------------------|--------------------------------------------------------------|
| <input type="checkbox"/> Raised toilet seat | <input type="checkbox"/> Bathtub bar |
| <input type="checkbox"/> Bathtub seat | <input type="checkbox"/> Long-handled appliances for reach |
| <input type="checkbox"/> Jar opener (for jars previously opened) | <input type="checkbox"/> Long-handled appliances in bathroom |
| | <input type="checkbox"/> Other (Specify: _____) |

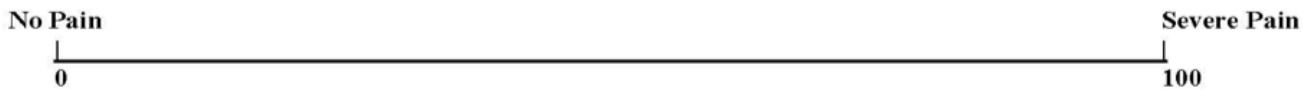
Please check any categories for which you usually need **HELP FROM ANOTHER PERSON**:

- | | |
|----------------------------------|------------------------------------------------------|
| <input type="checkbox"/> Hygiene | <input type="checkbox"/> Gripping and opening things |
| <input type="checkbox"/> Reach | <input type="checkbox"/> Errands and chores |

We are also interested in learning whether or not you are affected by pain because of your illness.

How much pain have you had because of your illness IN THE PAST WEEK:

PLACE A VERTICAL (|) MARK ON THE LINE TO INDICATE THE SEVERITY OF THE PAIN



Considering all the ways that your arthritis affects you, rate how you are doing on the following scale by placing a vertical mark on the line.



The HAQ is copyrighted by Stanford University for the purpose of insuring that it will be used unmodified to preserve the validity of its results and contribute to standardization of assessment across studies (Fries, Spitz, Kraines, & Holman, 1980), (Bruce & Fries, 2005).

ICD10 Coding for Confirmed Diagnosis of Rheumatoid Arthritis

Code	Definition
M05.069	[M05.069] Felty's syndrome, unspecified knee
M05.09	[M05.09] Felty's syndrome, multiple sites
M05.00	[M05.00] Felty's syndrome, unspecified site
M05.011	[M05.011] Felty's syndrome, right shoulder
M05.012	[M05.012] Felty's syndrome, left shoulder
M05.019	[M05.019] Felty's syndrome, unspecified shoulder
M05.021	[M05.021] Felty's syndrome, right elbow
M05.022	[M05.022] Felty's syndrome, left elbow
M05.029	[M05.029] Felty's syndrome, unspecified elbow
M05.031	[M05.031] Felty's syndrome, right wrist
M05.032	[M05.032] Felty's syndrome, left wrist
M05.039	[M05.039] Felty's syndrome, unspecified wrist
M05.041	[M05.041] Felty's syndrome, right hand
M05.042	[M05.042] Felty's syndrome, left hand
M05.049	[M05.049] Felty's syndrome, unspecified hand
M05.051	[M05.051] Felty's syndrome, right hip
M05.052	[M05.052] Felty's syndrome, left hip
M05.059	[M05.059] Felty's syndrome, unspecified hip
M05.061	[M05.061] Felty's syndrome, right knee
M05.062	[M05.062] Felty's syndrome, left knee
M05.071	[M05.071] Felty's syndrome, right ankle and foot
M05.072	[M05.072] Felty's syndrome, left ankle and foot
M05.079	[M05.079] Felty's syndrome, unspecified ankle and foot
M05.10	[M05.10] Rheumatoid lung disease with rheumatoid arthritis of unspecified site
M05.111	[M05.111] Rheumatoid lung disease with rheumatoid arthritis of right shoulder
M05.112	[M05.112] Rheumatoid lung disease with rheumatoid arthritis of left shoulder
M05.119	[M05.119] Rheumatoid lung disease with rheumatoid arthritis of unspecified shoulder
M05.121	[M05.121] Rheumatoid lung disease with rheumatoid arthritis of right elbow

Code	Definition
M05.122	[M05.122] Rheumatoid lung disease with rheumatoid arthritis of left elbow
M05.129	[M05.129] Rheumatoid lung disease with rheumatoid arthritis of unspecified elbow
M05.131	[M05.131] Rheumatoid lung disease with rheumatoid arthritis of right wrist
M05.132	[M05.132] Rheumatoid lung disease with rheumatoid arthritis of left wrist
M05.139	[M05.139] Rheumatoid lung disease with rheumatoid arthritis of unspecified wrist
M05.141	[M05.141] Rheumatoid lung disease with rheumatoid arthritis of right hand
M05.142	[M05.142] Rheumatoid lung disease with rheumatoid arthritis of left hand
M05.149	[M05.149] Rheumatoid lung disease with rheumatoid arthritis of unspecified hand
M05.151	[M05.151] Rheumatoid lung disease with rheumatoid arthritis of right hip
M05.152	[M05.152] Rheumatoid lung disease with rheumatoid arthritis of left hip
M05.159	[M05.159] Rheumatoid lung disease with rheumatoid arthritis of unspecified hip
M05.161	[M05.161] Rheumatoid lung disease with rheumatoid arthritis of right knee
M05.162	[M05.162] Rheumatoid lung disease with rheumatoid arthritis of left knee
M05.169	[M05.169] Rheumatoid lung disease with rheumatoid arthritis of unspecified knee
M05.171	[M05.171] Rheumatoid lung disease with rheumatoid arthritis of right ankle and foot
M05.172	[M05.172] Rheumatoid lung disease with rheumatoid arthritis of left ankle and foot
M05.179	[M05.179] Rheumatoid lung disease with rheumatoid arthritis of unspecified ankle and foot
M05.19	[M05.19] Rheumatoid lung disease with rheumatoid arthritis of multiple sites
M05.20	[M05.20] Rheumatoid vasculitis with rheumatoid arthritis of unspecified site
M05.211	[M05.211] Rheumatoid vasculitis with rheumatoid arthritis of right shoulder
M05.212	[M05.212] Rheumatoid vasculitis with rheumatoid arthritis of left shoulder

Code	Definition
M05.219	[M05.219] Rheumatoid vasculitis with rheumatoid arthritis of unspecified shoulder
M05.221	[M05.221] Rheumatoid vasculitis with rheumatoid arthritis of right elbow
M05.222	[M05.222] Rheumatoid vasculitis with rheumatoid arthritis of left elbow
M05.229	[M05.229] Rheumatoid vasculitis with rheumatoid arthritis of unspecified elbow
M05.231	[M05.231] Rheumatoid vasculitis with rheumatoid arthritis of right wrist
M05.232	[M05.232] Rheumatoid vasculitis with rheumatoid arthritis of left wrist
M05.239	[M05.239] Rheumatoid vasculitis with rheumatoid arthritis of unspecified wrist
M05.241	[M05.241] Rheumatoid vasculitis with rheumatoid arthritis of right hand
M05.242	[M05.242] Rheumatoid vasculitis with rheumatoid arthritis of left hand
M05.249	[M05.249] Rheumatoid vasculitis with rheumatoid arthritis of unspecified hand
M05.251	[M05.251] Rheumatoid vasculitis with rheumatoid arthritis of right hip
M05.252	[M05.252] Rheumatoid vasculitis with rheumatoid arthritis of left hip
M05.259	[M05.259] Rheumatoid vasculitis with rheumatoid arthritis of unspecified hip
M05.261	[M05.261] Rheumatoid vasculitis with rheumatoid arthritis of right knee
M05.262	[M05.262] Rheumatoid vasculitis with rheumatoid arthritis of left knee
M05.269	[M05.269] Rheumatoid vasculitis with rheumatoid arthritis of unspecified knee
M05.271	[M05.271] Rheumatoid vasculitis with rheumatoid arthritis of right ankle and foot
M05.272	[M05.272] Rheumatoid vasculitis with rheumatoid arthritis of left ankle and foot
M05.279	[M05.279] Rheumatoid vasculitis with rheumatoid arthritis of unspecified ankle and foot
M05.29	[M05.29] Rheumatoid vasculitis with rheumatoid arthritis of multiple sites
M05.30	[M05.30] Rheumatoid heart disease with rheumatoid arthritis of unspecified site

Code	Definition
M05.311	[M05.311] Rheumatoid heart disease with rheumatoid arthritis of right shoulder
M05.312	[M05.312] Rheumatoid heart disease with rheumatoid arthritis of left shoulder
M05.319	[M05.319] Rheumatoid heart disease with rheumatoid arthritis of unspecified shoulder
M05.321	[M05.321] Rheumatoid heart disease with rheumatoid arthritis of right elbow
M05.322	[M05.322] Rheumatoid heart disease with rheumatoid arthritis of left elbow
M05.329	[M05.329] Rheumatoid heart disease with rheumatoid arthritis of unspecified elbow
M05.331	[M05.331] Rheumatoid heart disease with rheumatoid arthritis of right wrist
M05.332	[M05.332] Rheumatoid heart disease with rheumatoid arthritis of left wrist
M05.339	[M05.339] Rheumatoid heart disease with rheumatoid arthritis of unspecified wrist
M05.341	[M05.341] Rheumatoid heart disease with rheumatoid arthritis of right hand
M05.342	[M05.342] Rheumatoid heart disease with rheumatoid arthritis of left hand
M05.349	[M05.349] Rheumatoid heart disease with rheumatoid arthritis of unspecified hand
M05.351	[M05.351] Rheumatoid heart disease with rheumatoid arthritis of right hip
M05.352	[M05.352] Rheumatoid heart disease with rheumatoid arthritis of left hip
M05.359	[M05.359] Rheumatoid heart disease with rheumatoid arthritis of unspecified hip
M05.361	[M05.361] Rheumatoid heart disease with rheumatoid arthritis of right knee
M05.362	[M05.362] Rheumatoid heart disease with rheumatoid arthritis of left knee
M05.369	[M05.369] Rheumatoid heart disease with rheumatoid arthritis of unspecified knee
M05.371	[M05.371] Rheumatoid heart disease with rheumatoid arthritis of right ankle and foot
M05.372	[M05.372] Rheumatoid heart disease with rheumatoid arthritis of left ankle and foot
M05.379	[M05.379] Rheumatoid heart disease with rheumatoid arthritis of unspecified ankle and foot

RHEUMATOID ARTHRITIS: An Evidence-Based Framework and Roadmap for Detection, Evaluation, and Management

Code	Definition
M05.39	[M05.39] Rheumatoid heart disease with rheumatoid arthritis of multiple sites
M05.40	[M05.40] Rheumatoid myopathy with rheumatoid arthritis of unspecified site
M05.411	[M05.411] Rheumatoid myopathy with rheumatoid arthritis of right shoulder
M05.412	[M05.412] Rheumatoid myopathy with rheumatoid arthritis of left shoulder
M05.419	[M05.419] Rheumatoid myopathy with rheumatoid arthritis of unspecified shoulder
M05.421	[M05.421] Rheumatoid myopathy with rheumatoid arthritis of right elbow
M05.422	[M05.422] Rheumatoid myopathy with rheumatoid arthritis of left elbow
M05.429	[M05.429] Rheumatoid myopathy with rheumatoid arthritis of unspecified elbow
M05.431	[M05.431] Rheumatoid myopathy with rheumatoid arthritis of right wrist
M05.432	[M05.432] Rheumatoid myopathy with rheumatoid arthritis of left wrist
M05.439	[M05.439] Rheumatoid myopathy with rheumatoid arthritis of unspecified wrist
M05.441	[M05.441] Rheumatoid myopathy with rheumatoid arthritis of right hand
M05.442	[M05.442] Rheumatoid myopathy with rheumatoid arthritis of left hand
M05.449	[M05.449] Rheumatoid myopathy with rheumatoid arthritis of unspecified hand
M05.451	[M05.451] Rheumatoid myopathy with rheumatoid arthritis of right hip
M05.452	[M05.452] Rheumatoid myopathy with rheumatoid arthritis of left hip
M05.459	[M05.459] Rheumatoid myopathy with rheumatoid arthritis of unspecified hip
M05.461	[M05.461] Rheumatoid myopathy with rheumatoid arthritis of right knee
M05.462	[M05.462] Rheumatoid myopathy with rheumatoid arthritis of left knee
M05.469	[M05.469] Rheumatoid myopathy with rheumatoid arthritis of unspecified knee
M05.471	[M05.471] Rheumatoid myopathy with rheumatoid arthritis of right ankle and foot
M05.472	[M05.472] Rheumatoid myopathy with rheumatoid arthritis of left ankle and foot

Code	Definition
M05.479	[M05.479] Rheumatoid myopathy with rheumatoid arthritis of unspecified ankle and foot
M05.49	[M05.49] Rheumatoid myopathy with rheumatoid arthritis of multiple sites
M05.50	[M05.50] Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified site
M05.511	[M05.511] Rheumatoid polyneuropathy with rheumatoid arthritis of right shoulder
M05.512	[M05.512] Rheumatoid polyneuropathy with rheumatoid arthritis of left shoulder
M05.519	[M05.519] Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified shoulder
M05.521	[M05.521] Rheumatoid polyneuropathy with rheumatoid arthritis of right elbow
M05.522	[M05.522] Rheumatoid polyneuropathy with rheumatoid arthritis of left elbow
M05.529	[M05.529] Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified elbow
M05.531	[M05.531] Rheumatoid polyneuropathy with rheumatoid arthritis of right wrist
M05.532	[M05.532] Rheumatoid polyneuropathy with rheumatoid arthritis of left wrist
M05.539	[M05.539] Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified wrist
M05.541	[M05.541] Rheumatoid polyneuropathy with rheumatoid arthritis of right hand
M05.542	[M05.542] Rheumatoid polyneuropathy with rheumatoid arthritis of left hand
M05.549	[M05.549] Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified hand
M05.551	[M05.551] Rheumatoid polyneuropathy with rheumatoid arthritis of right hip
M05.552	[M05.552] Rheumatoid polyneuropathy with rheumatoid arthritis of left hip
M05.559	[M05.559] Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified hip
M05.561	[M05.561] Rheumatoid polyneuropathy with rheumatoid arthritis of right knee
M05.562	[M05.562] Rheumatoid polyneuropathy with rheumatoid arthritis of left knee

Code	Definition
M05.569	[M05.569] Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified knee
M05.571	[M05.571] Rheumatoid polyneuropathy with rheumatoid arthritis of right ankle and foot
M05.572	[M05.572] Rheumatoid polyneuropathy with rheumatoid arthritis of left ankle and foot
M05.579	[M05.579] Rheumatoid polyneuropathy with rheumatoid arthritis of unspecified ankle and foot
M05.59	[M05.59] Rheumatoid polyneuropathy with rheumatoid arthritis of multiple sites
M05.60	[M05.60] Rheumatoid arthritis of unspecified site with involvement of other organs and systems
M05.611	[M05.611] Rheumatoid arthritis of right shoulder with involvement of other organs and systems
M05.612	[M05.612] Rheumatoid arthritis of left shoulder with involvement of other organs and systems
M05.619	[M05.619] Rheumatoid arthritis of unspecified shoulder with involvement of other organs and systems
M05.621	[M05.621] Rheumatoid arthritis of right elbow with involvement of other organs and systems
M05.622	[M05.622] Rheumatoid arthritis of left elbow with involvement of other organs and systems
M05.629	[M05.629] Rheumatoid arthritis of unspecified elbow with involvement of other organs and systems
M05.631	[M05.631] Rheumatoid arthritis of right wrist with involvement of other organs and systems
M05.632	[M05.632] Rheumatoid arthritis of left wrist with involvement of other organs and systems
M05.639	[M05.639] Rheumatoid arthritis of unspecified wrist with involvement of other organs and systems
M05.641	[M05.641] Rheumatoid arthritis of right hand with involvement of other organs and systems
M05.642	[M05.642] Rheumatoid arthritis of left hand with involvement of other organs and systems
M05.649	[M05.649] Rheumatoid arthritis of unspecified hand with involvement of other organs and systems
M05.651	[M05.651] Rheumatoid arthritis of right hip with involvement of other organs and systems

Code	Definition
M05.652	[M05.652] Rheumatoid arthritis of left hip with involvement of other organs and systems
M05.659	[M05.659] Rheumatoid arthritis of unspecified hip with involvement of other organs and systems
M05.661	[M05.661] Rheumatoid arthritis of right knee with involvement of other organs and systems
M05.662	[M05.662] Rheumatoid arthritis of left knee with involvement of other organs and systems
M05.669	[M05.669] Rheumatoid arthritis of unspecified knee with involvement of other organs and systems
M05.671	[M05.671] Rheumatoid arthritis of right ankle and foot with involvement of other organs and systems
M05.672	[M05.672] Rheumatoid arthritis of left ankle and foot with involvement of other organs and systems
M05.679	[M05.679] Rheumatoid arthritis of unspecified ankle and foot with involvement of other organs and systems
M05.69	[M05.69] Rheumatoid arthritis of multiple sites with involvement of other organs and systems
M05.70	[M05.70] Rheumatoid arthritis with rheumatoid factor of unspecified site without organ or systems involvement
M05.711	[M05.711] Rheumatoid arthritis with rheumatoid factor of right shoulder without organ or systems involvement
M05.712	[M05.712] Rheumatoid arthritis with rheumatoid factor of left shoulder without organ or systems involvement
M05.719	[M05.719] Rheumatoid arthritis with rheumatoid factor of unspecified shoulder without organ or systems involvement
M05.721	[M05.721] Rheumatoid arthritis with rheumatoid factor of right elbow without organ or systems involvement
M05.722	[M05.722] Rheumatoid arthritis with rheumatoid factor of left elbow without organ or systems involvement
M05.729	[M05.729] Rheumatoid arthritis with rheumatoid factor of unspecified elbow without organ or systems involvement

RHEUMATOID ARTHRITIS: An Evidence-Based Framework and Roadmap for Detection, Evaluation, and Management

Code	Definition
M05.731	[M05.731] Rheumatoid arthritis with rheumatoid factor of right wrist without organ or systems involvement
M05.732	[M05.732] Rheumatoid arthritis with rheumatoid factor of left wrist without organ or systems involvement
M05.739	[M05.739] Rheumatoid arthritis with rheumatoid factor of unspecified wrist without organ or systems involvement
M05.741	[M05.741] Rheumatoid arthritis with rheumatoid factor of right hand without organ or systems involvement
M05.742	[M05.742] Rheumatoid arthritis with rheumatoid factor of left hand without organ or systems involvement
M05.749	[M05.749] Rheumatoid arthritis with rheumatoid factor of unspecified hand without organ or systems involvement
M05.751	[M05.751] Rheumatoid arthritis with rheumatoid factor of right hip without organ or systems involvement
M05.752	[M05.752] Rheumatoid arthritis with rheumatoid factor of left hip without organ or systems involvement
M05.759	[M05.759] Rheumatoid arthritis with rheumatoid factor of unspecified hip without organ or systems involvement
M05.761	[M05.761] Rheumatoid arthritis with rheumatoid factor of right knee without organ or systems involvement
M05.762	[M05.762] Rheumatoid arthritis with rheumatoid factor of left knee without organ or systems involvement
M05.769	[M05.769] Rheumatoid arthritis with rheumatoid factor of unspecified knee without organ or systems involvement
M05.771	[M05.771] Rheumatoid arthritis with rheumatoid factor of right ankle and foot without organ or systems involvement
M05.772	[M05.772] Rheumatoid arthritis with rheumatoid factor of left ankle and foot without organ or systems involvement
M05.779	[M05.779] Rheumatoid arthritis with rheumatoid factor of unspecified ankle and foot without organ or systems involvement

Code	Definition
M05.79	[M05.79] Rheumatoid arthritis with rheumatoid factor of multiple sites without organ or systems involvement
M05.80	[M05.80] Other rheumatoid arthritis with rheumatoid factor of unspecified site
M05.811	[M05.811] Other rheumatoid arthritis with rheumatoid factor of right shoulder
M05.812	[M05.812] Other rheumatoid arthritis with rheumatoid factor of left shoulder
M05.819	[M05.819] Other rheumatoid arthritis with rheumatoid factor of unspecified shoulder
M05.821	[M05.821] Other rheumatoid arthritis with rheumatoid factor of right elbow
M05.822	[M05.822] Other rheumatoid arthritis with rheumatoid factor of left elbow
M05.829	[M05.829] Other rheumatoid arthritis with rheumatoid factor of unspecified elbow
M05.831	[M05.831] Other rheumatoid arthritis with rheumatoid factor of right wrist
M05.832	[M05.832] Other rheumatoid arthritis with rheumatoid factor of left wrist
M05.839	[M05.839] Other rheumatoid arthritis with rheumatoid factor of unspecified wrist
M05.841	[M05.841] Other rheumatoid arthritis with rheumatoid factor of right hand
M05.842	[M05.842] Other rheumatoid arthritis with rheumatoid factor of left hand
M05.849	[M05.849] Other rheumatoid arthritis with rheumatoid factor of unspecified hand
M05.851	[M05.851] Other rheumatoid arthritis with rheumatoid factor of right hip
M05.852	[M05.852] Other rheumatoid arthritis with rheumatoid factor of left hip
M05.859	[M05.859] Other rheumatoid arthritis with rheumatoid factor of unspecified hip
M05.861	[M05.861] Other rheumatoid arthritis with rheumatoid factor of right knee
M05.862	[M05.862] Other rheumatoid arthritis with rheumatoid factor of left knee
M05.869	[M05.869] Other rheumatoid arthritis with rheumatoid factor of unspecified knee
M05.871	[M05.871] Other rheumatoid arthritis with rheumatoid factor of right ankle and foot

Code	Definition
M05.872	[M05.872] Other rheumatoid arthritis with rheumatoid factor of left ankle and foot
M05.879	[M05.879] Other rheumatoid arthritis with rheumatoid factor of unspecified ankle and foot
M05.89	[M05.89] Other rheumatoid arthritis with rheumatoid factor of multiple sites
M05.9	[M05.9] Rheumatoid arthritis with rheumatoid factor, unspecified
M06.00	[M06.00] Rheumatoid arthritis without rheumatoid factor, unspecified site
M06.011	[M06.011] Rheumatoid arthritis without rheumatoid factor, right shoulder
M06.012	[M06.012] Rheumatoid arthritis without rheumatoid factor, left shoulder
M06.019	[M06.019] Rheumatoid arthritis without rheumatoid factor, unspecified shoulder
M06.021	[M06.021] Rheumatoid arthritis without rheumatoid factor, right elbow
M06.022	[M06.022] Rheumatoid arthritis without rheumatoid factor, left elbow
M06.029	[M06.029] Rheumatoid arthritis without rheumatoid factor, unspecified elbow
M06.031	[M06.031] Rheumatoid arthritis without rheumatoid factor, right wrist
M06.032	[M06.032] Rheumatoid arthritis without rheumatoid factor, left wrist
M06.039	[M06.039] Rheumatoid arthritis without rheumatoid factor, unspecified wrist
M06.041	[M06.041] Rheumatoid arthritis without rheumatoid factor, right hand
M06.042	[M06.042] Rheumatoid arthritis without rheumatoid factor, left hand
M06.049	[M06.049] Rheumatoid arthritis without rheumatoid factor, unspecified hand
M06.051	[M06.051] Rheumatoid arthritis without rheumatoid factor, right hip
M06.052	[M06.052] Rheumatoid arthritis without rheumatoid factor, left hip
M06.059	[M06.059] Rheumatoid arthritis without rheumatoid factor, unspecified hip
M06.061	[M06.061] Rheumatoid arthritis without rheumatoid factor, right knee
M06.062	[M06.062] Rheumatoid arthritis without rheumatoid factor, left knee

Code	Definition
M06.069	[M06.069] Rheumatoid arthritis without rheumatoid factor, unspecified knee
M06.071	[M06.071] Rheumatoid arthritis without rheumatoid factor, right ankle and foot
M06.072	[M06.072] Rheumatoid arthritis without rheumatoid factor, left ankle and foot
M06.079	[M06.079] Rheumatoid arthritis without rheumatoid factor, unspecified ankle and foot
M06.08	[M06.08] Rheumatoid arthritis without rheumatoid factor, vertebrae
M06.09	[M06.09] Rheumatoid arthritis without rheumatoid factor, multiple sites
M06.1	[M06.1] Adult-onset Still's disease
M06.20	[M06.20] Rheumatoid bursitis, unspecified site
M06.211	[M06.211] Rheumatoid bursitis, right shoulder
M06.212	[M06.212] Rheumatoid bursitis, left shoulder
M06.219	[M06.219] Rheumatoid bursitis, unspecified shoulder
M06.221	[M06.221] Rheumatoid bursitis, right elbow
M06.222	[M06.222] Rheumatoid bursitis, left elbow
M06.229	[M06.229] Rheumatoid bursitis, unspecified elbow
M06.231	[M06.231] Rheumatoid bursitis, right wrist
M06.232	[M06.232] Rheumatoid bursitis, left wrist
M06.239	[M06.239] Rheumatoid bursitis, unspecified wrist
M06.241	[M06.241] Rheumatoid bursitis, right hand
M06.242	[M06.242] Rheumatoid bursitis, left hand
M06.249	[M06.249] Rheumatoid bursitis, unspecified hand
M06.251	[M06.251] Rheumatoid bursitis, right hip
M06.252	[M06.252] Rheumatoid bursitis, left hip
M06.259	[M06.259] Rheumatoid bursitis, unspecified hip
M06.261	[M06.261] Rheumatoid bursitis, right knee
M06.262	[M06.262] Rheumatoid bursitis, left knee
M06.269	[M06.269] Rheumatoid bursitis, unspecified knee
M06.271	[M06.271] Rheumatoid bursitis, right ankle and foot
M06.272	[M06.272] Rheumatoid bursitis, left ankle and foot

RHEUMATOID ARTHRITIS: An Evidence-Based Framework and Roadmap for Detection, Evaluation, and Management

Code	Definition	Code	Definition
M06.279	[M06.279] Rheumatoid bursitis, unspecified ankle and foot	M06.812	[M06.812] Other specified rheumatoid arthritis, left shoulder
M06.28	[M06.28] Rheumatoid bursitis, vertebrae	M06.819	[M06.819] Other specified rheumatoid arthritis, unspecified shoulder
M06.29	[M06.29] Rheumatoid bursitis, multiple sites	M06.821	[M06.821] Other specified rheumatoid arthritis, right elbow
M06.30	[M06.30] Rheumatoid nodule, unspecified site	M06.822	[M06.822] Other specified rheumatoid arthritis, left elbow
M06.311	[M06.311] Rheumatoid nodule, right shoulder	M06.829	[M06.829] Other specified rheumatoid arthritis, unspecified elbow
M06.312	[M06.312] Rheumatoid nodule, left shoulder	M06.831	[M06.831] Other specified rheumatoid arthritis, right wrist
M06.319	[M06.319] Rheumatoid nodule, unspecified shoulder	M06.832	[M06.832] Other specified rheumatoid arthritis, left wrist
M06.321	[M06.321] Rheumatoid nodule, right elbow	M06.839	[M06.839] Other specified rheumatoid arthritis, unspecified wrist
M06.322	[M06.322] Rheumatoid nodule, left elbow	M06.841	[M06.841] Other specified rheumatoid arthritis, right hand
M06.329	[M06.329] Rheumatoid nodule, unspecified elbow	M06.842	[M06.842] Other specified rheumatoid arthritis, left hand
M06.331	[M06.331] Rheumatoid nodule, right wrist	M06.849	[M06.849] Other specified rheumatoid arthritis, unspecified hand
M06.332	[M06.332] Rheumatoid nodule, left wrist	M06.851	[M06.851] Other specified rheumatoid arthritis, right hip
M06.339	[M06.339] Rheumatoid nodule, unspecified wrist	M06.852	[M06.852] Other specified rheumatoid arthritis, left hip
M06.341	[M06.341] Rheumatoid nodule, right hand	M06.859	[M06.859] Other specified rheumatoid arthritis, unspecified hip
M06.342	[M06.342] Rheumatoid nodule, left hand	M06.861	[M06.861] Other specified rheumatoid arthritis, right knee
M06.349	[M06.349] Rheumatoid nodule, unspecified hand	M06.862	[M06.862] Other specified rheumatoid arthritis, left knee
M06.351	[M06.351] Rheumatoid nodule, right hip	M06.869	[M06.869] Other specified rheumatoid arthritis, unspecified knee
M06.352	[M06.352] Rheumatoid nodule, left hip	M06.871	[M06.871] Other specified rheumatoid arthritis, right ankle and foot
M06.359	[M06.359] Rheumatoid nodule, unspecified hip	M06.872	[M06.872] Other specified rheumatoid arthritis, left ankle and foot
M06.361	[M06.361] Rheumatoid nodule, right knee	M06.879	[M06.879] Other specified rheumatoid arthritis, unspecified ankle and foot
M06.362	[M06.362] Rheumatoid nodule, left knee	M06.88	[M06.88] Other specified rheumatoid arthritis, vertebrae
M06.369	[M06.369] Rheumatoid nodule, unspecified knee	M06.89	[M06.89] Other specified rheumatoid arthritis, multiple sites
M06.371	[M06.371] Rheumatoid nodule, right ankle and foot	M06.9	[M06.9] Rheumatoid arthritis, unspecified
M06.372	[M06.372] Rheumatoid nodule, left ankle and foot		
M06.379	[M06.379] Rheumatoid nodule, unspecified ankle and foot		
M06.38	[M06.38] Rheumatoid nodule, vertebrae		
M06.39	[M06.39] Rheumatoid nodule, multiple sites		
M06.80	[M06.80] Other specified rheumatoid arthritis, unspecified site		
M06.811	[M06.811] Other specified rheumatoid arthritis, right shoulder		

Bibliography

- Agca, R., Heslinga, S. C., Rollefstad, S., Heslinga, M., McInnes, I. B., Peters, M. J., . . . Nurmohamed, M. T. (2017). EULAR recommendations for cardiovascular disease risk management in patients with rheumatoid arthritis and other forms of inflammatory joint disorders: 2015/2016 update. *Annals of the Rheumatic Diseases*, 76(1), 17–28. Retrieved 2 4, 2018, from <https://ncbi.nlm.nih.gov/pubmed/27697765>
- Aletaha, D., & Smolen, J. (2005). The Simplified Disease Activity Index (SDAI) and the Clinical Disease Activity Index (CDAI): A review of their usefulness and validity in rheumatoid arthritis. *Clin Exp Rheumatol*, 23 (Suppl. 39), S100–S108.
- Aletaha, D., & Smolen, J. (2005). The Simplified Disease Activity Index (SDAI) and the Clinical Disease Activity Index (CDAI): A review of their usefulness and validity in rheumatoid arthritis. *Clinical and Experimental Rheumatology*, 23(5). Retrieved 2 3, 2018, from <http://clinexprheumatol.org/article.asp?a=2694>
- Anderson, J., Caplan, L., Yazdany, J., Robbins, M. L., Neogi, T., Maichaud, K., . . . Kazi, S. (2012, May). Rheumatoid Arthritis Disease Activity Measures: American College of Rheumatology Recommendations for Use in Clinical Practice. *Arthritis Care & Research*, 64(5), 640–647.
- Barbour, K. E., Helmick, C. G., Boring, M., & Brady, T. J. (2017, mar 10). Vital Signs: Prevalence of Doctor-Diagnosed Arthritis and Arthritis-Attributable Activity Limitation - United States, 2013-2015. *MMWR Morb Mortal Wkly Rep*, 66(9), 246–253. doi:10.15585/mmwr.mm6609e1
- Barhamain, A. S., Magliah, R. F., Shaheen, M. H., Munassar, S. F., Falembarn, A. M., Alshareef, M. M., & Almoallim, H. M. (2017). The journey of rheumatoid arthritis patients: a review of reported lag times from the onset of symptoms. *Open Access Rheumatology: Research and Reviews*, 9, 139–150.
- Barton, J. L., Imboden, J. B., Graf, J., Glidden, D. V., Yelin, E. H., & Schillinger, D. (2010). Patient-physician discordance in assessments of global disease severity in rheumatoid arthritis. *Arthritis Care and Research*, 62(6), 857–864. Retrieved 2 4, 2018, from <https://ncbi.nlm.nih.gov/pmc/articles/pmc2885009>
- Barton, J. L., Trupin, C., Imboden, J., Katz, P., Schillinger, D., & Yelin, E. H. (2014, July). English language proficiency, health literacy, and trust in physician are associated with shared decision-making in rheumatoid arthritis. *J Rheumatol*, 41(7), 1290–1297.
- Boeters, D. M., Raza, K., & vander Helm-van Mil, A. H. (2017). Which patients presenting with arthralgia develop rheumatoid arthritis? The current state of the art. *RMD Open*, 3, e000479.
- Boston University School of Public Health. (n.d.). "Scoring and Population Norms". Retrieved November 16, 2017, from VR-36, VR-12 and VR-6D: <http://www.bu.edu/sph/research/research-landing-page/vr-36-vr-12-and-vr-6d/about-the-vr-36-vr-12-and-vr-6d/when-to-use-vr/>
- Bruce, B., & Fries, J. F. (2005). The Health Assessment Questionnaire (HAQ). *Clin Exp Rheumatol*, 23(Suppl 39), S14–S18.
- Challa, D. N., Crowson, C. S., & Davis, J. M. (2017). *The Patient Global Assessment of Disease Activity in Rheumatoid Arthritis: Identification of Underlying Latent Factors*. Retrieved 2 4, 2018, from <https://link.springer.com/article/10.1007/s40744-017-0063-5>
- Challa, D. N., Kvgic, Z., Cheville, A. L., Crowson, C. S., Bongartz, T., Mason II, T. G., . . . Davis III, J. M. (2017). Patient-provider discordance between global assessments of disease activity in rheumatoid arthritis: a comprehensive clinical evaluation. *Arthritis Research & Therapy*, 19(212).
- Cheung, P. P., Mari, K., Devauchelle-Pensec, V., Jousse-Joulin, S., D'Agostino, M. A., Chalès, G., . . . Dougados, M. (2016). Predictive value of tender joints compared to synovitis for structural damage in rheumatoid arthritis. *RMD Open*, 2(1). Retrieved 2 3, 2018, from <https://ncbi.nlm.nih.gov/pubmed/27042336>

RHEUMATOID ARTHRITIS: An Evidence-Based Framework and Roadmap for Detection, Evaluation, and Management

Chua, J. R., Castrejon, I., & Pincus, T. (2017). Assessment of pain and other patient symptoms in routine clinical care as quantitative, standardised, "scientific" data. *Clin Exp Rheumatol*, 35(Suppl. 107), S13–S20.

Chua, J. R., Gibson, K. A., & Pincus, T. (2017). Pain and other self-report scores in patients with osteoarthritis indicate generally similar disease burden to patients with rheumatoid arthritis. *Clinical and Experimental Rheumatology*, 35(Suppl. 107), S88–S93.

Colebatch, A. N., Edwards, C. J., Østergaard, M., Heijde, D. v., Balint, P., D'Agostino, M. A., . . . Conaghan, P. G. (2013). EULAR recommendations for the use of imaging of the joints in the clinical management of rheumatoid arthritis. *Annals of the Rheumatic Diseases*, 72(6), 804–814. Retrieved 2 4, 2018, from <https://ncbi.nlm.nih.gov/pubmed/23520036>

Contreras-Yáñez, I., & Pascual-Ramos, V. (2015). Window of opportunity to achieve major outcomes in early rheumatoid arthritis patients: how persistence with therapy matters. *Arthritis Res Ther.*, 17(1), 177. doi:10.1186/s13075-015-0697-z

Contreras-Yanez, I., & Pascual-Ramos, V. (2015). Window of opportunity to achieve major outcomes in early rheumatoid arthritis patients: how persistence with therapy matters. *Arthritis Research and Therapy*, 17(177).

Crane, M. M., Juneja, M., Allen, J. K., Kurrasch, R., Chu, M., Quattrocchi, E., . . . Chang, D. J. (2015). Epidemiology and Treatment of New-Onset and Established Rheumatoid Arthritis in an Insured US Population. *Arthritis Care and Research*, 67(12), 1646–1655. Retrieved 2 4, 2018, from <https://ncbi.nlm.nih.gov/pubmed/26097059>

Derksen, V., Huizinga, T. W., & Woude, D. v. (2017). The role of autoantibodies in the pathophysiology of rheumatoid arthritis. *Seminars in Immunopathology*, 39(4), 437–446. Retrieved 2 3, 2018, from <https://link.springer.com/article/10.1007/s00281-017-0627-z>

Dougados, M., Soubrier, M., Perrodeau, E., Gossec, L., Fayet, F., Gilson, M., . . . Ravaud, P. (2015). Impact of a nurse-led programme on comorbidity management and impact of a patient self-assessment of disease activity on the management of rheumatoid arthritis: results of a prospective, multicenter, randomised, controlled trial (COMEDRA). *Ann Rheum Dis*, 74, 1728–1733.

El-Haddad, C., Castrejon, I., Gibson, K. A., Yazici, Y., Bergman, M. J., & Pincus, T. (2017). MDHAQ/RAPID3 scores in patients with osteoarthritis are similar to or higher than in patients with rheumatoid arthritis: a cross-sectional study from current routine rheumatology care at four sites. *RMD Open*, 3(1), e000391.

Esbensen, B. A., Thomsen, T., Hetland, M. L., Beyer, N., Midtgaard, J., Løppenthin, K., . . . Aadahl, M. (2015). The efficacy of motivational counseling and SMS-reminders on daily sitting time in patients with rheumatoid arthritis: protocol for a randomized controlled trial. *Trials*, 16(1), 23–23. Retrieved 2 3, 2018, from <https://ncbi.nlm.nih.gov/pubmed/25623388>

Felson, D. T., Smolen, J. S., Wells, G., Zhang, B., van Tuyl, L. H., Funovits, J., . . . Boers, M. (2011). American College of Rheumatology/European League Against Rheumatism Provisional Definition of Remission in Rheumatoid Arthritis for Clinical Trials. *Ann Rheum Dis*, 70, 404–413. doi:10.1136/ard.2011.149765

Firth, J., Snowden, N., Ledingham, J., Rivett, A., Galloway, J., Dennison, E., . . . on behalf of the BSR national audit, P. (2016, June 9). The 1st National Clinical audit for Rheumatoid and Early Inflammatory Arthritis: findings and implications for nursing practice. *Br J Nurs*, 25(11), 613–617.

Flurey, C. A., Hewlett, S., Rodham, K., White, A., Noddings, R., & Kirwan, J. R. (2017, March). "You Obviously Just Have to Put on a Brave Face": A Qualitative Study of the Experiences and Coping Styles of Men with Rheumatoid Arthritis. *Arthritis Care & Research*, 69(3), 330–337.

Flurey, C. A., Morris, M., Pollock, J., Richards, P., Hughes, R., & Hewlett, S. (2014). A Q-methodology study of flare help-seeking behaviours and different experiences of daily life in rheumatoid arthritis. *BMC Musculoskeletal Disorders*, 15(364).

Flurey, C., Morris, M., Richards, P., Hughes, R., & Hewlett, S. (2014). It's like a juggling act: rheumatoid arthritis patient perspectives on daily life and flare while on current treatment regimes. *Rheumatology*, *53*(4), 696-703. Retrieved 2 3, 2018, from <https://ncbi.nlm.nih.gov/pubmed/24357813>

Fredriksson, C., Ebbevi, D., Waldheim, E., Lindblad, S., & Ernestam, S. (2016). Patient-initiated appointments compared with standard outpatient care for rheumatoid arthritis: a randomised controlled trial. *RMD Open*, *2*(1). Retrieved 2 4, 2018, from <https://ncbi.nlm.nih.gov/pmc/articles/pmc4800834>

Fries, J. F., Spitz, P., Kraines, R. G., & Holman, H. R. (1980, February). Measurement of Patient Outcome in Arthritis. *Arthritis & Rheumatism*, *23*(2), 137-145.

Gerlag, D. M., Raza, K., Baarsen, L. G., Brouwer, E., Buckley, C. D., Burmester, G. R., . . . Tak, P. P. (2012). EULAR recommendations for terminology and research in individuals at risk of rheumatoid arthritis: report from the Study Group for Risk Factors for Rheumatoid Arthritis. *Annals of the Rheumatic Diseases*, *71*(5), 638-641. Retrieved 2 3, 2018, from <https://ncbi.nlm.nih.gov/pmc/articles/pmid/22387728>

Gwinnutt, J. M., Symmons, D., MacGregor, A. J., Chipping, J. R., Marshall, T., Lunt, M., & Verstappen, S. M. (2017). The 20 year outcome and association between early treatment and mortality and disability in an inception cohort of patients with rheumatoid arthritis: results from the Norfolk Arthritis Register. *Arthritis & Rheumatism*, *69*(8), 1566-1575. Retrieved 2 3, 2018, from <http://doi.wiley.com/10.1002/art.40090>

Hauser, W., Perrot, S., Sommer, C., Shir, Y., & Fitzcharles, M.-A. (2017). Diagnostic confounders of chronic widespread pain: not always fibromyalgia. *Pain Reports*, *2*, e598. Retrieved February 15, 2018, from www.painreportsonline.com

Hugo, M., Mehseu-Cetre, N., Pierreisnard, A., Pupier, E., Cherifi, B., Schaefferbeke, T., & Rigalleau, V. (2017). High body mass index in rheumatoid arthritis: why we should promote physical activity. *Arthritis Research & Therapy*, *19*(1), 2. Retrieved 2 3, 2018, from <https://arthritis-research.biomedcentral.com/articles/10.1186/s13075-016-1209-5>

Hunt, L., Hensor, E. M., Nam, J., Burska, A. N., Parmar, R., Emery, P., & Ponchel, F. (2016). T cell subsets: an immunological biomarker to predict progression to clinical arthritis in ACPA-positive individuals. *Ann Rheum Dis*, *75*, 1884-1889. doi:10.1136/annrheumdis-2015-207991

Husberg, M., Davidson, T., & Hallert, E. (2017). Non-medical costs during the first year after diagnosis in two cohorts of patients with early rheumatoid arthritis, enrolled 10 years apart. *Clinical Rheumatology*, *36*(3), 499-506. Retrieved 2 4, 2018, from <https://rd.springer.com/article/10.1007/s10067-016-3470-z>

Ji, J., Zhang, L., Zhang, Q., Yin, R., Fu, T., Li, L., & Gu, Z. (2017). Functional disability associated with disease and quality-of-life parameters in Chinese patients with rheumatoid arthritis. *Health and Quality of Life Outcomes*, *15*(89).

Jin, Y. D. (2017). Factors associated with initial or subsequent choice of biologic disease-modifying antirheumatic drugs for treatment of rheumatoid arthritis. *Arthritis Res Ther*, *19*:159. doi:10.1186/s13075-017-1366-1

Karpouzias, G. A., Ramadan, S. N., Cost, C. E., Draper, T. L., Hernandez, E., Strand, V., & Ormseth, S. R. (2017). Discordant patient-physician assessments of disease activity and its persistence adversely impact quality of life and work productivity in US Hispanics with rheumatoid arthritis. *RMD Open*, *3*, e000551.

Keele, K. (1948). The Pain Chart. *Lancet*, *2*, 6.

Kim, G., Barner, J. C., Rascati, K., & Richards, K. (2015, May). Factors Associated with the Initiation of Biologic Disease-Modifying Antirheumatic Drugs in Texas Medicaid Patients with Rheumatoid Arthritis. *J Manag Care Spec Pharm*, *21*(5), 401-407.

Larsson, I. (2017). Patients' conceptions of their own influence on good treatment response to biological therapy in chronic inflammatory arthritis. *Patient Preference and Adherence*, *11*, 1057-1067.

RHEUMATOID ARTHRITIS: An Evidence-Based Framework and Roadmap for Detection, Evaluation, and Management

- Larsson, I., Fridlund, B., Arvidsson, B., Teleman, A., Svedberg, P., & Bergman, S. (2015). A nurse-led rheumatology clinic versus rheumatologist-led clinic in monitoring of patients with chronic inflammatory arthritis undergoing biological therapy : A cost comparison study in a randomised controlled trial. *BMC Musculoskeletal Disorders*, *16*(1), 354. Retrieved 2 3, 2018, from <http://link.springer.com/10.1186/s12891-015-0817-6>
- Ledingham, J. M., Snowden, N., Rivett, A., Galloway, J., Firth, J., Ide, Z., . . . on behalf of the BSR national audit Project . (2017, February). Patient and clinician reported outcomes for patients with new presentation of inflammatory arthritis: observations from the National Clinical Audit for Rheumatoid and Early Inflammatory Arthritis. *Rheumatology (Oxford)*, *56*(2), 231–238.
- Ledingham, J. M., Snowden, N., Rivett, A., Galloway, J., Ide, Z., Firth, J., . . . Rowe, I. (2017). Achievement of NICE quality standards for patients with new presentation of inflammatory arthritis: observations from the National Clinical Audit for Rheumatoid and Early Inflammatory Arthritis. *Rheumatology*, *56*(2), 223–230. Retrieved 2 3, 2018, from <https://ncbi.nlm.nih.gov/pubmed/27694337>
- Lee, Y. C. (2013). Effect and Treatment of Chronic Pain in Inflammatory Arthritis. *Current Rheumatology Reports*, *15*(1), 300–300. Retrieved 2 4, 2018, from <https://rd.springer.com/article/10.1007/s11926-012-0300-4>
- Louati, K., & Berenbaum, F. (2015). fatigue in chronic inflammation - a link to pain pathways. *Arthritis Research & Therapy*, *17*(254).
- Mahmood, S., Oosterhout, M. v., Jong, S. d., Landewé, R., Riel, P. L., & Tuyl, L. H. (2017). Evaluating quality of care in rheumatoid arthritis: the patient perspective. *RMD Open*, *3*(1). Retrieved 2 3, 2018, from <http://rmdopen.bmj.com/content/3/1/e000411>
- Malm, K., Bergman, S., Andersson, M. L., Bremender, A., & Larsson, I. (2017). Quality of life in patients with established rheumatoid arthritis. *SAGE Open Medicine*, *5*, 1-8. Retrieved from <https://us.sagepub.com/en-us/nam/open-access-at-sage>
- Malm, K., Bremender, A., Arvidsson, B., Andersson, M., Bergman, S., & Larsson, I. (2016). The influence of lifestyle habits on quality of life in patients with established rheumatoid arthritis - A constant balancing between ideality and reality. *International Journal of Qualitative Studies on Health and Well-being*, *11*(0), 30534. Retrieved 2 3, 2018, from <https://ncbi.nlm.nih.gov/pubmed/27172513>
- Mangnus, L., Steenbergen, H. v., Reijniere, M., & Mil, A. H.-v. (2016). MR-detected features of inflammation and erosions occur in symptom-free persons from the general population. *Arthritis & Rheumatism*. Retrieved 2 3, 2018, from <http://onlinelibrary.wiley.com/resolve/doi?doi=10.1002/art.39749>
- Mankia, K., Nam, J., & Emery, P. (2017). Identifying arthralgia suspicious for progression to rheumatoid arthritis. *Annals of the Rheumatic Diseases*, *76*(6). Retrieved 2 3, 2018, from <https://ncbi.nlm.nih.gov/pubmed/27932346>
- Markusse, I. M., Dirven, L., Gerards, A., Groenendaal, J. H., Ronday, H. K., Kerstens, P. J., . . . Allaart, C. F. (2015). Disease flares in rheumatoid arthritis are associated with joint damage progression and disability: 10-year results from the BeSt study. *Arthritis Research & Therapy*, *17*(1), 232-232. Retrieved 2 3, 2018, from <https://arthritis-research.biomedcentral.com/articles/10.1186/s13075-015-0730-2>
- Matthew, S. A., Gane, E., Heesh, K. C., & McPhail, S. M. (2016). Risk factors for hospital re-presentation among older adults following fragility fractures: a systematic review and meta-analysis. *BMC Medicine*, *14*(136).
- McAlindon, T., Kissin, E., Nazarian, L., Ranganath, V., Prakash, S., Taylor, M., . . . Fitzgerald, J. (2012, November). American College of Rheumatology Report on Reasonable Use of Musculoskeletal Ultrasonography in Rheumatology Clinical Practice. *Arthritis Care & Research*, *64*(11), 1625–1640. doi:10.1002/acr.21836
- Michetti, P., Weinman, J., Mrowietz, U., Smolen, J., Peyrin-Biroulet, Louis, E., . . . Selenko-Gebauer, N. (2017). Impact of Treatment-Related Beliefs on Medication Adherence in Immune-Mediated Inflammatory Diseases: Results of the Global ALIGN Study. *Adv Ther*, *34*, 91–108.

Myasoedova, E., Chandran, A., Ilhan, B., Major, B. T., Michet, J. C., Matteson, E. L., & Crowson, C. S. (2016, March). The Role of Rheumatoid Arthritis (RA) Flare and Cumulative Burden of RA Severity in the Risk of Cardiovascular Disease. *Ann Rheum Dis*, 75(3), 560–565.

Nikiphorou, E., Alunno, A., Carmona, L., Kouloumas, M., Bijlsma, J. W., & Cutolo, M. (2017). Patient–physician collaboration in rheumatology: a necessity. *RMD Open*, 3(1). Retrieved 24, 2018, from <http://rmdopen.bmj.com/content/3/1/e000499>

Norli ES, B. G. (2017). Diagnostic spectrum and 2-year outcome in a cohort of patients with very early arthritis. *RMD Open*, 3(2), e000573. doi:10.1136/rmdopen-2017-000573

Peabody, J. W., Strand, V., Shimkhada, R., Lee, R. V., & Chernoff, D. N. (2013). Impact of Rheumatoid Arthritis Disease Activity Test on Clinical Practice. *PLOS ONE*, 8(5). Retrieved 24, 2018, from <https://ncbi.nlm.nih.gov/pubmed/23667587>

Pelaez, I., Infante, C., & Quintana, R. (2015). Help-seeking trajectory in patients with rheumatoid arthritis. *Clinical Rheumatology*, 34(1), 17–28. Retrieved 24, 2018, from <https://link.springer.com/article/10.1007/s10067-015-3013-z>

Pincus T, B. M. (2009). RAPID3—an index of physical function, pain, and global status as “vital signs” to improve care for people with chronic rheumatic diseases. *Bulletin of the NYU Hospital for Joint Diseases*, 67(2), 211–225.

Pincus T, C. I. (2012). An evidence-based medical visit for patients with rheumatoid arthritis based on standard, quantitative scientific data from a patient. *Bull NYU Hosp Jt Dis.*, 70(2), 73–94.

Pincus, T. (2008). Pain, function, and RAPID scores: vital signs in chronic diseases, analogous to pulse and temperature in acute diseases and blood pressure and cholesterol in long-term health. *Bulletin of the NYU Hospital for Joint Diseases*, 66(2), 155–65.

Pollard, L. C., Graves, H., Scorr, D. L., Kingsley, G. H., & Lempp, H. (2011). Perceived barriers to integrated care in rheumatoid arthritis: view of recipients and providers of care in an inner-city setting. *BMC Musculoskeletal Disorders*, 12(19).

Raciborski, F., Ktak, A., Kwiatkowska, B., Batko, B., Sochocka-Bykowska, M., Zon-Giebel, A., . . . working team. (2017). Diagnostic Delays in Rheumatic Diseases with Associated Arthritis. *Reumatologia*, 55(4), 169–176.

Rubin, D. T., Mittal, M., Davis, M., Johnson, S. J., Chao, J., & Skup, M. (2017). *Impact of a Patient Support Program on Patient Adherence to Adalimumab and Direct Medical Costs in Crohn’s Disease, Ulcerative Colitis, Rheumatoid Arthritis, Psoriasis, Psoriatic Arthritis, and Ankylosing Spondylitis*. Retrieved 24, 2018, from <http://jmc.org/doi/10.18553/jmcp.2017.16272>

Sakellariou, G., Conaghan, P. G., Zhang, W., Bijlsma, J. W., Bøyesen, P., D’Agostino, M. A., . . . Iagnocco, A. (2017). EULAR recommendations for the use of imaging in the clinical management of peripheral joint osteoarthritis. *Annals of the Rheumatic Diseases*, 76(9), 1484–1494. Retrieved 24, 2018, from <http://ard.bmj.com/content/76/9/1484>

Seegobin, S. D., Ma, M. H., Dahanayake, C., Cope, A. P., Scott, D. L., Lewis, C. M., & Scott, I. C. (2014). ACPA-positive and ACPA-negative rheumatoid arthritis differ in their requirements for combination DMARDs and corticosteroids: secondary analysis of a randomized controlled trial. *Arthritis Research & Therapy*, 16(R13).

Simons, G., Belcher, J., Morton, C., Kumar, K., Falahee, M., Mallen, C. D., . . . Raza, K. (2017). Symptom recognition and perceived urgency of help-seeking for rheumatoid arthritis and other diseases in the general public: A mixed method approach. *Arthritis Care and Research*, 69(5), 633–641. Retrieved 24, 2018, from <https://ncbi.nlm.nih.gov/pubmed/27389847>

Simons, G., Mallen, C. D., Kumar, K., Stack, R. J., & Raza, K. (2015). A qualitative investigation of the barriers to help-seeking among members of the public presented with symptoms of new-onset rheumatoid arthritis. *The Journal of Rheumatology*, 42(4), 585–592. Retrieved 24, 2018, from <https://ncbi.nlm.nih.gov/pubmed/25641894>

RHEUMATOID ARTHRITIS: An Evidence-Based Framework and Roadmap for Detection, Evaluation, and Management

Singh, J. A., Furst, D. E., Bharat, A., Curtis, J. R., Kavanaugh, A. F., Kremer, J. M., . . . Saag, K. G. (2012, May). 2012 Update of the 2008 American College of Rheumatology Recommendations for the Use of Disease-Modifying Antirheumatic Drugs and Biologic Agents in the Treatment of Rheumatoid Arthritis. *Arthritis Care & Research*, *64*(5), 625–639.

Singh, J. A., Saag, K. G., Bridges, Jr, S. L., Akl, E. A., Bannuru, R. R., Sullivan, M. C., . . . McAlindon, T. (2015). 2015 American College of Rheumatology Guideline for the Treatment of Rheumatoid Arthritis. *Arthritis Care & Research*. doi:DOI 10.1002/acr.22783

Smolen, J. S., Breedveld, F. C., Burmester, G. R., Bykerk, V., Dougados, M., Emery, P., . . . van der Heijde, D. (2016). Treating rheumatoid arthritis to target: 2014 update of the recommendations of an international task force. *Ann Rheum Dis*, *75*, 3–15.

Smolen, J. S., Landewe, R., Bijlsma, J., Burmester, G., Chatzidionysiou, K., Dougados, M., . . . van der Heijde, D. (2017). EULAR recommendations for the management of rheumatoid arthritis with synthetic and biological disease-modifying antirheumatic drugs: 2016 update. *Ann Rheum Dis*, *76*, 960–977. doi:960–977

Smolen, J. S., Strand, V., Koenig, A. S., Szumski, A., Kotak, S., & Jones, T. V. (2016). Discordance between patient and physician assessments of global disease activity in rheumatoid arthritis and association with work productivity. *Arthritis Research & Therapy*, *18*(1), 114. Retrieved 2 4, 2018, from <https://link.springer.com/article/10.1186/s13075-016-1004-3>

Sparks JA, C. S. (2016, Jun). Rheumatoid Arthritis and Mortality Among Women During 36 Years of Prospective Follow-Up: Results From the Nurses' Health Study. *Arthritis Care Res (Hoboken)*, *68*(6), 753–62.

Spurgeon, L., Humphreys, G., James, G., & Sackley, C. (2012). A Q-Methodology Study of Patients' Subjective Experiences of TIA. *Stroke Research and Treatment*, *2012*, 486261-486261. Retrieved 2 3, 2018, from <https://ncbi.nlm.nih.gov/pubmed/22848864>

Steunebrink, L. M., Vonkeman, H. E., Klooster, P. M., Hoekstra, M., Riel, P. L., & Laar, M. A. (2016). Recently diagnosed rheumatoid arthritis patients benefit from a treat-to-target strategy: results from the DREAM registry. *Clinical Rheumatology*, *35*(3), 609–615. Retrieved 2 3, 2018, from <https://ncbi.nlm.nih.gov/pmc/articles/pmc4785198/table/tab2>

Stoffer, M., Schoels, M., Smolen, J. S., Aletaha, D., Breedveld, F. C., Burmester, G. R., . . . Stamm, T. (2016). Evidence for treating rheumatoid arthritis to target: results of a systematic literature search update. *Annals of the Rheumatic Diseases*, *69*(4), 16–22. Retrieved 2 4, 2018, from <https://ncbi.nlm.nih.gov/pmc/articles/pmc3015093>

Szady, P., Baczyk, G., & Kozłowska, K. (2017). Fatigue and sleep quality in rheumatoid arthritis patients during hospital admission. *Reumatologia*, *55*(2), 65–72.

ten Brinck, R. M., Steenbergen, H. W., Mangnus, L., Burgers, L. E., Reijnierse, M., Huizinga, T. W., & Mil, A. H.-v. (2017). Functional limitations in the phase of clinically suspect arthralgia are as serious as in early clinical arthritis; a longitudinal study. *RMD Open*, *3*(1), e000419. Retrieved 2 3, 2018, from <http://rmdopen.bmj.com/content/3/1/e000419>

Ten Cate, D. F., Jacobs, J. W., Swen, W. A., Hazes, J. M., de Jager, M. H., Basoski, N. M., . . . Gerards, A. H. (2018). Can baseline ultrasound results help to predict failure to achieve DAS28 remission after 1 year of tight control treatment in early RA patients? *Arthritis Research & Therapy*, *20*(15).

Thomsen, T., Aadahl, M., Beyer, N., Hetland, M. L., Loppenthin, K., Midtgaard, J., . . . Esbensen, B. A. (2017). The efficacy of motivational counselling and SMS reminders on daily sitting time in patients with rheumatoid arthritis: a randomised controlled trial. *Ann Rheum Dis*, *76*, 1603–1606.

Townsend, A., Backman, C. L., Adam, P., & Li, L. C. (2013). A qualitative interview study: patient accounts of medication use in early rheumatoid arthritis from symptom onset to early postdiagnosis. *BMJ Open*, *3*(2), 150–150. Retrieved 2 4, 2018, from <https://ncbi.nlm.nih.gov/pubmed/23408077>

Tracey, G. (2017, June). Diagnosis and Management of Rheumatoid Arthritis. *Prescriber*, 13–19.

Tracy, A., Buckley, C. D., & Raza, K. (2017). Pre-symptomatic autoimmunity in rheumatoid arthritis: when does the disease start? *Seminars in Immunopathology*, 39(4), 423–435. Retrieved 2 3, 2018, from <https://link.springer.com/article/10.1007/s00281-017-0620-6>

van Mierlo, T., Fournier, R., & Ingham, M. (2015). Targeting Medication Non-Adherence Behavior in Selected Autoimmune Diseases: A Systematic Approach to Digital Health Program Development. *PLOS One*, 10(6), e0129364.

van Steenbergen, H. W., Aletaha, D., Beart-van de Voorde, L. J., Brouwer, E., Codreanu, C., Combe, B., . . . van der Helm-van Mil, A. H. (2017). EULAR definition of arthralgia suspicious for progression to rheumatoid arthritis. *Annals of the Rheumatic Diseases*, 76(3), 491–496. Retrieved 2 3, 2018, from <http://ard.bmj.com/content/annrheumdis/76/3/491.full.pdf>

van Steenbergen, H. W., Huizinga, T. W., & van der Helm-van Mil, A. H. (2013). The Preclinical Phase of Rheumatoid Arthritis: What is Acknowledged and What Needs to be Assessed? *Arthritis & Rheumatism*, 65(9), 2219–2232.

van Steenbergen, H. W., Tsonaka, R., Huizinga, T. W., Boonen, A., & van der Helm-van Mil, A. H. (2015). Fatigue in rheumatoid arthritis; a persistent problem: a large longitudinal study. *RMD Open*, 1(1). Retrieved 2 3, 2018, from <https://ncbi.nlm.nih.gov/pubmed/26509063>

van Zanten, A., Arends, S., Roozendaal, Limburg, P. C., Maas, F., Trouw, L. A., . . . Brouwer, E. (2017). Presence of anticitrullinated protein antibodies in a large population-based cohort from the Netherlands. *Ann Rheum Dis*, 76, 1184–90. doi:10.1136/annrheumdis-2016-209991

Varela-Rosario N, A.-Á. M.-J.-C.-R. (2017). Long-Term Outcomes in Puerto Ricans with Rheumatoid Arthritis (RA) Receiving Early Treatment with Disease-Modifying Anti-Rheumatic Drugs using the American College of Rheumatology Definition of Early RA. *Open Rheumatol J.*, 11, 136–144. doi: 10.2174/1874312901711010136

Ven, M. v., Veer-Meerkerk, M. v., Cate, D. F., Rasappu, N., Kok, M. R., Csakvari, D., . . . Luime, J. J. (2017). Absence of ultrasound inflammation in patients presenting with arthralgia rules out the development of arthritis. *Arthritis Research & Therapy*, 19(1), 202. Retrieved 2 3, 2018, from <http://paperity.org/p/81607082/absence-of-ultrasound-inflammation-in-patients-presenting-with-arthralgia-rules-out-the>

Wailoo, A., Hock, E. S., Stevenson, M., Martyn-St James, M., Rawdin, A., Simpson, E., . . . Young, A. (2017). The clinical effectiveness and cost-effectiveness of treat-to-target strategies in rheumatoid arthritis: a systematic review and cost-effectiveness analysis. *Health Technology Assessment*, 21(71).

Ward, M. M., Guthrie, L. C., & Alba, M. I. (2015, May). Patient-reported improvement in rheumatoid arthritis is associated with different measures of arthritis activity when assessed prospectively versus retrospectively: The Value of Patient Subjective Judgments of Improvement. *Arthritis Care REs (Hoboken)*, 67(6), 776–781.

Ward, M. M., Hu, J., Guthrie, L. C., & Alba, M. (2018). Testing the construct validity of a health transition question using vignette-guided patient ratings of health. *Health and Quality of Life Outcomes*, 16(2).

Wasko, M. C., Dasgupta, A., Hubert, H., Fries, J. F., & Ward, M. M. (2013, February). Propensity-adjusted association of methotrexate with overall survival in rheumatoid arthritis. *Arthritis Rheum*, 65(2), 334–342.

Zelaya, C. E., Dahlhamer, J. M., & Lucas, J. W. (2017, July). QuickStats: Age-Adjusted Percentage of Adults Aged ≥18 Years Who Were Never in Pain, in Pain Some Days, or in Pain Most Days or Every Day in the Past 6 Months, by Employment Status — National Health Interview Survey, United States, 2016. *MMWR Morb Mortal Wkly Rep.*, 66(29), 796. doi:10.15585/mmwr.mm6629a8

Zhang, Y., Lu, N., Peloquin, C., Dubreuil, M., Neogi, T., Avina-Zubieta, J. A., . . . Choi, H. K. (2017, Feb). Improved survival in rheumatoid arthritis: a general population-based cohort study. *Ann Rheum Dis*, 76(2), 408–413.

