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# Wait Times to Rheumatology and Rehabilitation Services for Persons with Arthritis in Quebec

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# Wait Times to Rheumatology and Rehabilitation Services for Persons with Arthritis in Quebec

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# Résumé

L'arthrite est l'une des causes principales de douleur et d'incapacité auprès de la population canadienne. Les gens atteints d'arthrite rhumatoïde (AR) devraient être évalués par un rhumatologue moins de trois mois suivant l'apparition des premiers symptômes et ce afin de débuter un traitement médical approprié qui leur sera bénéfique. La physiothérapie et l'ergothérapie s'avèrent bénéfiques pour les patients atteints d'ostéoarthrite (OA) et d'AR, et aident à réduire l'incapacité. Notre étude a pour but d'évaluer les délais d'attente afin d'obtenir un rendez-vous pour une consultation en rhumatologie et en réadaptation dans le système de santé public québécois, et d'explorer les facteurs associés.

Notre étude est de type observationnel et transversal et s'intéresse à la province de Québec. Un comité d'experts a élaboré trois scénarios pour les consultations en rhumatologie : AR présumée, AR possible, et OA présumée ; ainsi que deux scénarios pour les consultations en réadaptation : AR diagnostiquée, OA diagnostiquée. Les délais d'attente ont été mesurés entre le moment de la requête initiale et la date de rendez-vous fixée. L'analyse statistique consiste en une analyse descriptive de même qu'une analyse déductive, à l'aide de régression logistique et de comparaison bivariée.

Parmi les 71 bureaux de rhumatologie contactés, et pour tous les scénarios combinés, 34% ont donné un rendez-vous en moins de trois mois, 32% avaient une attente de plus de trois mois et 34% ont refusé de fixer un rendez-vous. La probabilité d'obtenir une évaluation en rhumatologie en moins de trois mois est 13 fois plus grande pour les cas d'AR présumée par rapport aux cas d'OA présumée (OR=13; 95% Cl [1.70;99.38]).

Cependant, 59% des cas d'AR présumés n'ont pas obtenu rendez-vous en moins de trois mois. Cent centres offrant des services publics en réadaptation ont été contactés. Pour tous les scénarios combinés, 13% des centres ont donné un rendez-vous en moins de 6 mois, 13% entre 6 et 12 mois, 24% avaient une attente de plus de 12 mois et 22% ont refusé de fixer un rendez-vous. Les autres 28% restant requéraient les détails d'une évaluation relative à l'état fonctionnel du patient avant de donner un rendez-vous. Par rapport aux services de réadaptation, il n'y avait aucune différence entre les délais d'attente pour les cas d'AR ou d'OA.

L'AR est priorisée par rapport à l'OA lorsque vient le temps d'obtenir un rendez-vous chez un rhumatologue. Cependant, la majorité des gens atteints d'AR ne reçoivent pas les services de rhumatologie ou de réadaptation, soit physiothérapie ou ergothérapie, dans les délais prescrits. De meilleures méthodes de triage et davantage de ressources sont nécessaires.

**Mots-clés** : Arthrite rhumatoïde, Ostéoarthrite, Délais d'attente, Rhumatologie, Soins spécialisés, Physiothérapie, Ergothérapie, Priorisation.

# Abstract

Arthritis is a leading cause of pain and disability in Canada. Persons with rheumatoid arthritis (RA) should be seen by a rheumatologist within three months of symptom onset to begin appropriate medical treatment and improve health outcomes. Early physical therapy (PT) and occupational therapy (OT) are beneficial for both osteoarthritis (OA) and RA and may prevent disability. The objectives of the study are to describe wait times from referral by primary care provider to rheumatology and rehabilitation consultation in the public system of Quebec and to explore associated factors.

We conducted a cross-sectional study in the province of Quebec, Canada whereby we requested appointments from all rheumatology practices and public rehabilitation departments using case scenarios that were created by a group of experts. Three scenarios were developed for the rheumatology referrals: Presumed RA; Possible RA; and Presumed OA and two scenarios for the rehabilitation referrals: diagnosed RA and diagnosed OA. Wait times were evaluated as the time between the initial request and the appointment date provided. The statistical analysis consisted primarily of descriptive statistics as well as inferential statistics (bivariate comparisons and logistic regression).

Seventy-one rheumatology practices were contacted. For all scenarios combined, 34% were given an appointment with a rheumatologist within three months of referral, 32% waited longer than three months and 34% were refused services. The odds of getting an appointment with a rheumatologist within three months was 13 times greater for the

Presumed RA scenario versus the Presumed OA scenario (OR=13; 95% Cl[1.70;99.38]). However, 59% of the Presumed RA cases did not receive an appointment within three months. One hundred rehabilitation departments were also contacted. For both scenarios combined, 13% were given an appointment within 6 months, 13% within 6 to 12 months, 24% waited longer than 12 months and 22% were refused services. The remaining 28% were told that they would require an evaluation appointment based on functional assessment prior to being given an appointment. There was no difference with regards to diagnosis, RA versus OA, for the rehabilitation consultation.

RA is prioritized over OA when obtaining an appointment to a rheumatologist in Quebec. However, the majority of persons with RA are still not receiving rheumatology or publicly accessible PT or OT intervention in a timely manner. Better methods for triage and increased resource allocation are needed.

**Keywords**: Rheumatoid Arthritis, Osteoarthritis, Wait Times, Rheumatology, Specialist Care, Physical Therapy, Occupational Therapy, Prioritization.

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# List of Abbreviations

| | |
|---|---|
| ACAP | Alliance for the Canadian Arthritis Program |
| ADL | Activities of Daily Living |
| CI | Confidence Intervals |
| CSSS | Centre de santé et services sociaux (Heath and Social Service Centre) |
| CRP | C-Reactive Protein |
| DMARD | Disease-Modifying Anti-Rheumatic Drugs |
| ESR | Estimate Sedimentation Rate |
| NP | Nurse Practitioner |
| NSAID | Non-Steroidal Anti-Inflammatory Drug |
| OA | Osteoarthritis |
| OR | Odds Ratio |
| OT | Occupational Therapy |
| PT | Physical Therapy |
| RA | Rheumatoid Arthritis |
| RF | Rheumatoid Factor |
| SES | Socioeconomic Status |
| UK | United Kingdom |
| ULN | Upper Limit of Normal |

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# Chapter 1: Introduction

In 2004, Canada's First Ministers concluded A Ten-Year Plan to Strengthen Health Care, stating that improving access to care and reducing wait times were of national concern and a clear priority[1]. Governments, health care professionals and Canadians have since struggled with the problem of wait times in several areas of the health care system and it has become increasingly relevant to report on provincial wait times in the public system in view of bringing change and improving wait times for Canadians.

Arthritis is a leading causes of pain and disability in Canada and "despite the efforts to reduce the impact of arthritis on Canadians, it remains common, costly, and disabling" according to the Chief Public Health Officer[2]. Arthritis includes more than a 100 conditions that affect one or more joints as well as the tissues surrounding the joint, causing pain, swelling and stiffness[3]. The two most common types of chronic arthritis are osteoarthritis (OA) and rheumatoid arthritis (RA)[4]. A recent national report titled: "2010 Life with Arthritis in Canada: A personal and public health challenge" provides an overview of the burden of arthritis on the Canadian population and underscores the importance and benefits of early intervention for persons with arthritis[2].

Canadian Standards for Arthritis require that patients with suspected inflammatory arthritis, such as RA, obtain definitive diagnoses and treatment within four weeks of presentation to medical care[5]. Generally, this requires rheumatology consultation[6]. Canadian rheumatologists report that once they are aware of an urgent referral, they will see that referral within two weeks or less[7]. However, what happens in reality is unknown.

Physical rehabilitation services, such as physical therapy (PT) and occupational therapy (OT), are beneficial for OA[2, 8-10] as well as inflammatory arthritis such as RA[2, 8-10]. Effectiveness of PT and OT interventions has been demonstrated[11-13], however, there are problems with access to these services[14, 15].

Not much is known about wait times in the public system for chronic conditions, such as arthritis, in Quebec. Despite this, significant literature has been built around the importance of early access to both specialist and rehabilitation care for persons with arthritis and specifically RA.

In this thesis, I will address the issues of wait times to rheumatology and rehabilitation services for persons with RA and OA in the public system of Quebec. I will begin by presenting the available literature on the subject in Chapter 2 followed by the specific objectives and hypotheses of my study in Chapter 3. Chapter 4 will consist of the methods used to carry out these objectives. In Chapters 5 and 6, I will present two manuscripts, the first addressing the rheumatology component (access to specialist care) and the second addressing the rehabilitation component (access to PT and OT). Chapter 7 comprises a general discussion based on the results presented, the clinical implications and the direction of future research. Lastly, a conclusion is found in Chapter 8.

# Chapter 2: Literature Review

## 2.1 Magnitude of the Problem

Musculoskeletal diseases are the most common cause of severe long-term pain and physical disability and pose a considerable burden on both primary and secondary health care[16, 17]. They are also the most costly group of diseases in Canada[2] and consist of a broad range of disorders affecting the bones, muscles, ligaments and joints. Arthritis accounts for almost one third of the total cost of musculoskeletal diseases in Canada and its greatest economical burden is attributed to long-term disability[2]. People living with arthritis suffer from pain, impaired physical function and reduced quality of life, particularly with respect to their social, psychological and financial well-being. More than 4.2 million Canadians live with some form of arthritis and the economical burden of this disease in 2000 was estimated to be $6.4 billion in direct (hospital care, drugs, physician billing, and additional health care expenditure) and indirect (lost productivity, injury, morbidity and mortality) costs[2]. Arthritis is a serious economic and health burden to our society.

## 2.2 Arthritis

There are several types of arthritic conditions. The two main types of arthritis are rheumatoid arthritis (RA) and osteoarthritis (OA). In the next sections, I will describe these two conditions in terms of their disease presentation, epidemiology, diagnosis and treatment.

### *2.2.1 Rheumatoid Arthritis*

#### *2.2.1.1 Disease Presentation and Epidemiology*

Rheumatoid arthritis is defined as a chronic, symmetric and destructive polyarthritis caused by systemic inflammatory and proliferative formation of synovial tissue that primarily affects one or more joints, but can also affect other organs[18]. Although the exact cause is unknown, it is thought to be multifactorial and the result of an autoimmune response in a genetically susceptible individual. The genetically predisposed individual exposed to environmental triggers (such as smoking) will be more likely to develop RA[19, 20].

RA usually presents with painful swollen joints and morning stiffness[21]. The inflammatory process causes painful swelling that can lead to the progressive destruction of ligaments, cartilage and bone[3]. The pain and joint destruction inflicted by RA can significantly reduce functional capacity and cause joint instability, contractures and muscle atrophy. The joints typically affected are the proximal inter-phalyngeals, meta-carpophalyngeals, wrists, knees, ankles, meta-tarsophalyngeals and cervical spine. It can also lead to nodule formation that affect the skin, tendons, heart or lungs and sometimes cause systemic illnesses such as vasculitis and predispose those affected to some forms of cancer (i.e lymphomas).

The prevalence of RA in the developed world is between 0.5% and 1% of the population, affecting women twice as much as men, and the incidence is 32.7 new cases per 100,000[4]. There is a 50% increased risk of premature mortality for persons with RA and

life expectancy is decreased by three to ten years[22]. The predominant conditions contributing to the comorbidity and mortality of RA are infections, renal impairment, lymphomas, and cardiovascular disease[23].

#### *2.2.1.2 Diagnosis of Rheumatoid Arthritis*

The 2010 diagnostic criteria for RA from the American College of Rheumatology and the European League Against Rheumatism states that definite RA is based upon the presence of synovitis in at least one joint, the absence of an alternative diagnosis better explaining the synovitis, and achievement of a total score of at least six (out of ten) from the individual scores in four domains[24]. The highest score achieved in a given domain is used for this calculation.

These domains and their values are as follows:

1. Number and site of involved joints
    a. 2 to 10 large joints (from among shoulders, elbows, hips, knees, and ankles) = 1 point
    b. 1 to 3 small joints (from among the metacarpophalangeal joints, proximal interphalangeal joints, second through fifth metatarsophalangeal joints, thumb interphalangeal joints, and wrists) = 2 points
    c. 4 to 10 small joints = 3 points
    d. Greater than 10 joints (including at least one small joint) = 5 points

2. Serological abnormality (rheumatoid factor or anti-citrullinated peptide/protein antibody)
    a. Low positive (above the upper limit of normal (ULN)) = 2 points
    b. High positive (greater than 3 times the ULN) = 3 points
3. Elevated acute phase response (erythrocyte sedimentation rate or C-reactive protein) (above the ULN = 1 point)
4. Symptom duration (at least six weeks = 1 point)

In addition to the criteria above, which are best suited to patients with newly presenting disease, the following persons are classified as having RA:

- Persons with erosive disease typical of RA with a history compatible with prior fulfillment of the criteria above
- Persons with longstanding disease, including those whose disease is inactive (with or without treatment) who have previously fulfilled the criteria above based upon retrospectively available data.

#### *2.2.1.3 Treatment of Rheumatoid Arthritis*

Possible treatments for RA include medication, exercise prescription, rehabilitation, counseling, maintaining a healthy weight, and self-management education[2].

There are five main types of drugs used to treat arthritis: analgesics, non-steroidal anti-inflammatory drugs (NSAIDs), corticosteroids, non-biologic disease-modifying anti-rheumatic drugs (DMARDs) and biologic response modifiers[2]. The pharmacological

treatment varies depending on the severity of RA. Treatment of mild to moderate RA includes NSAIDs, DMARDs or a combination of both[25]. Severe cases of RA or milder cases that fail to respond to first line therapy are treated with potent biological agents[25].

Early, aggressive treatment initiated by a rheumatologist has been shown to prevent joint damage, slow progression of disease and increase quality of life[26-28]. Treatment with DMARDs, which are a mainstay of therapy for RA[29], work to suppress the body's overactive immune or inflammatory systems[30] and should be used under the supervision of a rheumatologist[31]. DMARDs interfere with various pathways in the inflammatory cascade by decreasing cellular proliferation, lessening auto-antibody response and reducing production of inflammatory molecules and have been shown to slow down progression of RA[32]. Milder forms of disease are treated by either antimalarial agents or sulfasalazine. The former includes agents such as chloroquine and hydroxychloroquine which are usually well tolerated but are prone to cause retinal toxicity which requires frequent ophthalmological examination[33]. Sulfasalazine, which has little systemic side effects, acts as a free radical scavenger that is thought to reduce inflammation and has been used successfully in both patients with inflammatory bowel disease and milder cases of RA. Moderate forms of RA are usually treated by a drug called methotrexate, a folate antimetabolite that inhibits DNA synthesis, either alone or in combination with the above[34]. Side effects include liver, bone marrow and fetal toxicity, and its effects should be assessed on a regular basis. DMARDs take effect over weeks or months and are not designed to provide immediate relief of symptoms which is why they are often paired with the use of

corticosteroids and NSAIDs in the management of RA. Ultimately, DMARDs work to decrease pain and inflammation, reduce or prevent joint damage, and preserve the structure and function of the joints[30].

Corticosteroid, such as prednisone, are potent agents that are used a bridge until DMARDs take their full effects, which can be well over 4 weeks[35]. Their use is limited by their extensive side effect profile associated with more chronic use. Corticosteroids can cause skeletal fractures, gastrointestinal bleeding, diabetes mellitus, infections, cataracts and adrenal insufficiency.

NSAIDs, such as ibuprofen or naproxen, work by reducing the production of inflammatory molecules, called prostaglandins, and primarily help to reduce pain. Common side effects include gastrointestinal irritation and bleeding, as well as renal failure and exacerbation of underlying ischemic heart disease[36].

More severe forms of RA require the addition of potent agents called *biologics* (or biological DMARDs) because there are derived from live organisms[37]. These agents include Anti Tumor Necrosis Factor (Etanercept, Infiximab), Anti Interleukin 1 (Anakinra), or Anti Lymphocyte (Rituximab). They work by antagonizing specific cells of the immune system or blocking the inflammatory cascade. They lead to a more pronounced suppression of the immune system and have been shown to reduce the progression of disease. Infections are frequent side effects and malignancies are not uncommon after prolonged use[37].

Non pharmacological treatment such as physical therapy (PT) and occupational therapy (OT) should also be considered when persons with RA are experiencing ongoing

inflammation or joint damage[38]. PT and OT provide various services including education, exercise instruction, joint protection, assessment and prescription of assistive devices and introduction of self-management programs[9, 12, 13, 39]. They use physical modalities such as the application of heat or cold and ultrasound, which are useful for persons with RA[40-42]. PT and OT can also significantly improve functional and work-related outcomes by using targeted and comprehensive patient assessments, educating patients about joint protection and self care, and providing assistive devices and splints[43]. Exercise programs devised by a PT that include strength training, aerobics, and stretching have been shown to affect outcomes and increase quality of life[44-47]. Stenstrom found that aerobic and dynamic exercises were best to prevent functional decline in persons with RA[44]. Evidence supports the use of therapeutic exercise, especially knee functional strengthening, total-body functional strengthening, and general physical activity in the management of RA[48]. Particularly for RA, a low-intensity exercise program favors decreased pain and improved functional status as compared to a high-intensity program which may exacerbate the inflammatory process and risk damage to the affected joints[48]. A systematic review of the literature found that OT improves the functional ability of persons with RA by decreasing pain and increasing grip strength[49]. A Cochrane review conducted a few years later concluded similar results in that OT has a positive effect on functional ability by improving activities of daily living (ADLs) and decreasing pain in patients with RA[50]. The strongest evidence was for the efficacy of instruction on joint protection technique[50].

Maintaining a healthy weight and the participation in self-management education programs are other management strategies that help reduce the burden of disease[2]. Educating patients about the disease course and treatment options, teaching coping strategies to deal with pain and disability, and using cognitive-behavioural therapy and biofeedback have been shown to increase quality of life[51].

### *2.2.2 Osteoarthritis*

#### *2.2.2.1 Disease Presentation and Epidemiology*

OA, sometimes referred to as degenerative joint disease, results from a gradual deterioration of articular cartilage and the thickening of the bone underneath caused from a wear-and-tear mechanism[3]. This mechanism causes an alteration with the alignment, muscle strength, lubrication (provided by the synovial fluid) and the shock-absorbency (provided by the bone and cartilage) of the joint affected[52]. Although it is considered a chronic and slowly progressing disease, it may present with suddenly worsening pain and swelling. The vast majority of OA cases are thought to be idiopathic in nature. Some cases result from systemic disease altering the bone structure but their incidence is small. Risk factors for OA include advanced age, genetic predisposition, ethnicity, hormonal status, nutritional deficiencies, bone density, local biomechanical factors, and joint trauma[3, 52]. Local biomechanical factors include altered joint biomechanics, previous injuries, the effects of physical activity, sport participation, occupation, developmental abnormalities and obesity[52].

It is estimated that 80% of the population aged over 65 years old has some evidence of OA. However, it can also occur in younger persons. Symptomatic knee OA affects an estimated 6% of persons aged 30 and over and 10-15% of adults aged over 60. Symptomatic hip OA occurs in 1-4% of adult and hand OA in 10-15%. At least 33% of persons over 55 have radiographic evidence of OA, although the majority remain asymptomatic[52]. Persons with OA were found to have excess mortality rates due to associated cardiovascular disease and dementia[53, 54].

#### *2.2.2.2 Diagnosis of Osteoarthritis*

The diagnosis of OA is a gestalt of clinical, historical, and laboratory features. OA does not affect all joints equally and has a predilection for the fingers, knees, hips, and spine, and rarely affects the elbow, wrist, and ankle[52]. Pain is the main symptom and is typically exacerbated by activity and relieved by rest. Inflammatory markers in blood and joint fluid are usually normal or minimally elevated [55-57]. Clinical and radiographic findings do not always correlate in the diagnosis of OA[55].

#### *2.2.2.3 Treatment of Osteoarthritis*

Treatment strategies for OA include both pharmacological and non-pharmacological options[58]. Pharmacological treatment consists of analgesics (such as acetaminophen), NSAIDs (such as ibuprofen or naproxen), as well as intra-articular corticosteroid injections,

which have all been shown to significantly decrease pain[59, 60] and can be prescribed by a primary care provider or rheumatologist.

Persons with OA are often managed by their primary care provider and referred to PT and OT for treatment. Similarly to RA, PT and OT provide various services including education, exercise instruction, joint protection, assessment and prescription of assistive devices and introduction of self-management programs, which are beneficial[8, 10, 11]. Improving range of motion (ROM) and muscle strength through well designed exercise will decrease joint pain and increase mobility[11]. Modalities such as heat or cold and ultrasound have also proven useful for persons with OA[61, 62]. PT and OT can also significantly improve functional and work-related outcomes by using targeted and comprehensive patient assessments, educating patients about joint protection and self care, and providing assistive devices and splints[43].

Weight loss and the maintenance of a healthy weight through dieting and exercise have also been shown to have potential benefits[63]. Participation in self-management education programs can lead to significant improvements in pain and functional scores[64]. Educating patients about the disease course and treatment options, teaching coping strategies to deal with pain and disability, and using cognitive-behavioural therapy and biofeedback have been shown to increase quality of life[51].

Persons with OA who fail to respond to conventional treatment or suffer from ongoing pain despite pharmacological and non-pharmacological therapy are candidates for surgical interventions[10, 65]. It has been shown that joint replacement of the hip or knee

reduces pain and improves functional status for at least five years in the majority of patients[66]. Other surgical options such as arthroscopic lavage and debridement are less invasive but do not necessarily alter disease progression of OA[67]. Cost-effectiveness analyses have shown joint replacement to be cost-saving or cost-equivalent (compared to nonoperative management) especially if there is a greater functional limitation pre-operatively[68]. Effective nonoperative treatment of OA includes rehabilitation, activity modification, weight loss, adaptive equipment, analgesics, interarticular injections, etc.[11].

**2.3 Benefits of Early Management**

Persons with inflammatory arthritis, such as RA, should be seen by healthcare professionals early to begin appropriate treatment and improve health outcomes[5]. According to the standards for Arthritis Prevention and Care issued by the Alliance for the Canadian Arthritis Program (ACAP), patients with suspected inflammatory arthritis should obtain definitive diagnoses and appropriate treatment within four weeks of presentation to a healthcare professional[5]. Generally, this requires consultation with a rheumatologist[6] as they are adept at diagnosing and managing inflammatory arthritic conditions and well-versed in the current standards for pharmacologic treatment.

A significant body of literature suggests delayed initiation of treatment may have detrimental effects on disease activity, functional capacity, radiographic changes, and the induction of remission[69-72]. Therefore, patients with inflammatory arthritis should be seen by a specialist within three months of diagnosis to begin early and aggressive medical

treatment with DMARDs in order to slow or even prevent the process of joint destruction and disability[73-78]. Quality of care and health outcomes are better for RA patients who have contact with a rheumatologist compared to those who do not[72, 79]. This contact should be established as early as possible because once patients are seen by rheumatologists, there tends to be little delay to diagnosis and treatment[77].

There are no clear-cut recommendations for early access to rheumatology for persons with OA. The literature suggests that OA can be managed by a primary care provider, however the British Columbia Guidelines for OA indicates that a referral to rheumatology may also be useful to diagnose unusual presentations of OA and optimize pharmacological treatment[80]. One study showed that the tendency to refer persons with osteoarthritis to rheumatology was greater than orthopedics (approximately 17-24% to orthopedics versus 44-56% to rheumatology)[81]. Persons with OA may only be referred to an orthopedic surgeon in severe cases, which likely require surgical intervention as mentioned in section 2.2.2.3. Regardless of the type of care provider, early treatments and lifestyle changes such as maintaining a healthy body weight and avoiding joint stress may help reduce or even prevent the burden of OA[2].

Besides access to a rheumatologist, persons with arthritis (RA and OA) may benefit from physical rehabilitation services such as PT and OT. The main goals of PT and OT intervention are to decrease pain, prevent deformity, preserve or improve function, and promote participation in ADLs as well as both vocational and leisure activities[2, 8-10, 12, 62, 82].

Early intervention, such as educational programs and splinting, with PT or OT may help improve the quality of life of person with arthritis[83, 84].

**2.4 Components of Wait Times**

The care trajectories for persons with arthritis are composed of several stages which can each contribute to the wait times to rheumatology and rehabilitation consultation. The successful delivery of these services would begin with a person's recognition of symptoms and presentation to a primary care provider. The primary care provider would then conduct appropriate investigations and refer to a rheumatologist if arthritis, particularly RA, is suspected. The rheumatologist would then provide a diagnosis and begin appropriate pharmacological treatment as well as non-pharmacological treatment, which may include referral to rehabilitation services, community resources or orthopaedic surgery (if it was not already done by the primary care provider). There are many opportunities for delays within this trajectory: the wait time from symptom onset to initial consultation with a primary care provider, the wait time from primary care provider consultation until referral to rheumatology and/or rehabilitation services and finally, our focus, the wait time from referral by primary care provider until rheumatology and rehabilitation consultation.

In terms of rehabilitation services (PT and OT) persons with arthritis may access public (insured under the public provincial health insurance program – the Régie d'assurance maladie du Québec) rehabilitation services through referral from their physician (family physician or specialist) or private services (whereby the patient is

required to pay themselves, or may have supplementary insurance coverage). In the case of private services, PT and OT can be accessed directly without a referral.

**2.5 Referral to Rheumatology Services**

RA is the most common inflammatory arthropathy that primary care providers encounter. The vast majority (91%) of Canadian rheumatologists surveyed say that, once aware of an urgent RA referral, they will see the referred patient within two weeks or less[7]. Nevertheless, evidence in Canada shows that early consultation with a rheumatologist remains problematic[85, 86].

Several studies have evaluated the wait time from symptom onset to initial consultation with a primary care provider, as well as the wait time from initial consultation until the commencement of appropriate DMARD treatment (which usually occurs under the care of a rheumatologist)[73, 74, 87]. A recent retrospective cohort study in the Greater Toronto Area concluded that less than a quarter (23%) of patients referred to rheumatologists were treated within three months of symptom onset and the mean time from symptom onset to initiation of DMARDs was 6.4 months[77]. Similarly, a national multi-centered study revealed that only 18.1% are treated with DMARDs within the three-month "window of opportunity"[87]. This study also concluded that the major component of the lag-time to obtain appropriate treatment occurs prior to rheumatology referral (78%): primary care delays to rheumatology referral account for 51% of the total lag-time and the remaining 27% may be due to delays in seeing a primary care practitioner[12]. In Quebec, one must be

referred by a primary care provider in order to see a rheumatologist. According to one study, wait times between the referral by the primary care provider and the rheumatology consultation account for only 14% of the total lag-time to begin appropriate treatment[12].

A study of Quebec administrative data suggested that only 27% of persons with newly suspected RA consulted with a rheumatologist and for those who did consult, time to consultation was lengthy[88]. However, this study was based on physician billing data; quality control of diagnostic coding and absence of severity indicators therefore limit the conclusions. The issue was pursued further, by exploring time of consultation with a rheumatologist for patients with a confirmed diagnosis of inflammatory arthritis, as well as factors associated with rapidity of consultation[89]. The investigation was conducted on patients recruited to an early inflammatory arthritis registry in Quebec. Even within the context of an "early" arthritis registry, the mean time from symptom onset to rheumatology consultation was 4.4 months and 59.9% of patients consulted rheumatologists past the three month recommended window[89]. In a study conducted in the United Kingdom, 53.4% of patients with inflammatory arthritis were seen by a rheumatologist within six weeks of referral by the family physician, 31.1% were seen between six and 12 weeks and 15.5% waited longer than 12 weeks[90]. The "rate limiting steps" appear to be the time from symptom onset to primary care consultation, and time from primary care consultation to referral by the primary care provider to the rheumatologist[91]. Nevertheless, there is still some improvement that can be made with respect to the wait from referral to rheumatology

and consultation with the rheumatologist. Furthermore, this may be one component that may be more easily amenable to improvement.

The manpower shortage of Canadian rheumatologists[18] as well as factors related to the physician, the clinical setting, and regional location (i.e. urban vs. rural), likely influence wait time to a rheumatologist and then the referral behaviour of a physician[4]. Over-reliance on the results of laboratory tests, such as rheumatoid factor, may result in sub-optimal use of referrals[5,6]. There is also evidence that demographics are important as elderly patients with RA may have decreased access to care[7] and there may also be bias related to patient-sex, although there is conflicting evidence as to the direction of the latter [8,9]. Moreover, a study evaluating the variations in referral rates of general practitioners to specialists found that general practitioners were influenced by patient-associated factors, provider associated factors and case-specific factors (i.e. type of condition or office)[92].

**2.6 Referral to Rehabilitation Services**

Effectiveness of PT and OT interventions has been demonstrated for both RA and OA[11-13], however, there are problems with access to such services[14, 15]. This is especially problematic in view of the increasing prevalence of chronic arthritis as well as the economic burden associated with these disabling diseases[2].

Although not documenting actual wait times to receive services, Beatty et al. reported that among the 32.2% of patients with arthritis (RA or OA) who felt that they needed rehabilitation services (including PT, OT and assistive devices), only 58.3%

actually received these services[14]. Another study reported similar results: among 39% of patients with arthritis (RA or OA) who felt they needed rehabilitation services, including PT and OT, only 61% received it[15].

A physician survey in Quebec demonstrated that general practitioners do not tend to refer persons with RA for PT or OT, but are more likely to do so for persons with OA[93]. The percentage of rheumatologists who referred patients with RA for these services was almost 3 times higher than general practitioners. Physicians who worked in geographic areas that offer rehabilitation services were more likely to refer[93]. Though there is little research on the subject, low referral of patients to rehabilitation may be driven by a lack of understanding of the role of PT and OT[90], especially with regards to RA.

Patient-related factors may also be associated with use of PT and OT. For example, RA patients with lower socioeconomic status (SES) received less allied health care (including PT and OT) than patients with higher SES[23]. Severity and longer duration of the condition as well as insurance status and ability to pay for services were associated with referral to PT for patients with spine disorders[24].

In Quebec, PT and OT are only covered by the public provincial health insurance plan for services received in hospitals, rehabilitation centres, and community health centres[94] (which offer care to homebound persons for the most part and favour persons who have been discharged recently from hospital care or post-operative patients). Most PTs and some OTs work in private clinics[95] where patients either pay for the services themselves, or

have supplemental insurance (often by their employer) that cover a certain number of therapy sessions.

PT and OT play an important role in the prevention and management of symptoms associated with OA and RA and their intervention can potentially keep persons independent longer by promoting activity and participation through their wide variety of treatments[96-98]. With more persons requiring arthritis care, the demands on PT and OT will undoubtedly increase for this population. Further, the availability of publicly insured (by the provincial health insurance board) PT and OT services has decreased in Canada over the past two decades, presenting barriers to access especially for those who do not have supplementary health insurance[99].

**2.7 Prioritization**

In light of the importance of early diagnosis and treatment of RA, the demand for rheumatology consultation has increased making it even more important to develop strategies to assure that appointments are obtained in a standard and prompt fashion. An arthritis cohort study in New Zealand indicated that the only factor predicting earlier treatment for RA was triage allocation based on the requested urgency of the referring physician[100]. De Coster et al. conducted a literature review as part of a larger project to develop a rheumatology priority referral. However, no single priority-setting criterion was identified for rheumatic disorders[101]. Although there is not very much literature on the topic, De Coster et al. as well as two other studies concluded that a structured referral tool

to prioritize referrals is a critical component of improving access to care and the referral process to rheumatology for persons with RA[100-102].

A central access and triage system for specialized medical services was created and implemented in the province of Alberta[81]. This study showed a decreased in the mean wait times for: urgent cases went from 29 to 17 days; moderately urgent cases 110 to 63 days; and non-urgent cases from 155 to 108 days[81]. The McGill University Health Centre (MUHC) in Montreal Quebec, is currently using a rheumatology triage tool in the context of a pilot study[103]. This pilot study suggests that a standardized rheumatology referral form may increase awareness of RA among family physicians and result in quicker rheumatology referral and less dependency on laboratory findings[103].

In the United Kingdom (UK), nurse practitioners (NP) and rehabilitation therapists triage rheumatology referrals using standardized guidelines to help reduce the burden on the rheumatologists[104, 105]. The NP, working independently or in conjunction with a rheumatologist, performs musculoskeletal examinations, monitors progress and offers recommendations with regards to medication. When this service was combined with that of a rheumatologist in the UK, patients reported less pain, better knowledge and greater patient satisfaction[104, 106].

It has also been reported that specially trained PTs in the UK screen and assess orthopaedic referrals which helps to reduce the referrals to the orthopaedics[104, 107]. This screening model reduced referrals to orthopaedic departments by 17% and to rheumatology departments by 8%. Appropriate referral increased from 50% to 90% within two years of

implementation of this model[105]. The Hospital for Sick Children in Toronto, Canada, has a similar system with trained PT and OT practitioners who conduct clinics and provide treatments within and beyond their tradition roles[108]. The parent and patient satisfaction in PT practitioner-led clinics was equally as high as physician-led clinics[109].

Literature is emerging on the topic of rheumatology triage and prioritization in Canada and there is evidence of referral tools being piloted and rehabilitation-led programs to help decrease wait times and reduce the caseload burden of rheumatologists.

**2.8 Summary**

Arthritis is a serious economic and health concern for Canadians. RA is a common chronic disease that should be treated early with DMARDs in order to prevent serious disability and deformity. Early rheumatology consultation for patients with RA is a key part of optimal clinical care, since these specialists are experts in using DMARDs, which prevent joint destruction. Despite this, current evidence shows that early consultation with a rheumatologist in the public system is problematic. Although there is no evidence that persons with OA benefit from early drug treatment, there are benefits with respect to exercise, weight loss, adapted equipment, intra-articular injections and self management programs and beginning these sooner may be beneficial to optimize outcomes.

PT and OT are beneficial for persons with arthritis (RA and OA) and play an important role in the prevention and management of symptoms and their intervention can potentially keep persons independent longer by promoting activity and participation through their wide variety of treatments. There appears to be a lack of publicly accessible

rehabilitation services and community resources for persons with arthritis. The literature suggests that there are problems with regards to accessibility to these services in the public system of Quebec but they have not yet been formally identified.

The care trajectory for persons with arthritis is composed of several stages which can each contribute to the wait time to consultation with a rheumatologist. These include the wait time from symptom onset to initial consultation with a primary care provider, the wait time from primary care provider consultation until referral to rheumatology and finally, our focus, the wait time from referral by primary care provider until rheumatology consultation. Current literature pertaining to rheumatology and rehabilitation referrals in Quebec is based primarily on self-report, surveys and administrative data. The majority of these studies look at time from symptoms onset to referral or time from seeing a family physician until referral to specialist care. However, little is known regarding the reality of wait time from referral to initial consultation with a rheumatologist and rehabilitation services in Quebec. This study addresses this particular gap.

# Chapter 3: Objectives and Hypothesis

## 3.1 Objectives

The main goal of this study is to determine the time to obtain an appointment to rheumatology and rehabilitation services for persons with arthritis, namely RA or OA.

The specific objectives are as follows:

1) To describe wait times from referral by primary care provider to rheumatology consultation in the public system Quebec;
2) To describe wait times from referral by primary care provider to physical or occupational therapy consultation in the public system of Quebec;
3) To explore whether these wait times are associated with referral scenario (i.e. diagnosis), type of office or geographic area.

## 3.2 Hypotheses

The hypotheses of this study were:

1) The wait time to receive an appointment with a rheumatologist will be on average less than three months.
2) The wait times to receive an appointment to physical or occupational therapy will be on average less than six months.
3) Persons with RA will be offered appointments to rheumatology sooner than those with OA. The wait for physical or occupational therapy will be very similar for persons with RA and OA.

# Chapter 4: Methods

The following section describes the methods used for this study. First, the process of obtaining approval from the ethics committee is described. Then, the procedure is explained in two components: 1) Rheumatology Component and 2) Rehabilitation Component.

## 4.1 Ethics Approval

Ethics approval was obtained from the Université de Montreal and McGill University (Appendix A). Both organizations judged that this study did not require a full review from the ethics board as it does not involve subjects and is a quality assurance study.

## 4.2 Study Design

This was a cross-sectional study.

## 4.3 Procedure

This study took place in the province of Quebec, Canada, where healthcare is delivered through a publicly funded system. The following section describes how the data were collected for both components of this study.

### *4.3.1 Rheumatology Component Procedure*

In order to determine the wait time from the referral by a physician to rheumatology consultation, we first developed referral scenarios to be used in order to procure an appointment. These scenarios were elaborated by a focus group consisting of two rheumatologists and two family physicians. The consensus was to create referral scenarios based on a 55 year old female which were as realistic as possible and resembled cases that they would have seen in clinical practice. Three cases were developed: a classical presentation of RA (Presumed RA), a complex presentation of RA (Possible RA), and a classical presentation of OA (Presumed OA). This would allow us to compare the two different presentations of RA as well as RA versus OA.

The three referral scenarios were:

1) Presumed RA: "*55 year old female with bilateral swollen and tender wrists and MCPs. Morning stiffness of 1 hour. ESR: 22, CRP: 30, RF: 68. Please rule out RA*";

2) Possible RA: "*55 year old female with 3 month history of severe pain and swelling of hands and feet. Unable to work secondary to pain. NSAIDS not helping. Possible RA. Please assess and treat*"; and

3) Presumed OA: "*55 year old female with pain right knee x 10 yrs, no swelling. X-Ray: early OA? Please assess*".

The scenarios were used to request appointments for rheumatology consultation in all publicly accessible (non-private) rheumatology offices in the province of Quebec. Referral scenarios were translated into both French and English: English referrals to serve

the McGill network and French to serve the Université de Montréal, Université de Sherbrooke and Université Laval networks. Wait times were calculated as the time between the initial request and the appointment date given. All appointments obtained were subsequently cancelled within 24 hours.

All rheumatology offices in Quebec were contacted, including solo and group practices as well as hospital based departments. Two research assistants contacted 71 rheumatology offices between July 2009 and July 2010, to request an appointment based on the referral scenarios and follow up if required. There are two potential ways that a referring physician can arrange a specialty visit in Quebec: either the referring doctor's office calls or sends a referral letter by fax or by post; or the referring doctor may give the referral letter to the patient and ask him or her to call the specialist to arrange the appointment (with the understanding that the patient will bring the referral sheet on the day of the appointment). Research assistants initially called each office, assuming the role of a patient with one of the prepared referral scenarios. The three different scenarios were used in random order over a period of months, for each office. A standardized script was employed to request the appointment while also obtaining information about the appointment booking method and type of office (academic versus non-academic). If the research assistant was told that no appointment would be given before receipt of the referral, faxed referrals were sent to the offices that required them, and subsequently followed up by a phone call to schedule the appointment. However, in some cases the rheumatology office requested information that could not be provided (valid health insurance number, local address and local telephone numbers). In these cases and in other

situations when an appointment date was not given over the telephone (i.e. if the receptionist said that the "patient" would be called back with an appointment date), the research assistant would inquire as to the estimated wait time and note the method for the provision of appointments.

### *4.3.2. Rehabilitation Component Procedure*

In order to determine the wait time from the referral by a physician to PT or OT consultation, two referral scenarios were developed. A focus group of two PTs, two OTs, two rheumatologists and two family physicians was formed in order to create referral scenarios based on a 55 year old female which were as realistic as Possible and resembled cases that they would have seen in their own practices. Generally, to obtain an appointment with PT or OT in the public system the patient requires a diagnosis made by the physician; therefore different scenarios were created for the rehabilitation component.

The two referral scenarios consisted of:

1) Diagnosed RA: "55 year old female with RA suffering from severe pain and swelling of hands and feet. Morning stiffness of 1 hour. ESR: 22, CRP: 30, RF: 68. Please assess."

   and

2) Diagnosed OA: "55 year old female with OA suffering from chronic pain in right knee x 5 years, no swelling. Please assess".

The scenarios were used to request appointments for PT and OT consultation in all publicly accessible (non-private) PT and OT hospital-based departments, community health

centres, and rehabilitation centres in Quebec. Referral scenarios were translated into both French and English: English referrals to serve the McGill network and French to serve the Université de Montréal, Université de Sherbrooke and Université Laval networks. Wait times were calculated as the time between the initial request and the appointment date given.

Two research assistants contacted all the publicly accessible service providers between April 2010 and June 2010, to request an appointment based on the referral scenarios and follow up if required. For both components there are two potential ways that a referring physician can arrange a rehabilitation consultation in Quebec: either the referring doctor's office calls or sends a referral letter by fax or by post; or the referring doctor may give the referral letter to the patient and ask him or her to call to arrange the appointment (with the understanding that the patient will bring the referral sheet on the day of the appointment). For this component, the research assistant called each service provider, assuming the role of a patient with one of the prepared referral scenarios. The two different scenarios were used in random order over a period of three months. A standardized script was employed to request the appointment while also obtaining information about the type of service provider (hospital, community health centre or rehabilitation centre). In the event that certain information could not be provided (valid health insurance number, local address and local telephone numbers) or in some cases when an appointment date was not given over the telephone (i.e. if the receptionist said that the "patient" would be called back with an appointment date or the referral was needed prior to booking an appointment), the research assistant would inquire as to the estimated wait time

as well as the method for the provision of appointments. If an appointment was obtained, it was subsequently cancelled 24 hours later.

## 4.4 Analysis

The following section describes the statistical analysis used for both components of the study.

### *4.4.1. Rheumatology Component*

Analysis of data consisted of descriptive statistics as well as bivariate analysis to assess whether the wait times (≤3 months, or > 3 months) were associated with the booking method (telephone or fax), type of office (academic versus non-academic offices) or geographic region (Montreal versus the rest of the province of Quebec). A generous three month cut-off was used as a benchmark to reflect the current Canadian recommendations[73-76]. Conditional logistic regression was used to evaluate whether the wait time from referral to consultation was associated with type of diagnosis (RA or OA) to account for the matched nature of the design (each clinic was asked to provide appointments for both OA and RA cases).

Since early treatment is recommended for persons with RA, factors associated with early appointments for RA were assessed using bivariate analysis and multivariate logistic regression. In the logistic regression model, we sought to determine whether wait time (≤3 months, or > 3 months) from referral to consultation with a rheumatologist for persons with RA was associated with type of office (academic versus non-academic offices) or

geographic region (Montreal versus the rest of the province of Quebec). These variables were included to test whether academic offices may be more attuned to the urgency of RA referrals, and whether existing regional differences in terms of per-capita availability of rheumatologists may affect wait times to see a rheumatologist.

#### *4.4.2. Rehabilitation Component*

Descriptive statistics were used to examine the wait times in relation to the diagnosis, service provider (hospital, community health centre or rehabilitation centre) and geographic area (cities with a School of Rehabilitation versus the rest of the province of Quebec). The administrative regions containing a School of Rehabilitation with both PT and OT included Montreal, Estrie (Sherbrooke) and Capitale-Nationale (Quebec City).

# Chapter 5: Manuscript 1

Title: **Wait Times to Rheumatology Consultation: Is Rheumatoid Arthritis Prioritized?**

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# WAIT TIMES FOR RHEUMATOLOGY CONSULTATION: IS RHEUMATOID ARTHRITIS PRIORITIZED?

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## ABSTRACT

**Objectives:** Persons with RA should be seen by healthcare professionals within three months of symptom onset to begin appropriate treatment and improve health outcomes. The objectives of the study are to describe wait times from referral by primary care provider to rheumatology consultation and to explore associated factors.

**Methods**: Our cross-sectional study took place in the province of Quebec, Canada. Appointments were requested by telephone using case scenarios that were created by a group of experts. Three scenarios were developed for rheumatology referral: 1) Presumed RA; 2) Possible RA; and 3) Presumed osteoarthritis (OA). Wait times were evaluated as the time between the initial request and the appointment date provided. The statistical analysis consisted of descriptive statistics, bivariate analysis, and logistic regression.

**Results:** For all scenarios combined, 34% were given an appointment with a rheumatologist within three months of referral, 32% waited longer than three months and 34% were told that the rheumatologist was not accepting new referrals at the time the request was made. The logistic regression revealed that the odds of getting an appointment

with a rheumatologist within three months of referral by the primary care provider was 13 times greater for the Presumed RA scenario versus the Presumed OA scenario (OR=13; 95% Cl[1.70;99.38]).

**Conclusions:** Our study suggests that RA is prioritized over OA when obtaining an appointment to a rheumatologist in the province of Quebec. However, the majority of persons with RA are still not receiving an appointment to a rheumatologist in a timely manner.

**ABBREVIATED ABSTRACT:** Persons with RA should be seen by a physician within three months of symptom onset to begin appropriate treatment and improve health outcomes. Rheumatologists are experts in the management of this condition. The aim is to describe wait times from referral by primary care provider to consultation with a rheumatologist. Appointments were requested in the province of Quebec using case scenarios and wait times were defined as the time between initial request and appointment date. RA is prioritized over OA, however, the majority of persons with RA are still not receiving an appointment to a rheumatologist in a timely manner.

**KEY WORDS:** Rheumatoid Arthritis, Wait Times, Prioritization, Specialist Care

**INTRODUCTION:**

Arthritis, one of the most prevalent chronic health conditions, is the leading cause of pain and disability in Canada[2] and contributes greatly to the utilization of healthcare services. Two major types of arthritis are inflammatory (i.e. rheumatoid arthritis (RA)) and non-inflammatory arthritis (i.e. osteoarthritis (OA)). Persons with inflammatory arthritis should be seen by healthcare professionals early to begin appropriate treatment and improve health outcomes[5]. According to the standards for Arthritis Prevention and Care issued by the Alliance for the Canadian Arthritis Program (ACAP), patients with suspected inflammatory arthritis should obtain definitive diagnoses and appropriate treatment within four weeks of presentation to a healthcare professional[5]. Generally, this requires consultation with a rheumatologist[6]. There are no recommendations with respect to consultation with a rheumatologist for persons with non-inflammatory arthritis. Persons with OA are often managed by their primary care provider and current treatments include pain medication, exercise, physical and occupational therapies, weight loss or healthy weight management and, in severe cases, joint replacement surgery[2].

A significant amount of literature suggests that patients with inflammatory arthritis be seen by a specialist within three months of diagnosis to begin early and aggressive medical treatment with disease-modifying anti-rheumatic drugs (DMARDs) in order to slow or even prevent the process of joint destruction and disability[73-76]. Quality of care and health outcomes are better for RA patients who have contact with a rheumatologist compared to those who do not[79]. The vast majority (91%) of Canadian rheumatologists surveyed say that, once aware of an urgent RA referral, they will see the referred patient

within two weeks or less[7]. Nevertheless, current evidence in Canada shows that early consultation with a rheumatologist remains problematic[85, 86].

The care trajectory for persons with RA is composed of several stages which can each contribute to the wait time to consultation with a rheumatologist. These include the wait time from symptom onset to initial consultation with a primary care provider, the wait time from primary care provider consultation until referral to rheumatology and finally, our focus, the wait time from referral by primary care provider until rheumatology consultation. Little is known regarding the time from referral to initial consultation to a rheumatologist. The main goal of our study was to address this gap, i.e. to describe wait times from referral by the primary care provider to rheumatology consultation and to further explore whether wait times are associated with type of arthritis diagnosis, geographic area or type of office.

**METHODOLOGY**

Our cross-sectional study took place in the province of Quebec, Canada, where healthcare is delivered through a publicly-funded healthcare system. In order to determine the wait time from the referral by a primary care provider to rheumatology consultation, three referral scenarios were developed with the input of two rheumatologists and two family physicians. The referral scenarios, based on a 55 year old female, were created to be as realistic as possible and consisted of: 1) Presumed RA: "*55 year old female with bilateral swollen and tender wrists and MCPs. Morning stiffness of 1 hour. ESR: 22, CRP: 30, RF: 68. Please rule out RA*"; 2) Possible RA: "*55 year old female with 3 month history of severe pain and swelling of hands and feet. Unable to work secondary to pain. NSAIDS*

*not helping. Possible RA. Please assess and treat*"; and 3) Presumed osteoarthritis (OA): "*55 year old female with pain right knee x 10 yrs, no swelling. X-Ray: early OA? Please assess*". The scenarios were used to request appointments for rheumatology consultation in all publicly accessible (non-private) rheumatology offices in Quebec. Wait times were calculated as the time between the initial request and the appointment date given. All appointments obtained were subsequently cancelled within 24 hours.

We approached all of the rheumatology offices in Quebec, including solo and group practices as well as hospital based departments. Two research assistants contacted 71 rheumatology offices between July 2009 and July 2010, to request an appointment based on the referral scenarios. There are two potential ways that a referring physician can arrange a specialty visit in Quebec: either the referring doctor's office calls or sends a referral letter by fax or by post; or the referring doctor may give the referral letter to the patient and ask him or her to call the specialist to arrange the appointment (with the understanding that the patient will bring the referral sheet on the day of the appointment). For our study, research assistants initially called each office, assuming the role of a patient with one of the prepared referral scenarios. The three different scenarios were used in random order over a period of months, for each office. A standardized script was employed to request the appointment while also obtaining information about the appointment booking method and type of office (academic versus non-academic). If the research assistant was told that no appointment would be given before receipt of the referral, we sent faxed referrals to the offices that required them, and then called the office again (Figure 1). However in some cases the rheumatology office requested information that we could not provide (valid health

insurance number, local address and local telephone numbers). In these cases and in other situations when an appointment date was not given over the telephone (i.e. if the receptionist said that the "patient" would be called back with an appointment date), the research assistant would inquire as to the estimated wait time as well as the method for the provision of appointments.

Analysis of data consisted of descriptive statistics as well as bivariate analysis to assess whether the wait times (≤3 months, or > 3 months) were associated with the booking method (telephone or fax), type of office (academic versus non-academic offices) or region (Montreal versus the rest of the province of Quebec). A three month cut-off was used as a benchmark to reflect the current Canadian recommendations[73-76]. We used conditional logistic regression to evaluate whether wait time from referral to consultation was associated with type of diagnosis (RA or OA) to account for the matched nature of the design (each clinic was asked to provide appointments for both OA and RA cases). Since early treatment is recommended for persons with RA, we also assessed factors associated with early appointments using bivariate analysis and multivariate logistic regression. In the logistic regression model, we sought to determine whether wait time (≤3 months, or > 3 months) from referral to consultation with a rheumatologist for persons with RA was associated with type of office or region. These variables were included to test whether academic offices may be more attuned to the urgency of RA referrals, and whether existing regional differences in terms of per-capita availability of rheumatologists may affect wait times.

**RESULTS**

Of the 71 rheumatology offices contacted, 24 of the offices were hospital settings: 12 were academic hospitals and 12 were community hospitals. The remaining 47 offices consisted of 37 solo practices and 10 group practices. The administrative region of Montreal accounted for 55% of the rheumatology offices in the province. In the case of a single booking office for multiple rheumatologists (i.e. hospital or group practice) only one call was made for each scenario, regardless of the number of physicians.

For all scenarios combined, 34% were given an appointment with a rheumatologist within three months of referral, 32% waited longer than three months and in an additional 34% of cases, the patient was told that the rheumatologist was not accepting new patients at the time the request was made (Figure 2). Regarding the percent of patients who received an appointment within three months, the results were very similar between the Presumed RA (41%, 95% CI[0.29,0.53]) and the Possible RA cases (38%, 95% CI[0.27,0.49]). However, a lower percentage of patients with Presumed OA (24%, 95% CI[0.14,0.34]) received an appointment within three months. When looking at appointments for both RA or OA, the odds of an appointment with a rheumatologist within three months of referral from the primary care provider were almost three times greater for the Montreal region compared to the rest of the province (OR=2.91; CI[1.34,6.32]). Booking method (telephone or fax) and type of office (academic versus non-academic) were not associated with getting an appointment within three months.

Using conditional logistic regression, the odds of getting an appointment with a rheumatologist within three months of referral by the primary care provider was 13 times

greater for the Presumed RA scenario versus the Presumed OA scenario (OR=13; 95% Cl[1.70;99.38]).

Twenty three of the 71 offices (32%) were not accepting new patients at the time the request was made; the majority of these (66%) were non-academic solo or group practices. Of the 48 offices accepting new patients, 58% provided appointments by telephone and 42% required a faxed referral. Among those accepting new patients, there were no differences between phone and fax referrals for RA cases obtaining an appointment within 3 months (60.7% for phone versus 60% for fax referrals, p=0.96). There was a tendency for more patients receiving an appointment within 3 months at the academic centres (50%, 95% CI [0.38,0.62] ) versus other offices (39% 95% CI [0.28,0.50] ), although there is overlap of the confidence intervals.

Looking solely at the Presumed RA scenario, bivariate analysis indicated that the percentage of patients who obtained an appointment to a rheumatologist within three months was higher among patients living in the Montreal region (49%, 95% CI[0.37,0.61]) as opposed to the rest of the province (31%,95% CI[0.20,0.42]), although the confidence intervals for the estimates overlapped.

The logistic regression model (Table 1) revealed that the odds of an appointment with a rheumatologist within three months of referral from the primary care provider for Presumed RA were more than three-fold greater for the Montreal region compared to the rest of the province and more than four-fold greater for appointments obtained by calling after the required referral was faxed to the office. The type of office (academic versus non-academic) was not associated with getting an appointment within three months.

## DISCUSSION

Improving access to health services and decreasing wait times is a priority for many governments, including Canada. Our data emphasize that persons with new-onset RA in Quebec may not always receive prompt rheumatology care. Even though our study assessed only the wait time to see a rheumatologist post-referral by primary care provider, the wait time for the RA cases was greater than three-months in almost two thirds of the rheumatology offices assessed. This is problematic since current recommendations state that patients with new-onset RA should receive rheumatology care (diagnosis and DMARDs) within three months of symptom onset in order to optimize their outcome[73-76].

Several studies have evaluated the wait time from symptom onset to initial consultation with a primary care provider, as well as the wait time from initial consultation until the commencement of appropriate DMARD treatment (which usually occurs under the care of a rheumatologist)[73, 74, 87]. A national multi-centered study revealed that only 18.1% are treated with DMARDs within the three-month "window of opportunity"[87]. A study of Quebec administrative data suggested that only 27% of persons with newly suspected RA consulted with a rheumatologist, and for those who did consult, time to consultation was lengthy[88]. Even within the context of an early inflammatory arthritis registry, more than half the patients consulted rheumatologists past the three months recommended window[89]. In a study conducted in the United Kingdom, 53.4% of patients with inflammatory arthritis were seen by a rheumatologist within six weeks of referral by the family physician, 31.1% were seen between six and 12 weeks and 15.5% waited longer than 12 weeks[90]. The "rate

limiting steps" appear to be the time from symptom onset to primary care consultation, and time from primary care consultation to referral by the primary care provider to the rheumatologist[91]. However, our study indicates that there are problems even after the referral is made.

Possible reasons for wait times include inadequate or non-existent triage. There was great variability seen within the different rheumatology offices with regards to their booking method. Despite that, our study suggests that Presumed RA scenarios were prioritized over Presumed OA scenarios. This is consistent with a retrospective study at the McGill University Health Centre which showed that even without a formal triage system persons with inflammatory arthritis may end up with a shorter wait time for reasons that remain unclear[110]. This could be indicative of some sort of prioritization (formal or informal) whereby the office appropriately assigns earlier appointments for urgent inflammatory conditions (new onset RA) versus non-urgent and non-inflammatory cases (OA). It also appeared that the receptionist plays a role in the prioritization of patients, particularly for the appointments obtained by telephone.

A limitation of our study was the inability to provide the personal details required by some offices, which could have expedited the initial consultation with a rheumatologist and provided us with more accurate wait times for each scenario. As previously mentioned, in those cases, we were still able to obtain an estimated wait time for the appointment date from the receptionist verbally. However, we do not know how valid that estimate was. As well, we were unable to account for the additional time that might have been required to organize the information requested, resend the referral, and receive a response from the

rheumatology office. Moreover, had the primary care provider spoken directly to the rheumatologist to discuss the case or had the patient called the office again offering to take the place of a cancellation, it could have also affected the wait times. Nonetheless, our data suggest that more than half of the offices do not use any formal triage for new patients. There was also the inability to account for staffing issues (i.e. a department being short-staffed for any reason including vacation, sick leave, etc.), which could have contributed to the wait times.

The wait times as well as the large number of rheumatology offices not accepting new referrals could be explained by the manpower and resource shortage of Canadian rheumatologists[111]. The number and types of referrals, patient loads, and scheduling constraints may also present some challenges with respect to seeing patients in a timely fashion. Factors related to the type of office and regional location (urban versus rural), likely influence the referral behaviour of a physician[112]. This could explain the trend seen for the difference between Montreal and other regions of the province. In terms of availability of rheumatology services, 55% of the rheumatology centres in Quebec were located in the administrative region of Montreal (population of greater Montreal area is approximately 3.8 million) and only 10% in the Capitale-Nationale region (population of the greater Quebec City area is approximately 746,300).

Our study focused solely on one component of the wait time (from referral until consultation with the rheumatologist) and does not address the other components. According to one Canadian study, the wait time between the referral by the primary care provider and the rheumatology consultation accounts for only 14% of the total lag-time to

begin appropriate treatment[87]. However, our study suggests that almost 60% of persons with new onset RA are not being seen by rheumatologists within three months post-referral, which means that their total wait time is much longer than current standards. Moreover, even among those Presumed RA scenarios who did receive an appointment within three months, there is still the time to referral to consider. This is extremely problematic. Nevertheless the wait time to see a rheumatologist may be the most amenable to improvement since rheumatologists strongly advocate for the need to see persons with RA as soon as possible (and according to a Canadian survey, try to see such patients within 2 weeks)[7]. A possible strategy to decrease the wait time may be the establishment of a standardized model of triage or guidelines to ensure that referrals are completed and appointments are obtained in a prompt fashion. This is being piloted in more than one centre in Quebec[103]. Increasing patient and family physician awareness regarding the importance of early access to rheumatology care is vital for persons with RA.

## CONCLUSION

Our study suggests that RA is somewhat prioritized over OA when obtaining an appointment to a rheumatologist in the province of Quebec. However, the majority of persons with RA are still not receiving an appointment to a rheumatologist in a timely manner. Better methods for triage and increased resource allocation are needed.

**Figure 1:** Flow Chart to Obtain an Appointment with a Rheumatologist in Quebec

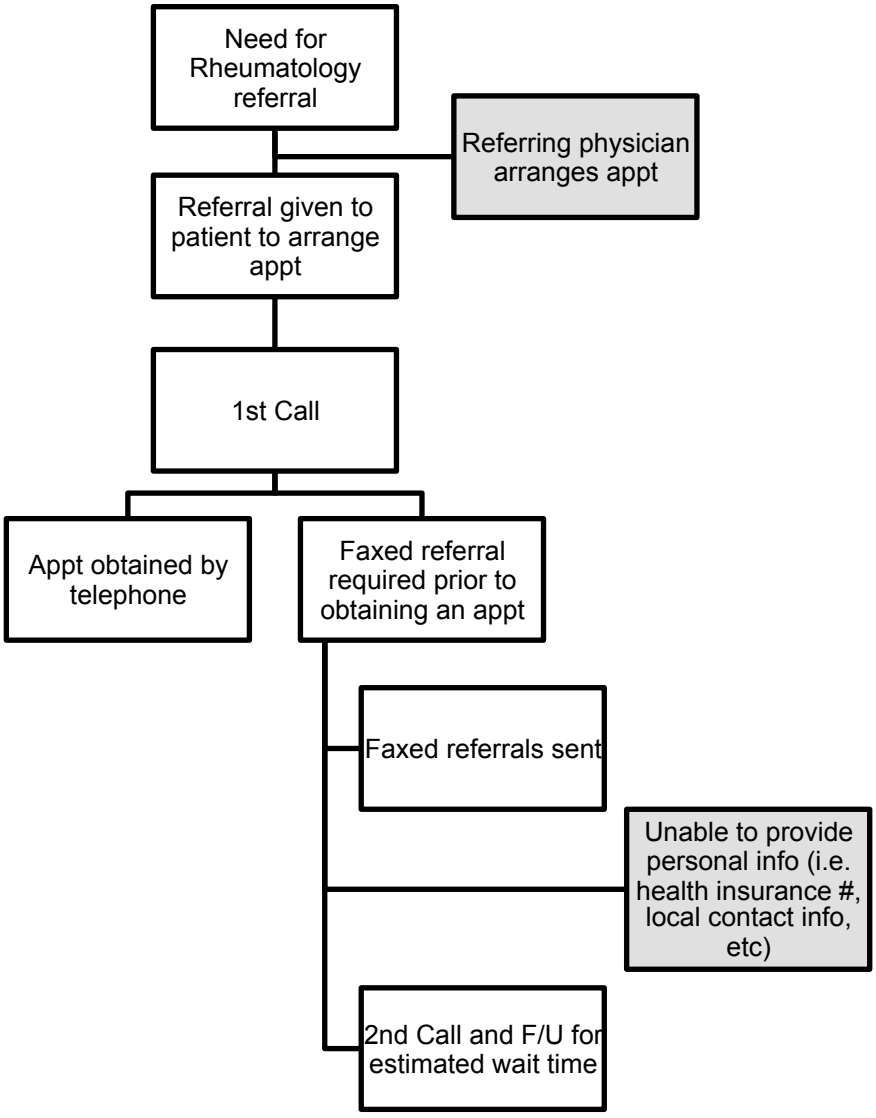

**Figure 2:** Rheumatology Wait Times in Quebec

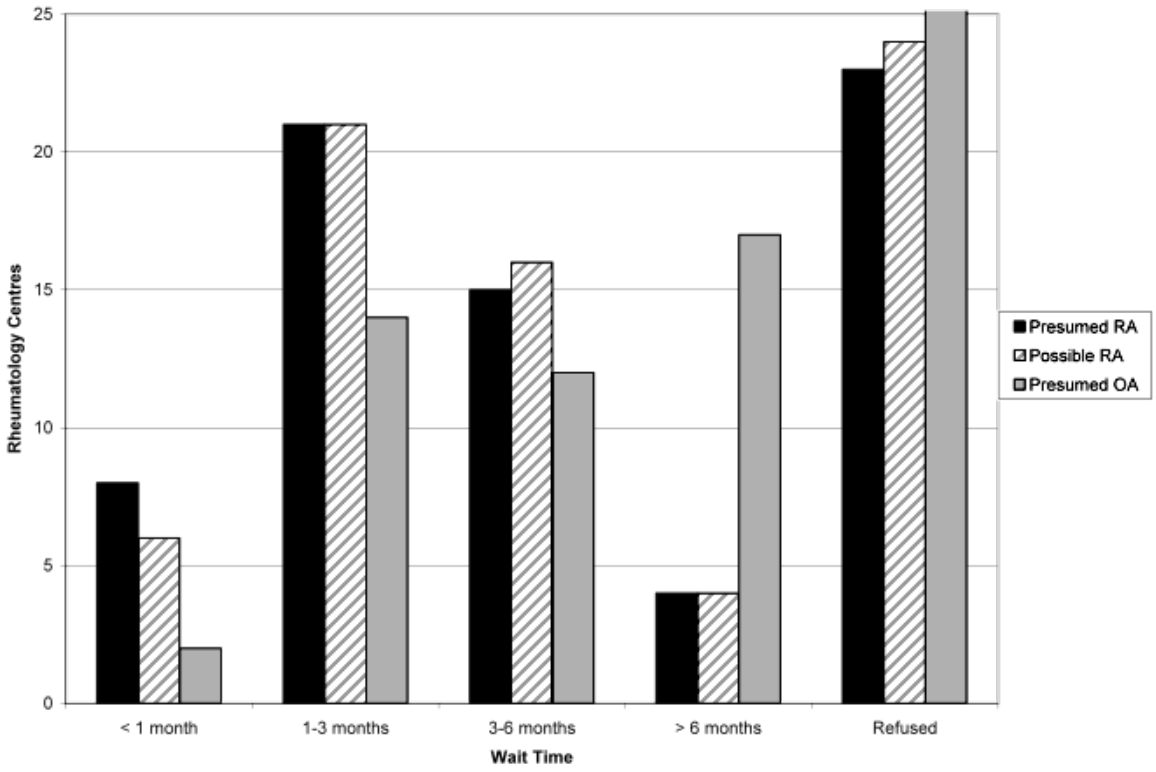

**TABLE 1:** Factors Associated with an Appointment to a Rheumatologist within Three Months of Referral for Presumed RA Cases

| Factor | OR | 95% CI |
|---|---|---|
| Type of Office (Academic vs non) | 0.93 | 0.24; 3.68 |
| Region (Montreal vs other) | 3.39 | 1.07;10.76 |

# Chapter 6: Manuscript 2

Title: **Wait Times for Physical and Occupational Therapy in the Public System for Persons with Arthritis in Quebec**

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# WAIT TIMES FOR PHYSICAL AND OCCUPATIONAL THERAPY IN THE PUBLIC SYSTEM FOR PERSONS WITH ARTHRITIS IN QUEBEC

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## ABSTRACT

**Purpose:** Arthritis is the leading cause of pain and disability in Canada. Physical therapy (PT) and occupational therapy (OT) are beneficial for chronic osteoarthritis (OA) as well as inflammatory arthritis such as rheumatoid arthritis (RA), however there appears to be problems with access to such services. The aim of this study was to document the wait times from referral by physician to consultation in PT or OT in the public system of Quebec for persons with arthritis.

**Method:** Appointments were requested by telephone using case scenarios and wait times were defined as the time between initial request and appointment date. Descriptive statistics were used to examine the wait times in relation to the diagnosis, service provider and geographic area.

**Results:** For both scenarios (OA and RA) combined, 13% were given an appointment within 6 months, 13% within 6 to 12 months, 24% waited longer than 12 months and 22% were refused services. The remaining 28% were told that they would require an evaluation

appointment based on functional assessment prior to being given an appointment. There was no difference with regards to diagnosis, RA versus OA.

**Conclusions:** Our study suggests that most persons with arthritis living in the province of Quebec are not receiving publicly accessible PT or OT intervention in a timely manner.

**KEY WORDS:** Physical Therapy, Occupation Therapy, Wait Times, Arthritis

## INTRODUCTION

Physical rehabilitation services such as physical and occupational therapy are beneficial for chronic osteoarthritis (OA)[2, 8-10] as well as inflammatory arthritis such as rheumatoid arthritis (RA)[2, 8-10]. Persons with OA are often managed by their primary care provider with pain medication and referred to physical therapy (PT) and occupational therapy (OT)[2]. The recommendations for RA include pharmacologic management under the supervision of a rheumatologist; referral to PT and OT should be considered for patients who have ongoing inflammation or joint damage[38]. Physical and occupational therapists provide various services (including education, exercise instruction, joint protection, assessment and prescription of assistive devices, introduction of self management programs, etc.) that are beneficial to persons with arthritis[8-10]. The main goals of PT and OT intervention are to decrease pain, prevent deformity, preserve or improve function, and promote participation in activities of daily living (ADLs) as well as both vocational and leisure activities[12, 62, 82]. Effectiveness of PT and OT interventions has been demonstrated[11-13], however, there are problems with access to such services[14, 15]. This is especially problematic in view of the increasing prevalence of chronic arthritis as well as the economical burden associated with these disabling diseases[2].

In Quebec, medical care is delivered by a publicly funded healthcare system. However, PT and OT are only covered by the provincial health insurance plan for services received in hospitals, rehabilitation centres, and community health centres (which offer care to homebound persons for the most part and favour persons who have been discharged

recently from hospital care or post-operative patients). Most PTs and some OTs work in private clinics[95] where patients either pay for the services themselves, or have supplemental insurance (often by their employer) that covers a certain number of therapy sessions.

PT and OT play an important role in the prevention and management of symptoms associated with OA and RA and their intervention can potentially keep persons independent longer by promoting activity and participation through their wide variety of treatments[96, 97]. With more persons requiring arthritis care, the demands on PT and OT will undoubtedly increase for this population. Further, the availability of publicly insured (by the provincial universal health insurance board) PT and OT services has decreased in Canada over the past two decades, presenting barriers to access especially for those who do not have supplementary health insurance[99].

The main goal of our study was to document the wait times from referral by physician to consultation in PT or OT in the public system for persons with arthritis and to explore whether these wait times differed depending on the type of diagnosis (RA versus OA), service provider (hospital, community health centre or rehabilitation centre) and geographic area (cities with a School of Rehabilitation versus the rest of the province). We also described any methods of prioritization used for the provision of appointments.

## METHODS

Our cross-sectional study took place in the province of Quebec, Canada. In order to determine the wait time from the referral by a physician to PT or OT consultation, two referral scenarios were developed with the input of two PTs, two OTs, two rheumatologists

and two family physicians. The referral scenarios, based on a 55 year old female, were created to be as realistic as possible and consisted of: 1) Diagnosed RA: "55 year old female with RA suffering from severe pain and swelling of hands and feet. Morning stiffness of 1 hour. ESR: 22, CRP: 30, RF: 68. Please assess." and 2) Diagnosed OA: "55 year old female with OA suffering from chronic pain in right knee x 5 years, no swelling. Please assess". The scenarios were used to request appointments for PT and OT consultation in all publicly accessible (non-private) PT and OT hospital-based departments, community health centres, and rehabilitation centres in Quebec. Wait times were calculated as the time between the initial request and the appointment date given.

A single research assistant contacted all the publicly accessible service providers between April 2010 and June 2010, to request an appointment based on the referral scenarios. There are two potential ways that a referring physician can arrange a rehabilitation consultation in Quebec: either the referring doctor's office calls or sends a referral letter by fax or by post; or the referring doctor may give the referral letter to the patient and ask him or her to call to arrange the appointment (with the understanding that the patient will bring the referral sheet on the day of the appointment). For our study, the research assistant called each service provider, assuming the role of a patient with one of the prepared referral scenarios. The two different scenarios were used in random order over a period of three months. A standardized script was employed to request the appointment while also obtaining information about the type of service provider (hospital, community health centre or rehabilitation centre). In the event that we could not provide certain information (valid health insurance number, local address and local telephone

numbers) or in some cases when an appointment date was not given over the telephone (i.e. if the receptionist said that the "patient" would be called back with an appointment date or the referral was needed prior to booking an appointment), the research assistant would inquire as to the estimated wait time as well as the method for the provision of appointments. If an appointment was obtained, it was subsequently cancelled 24 hours later.

Descriptive statistics were used to examine the wait times in relation to the diagnosis, service provider (hospital, community health centre or rehabilitation centre) and geographic area (cities with a School of Rehabilitation versus the rest of the province of Quebec). The administrative regions containing a School of Rehabilitation with both PT and OT included Montreal, Estrie (Sherbrooke) and Capitale-National (Quebec).

**RESULTS**

There are 100 public PT and OT service providers serving the adult outpatient population of Quebec. Among these, 12% are hospital teaching centres, 74% are community health centres (i.e. community hospitals or Health and Social Service Centres,(CSSS)) and 14% are rehabilitation centres for persons with physical impairments and disabilities. Approximately one-fifth (21%) of the service providers are located in the administrative region of Montreal, the largest city in the province and home of two Schools of Rehabilitation (McGill University and Université de Montréal).

For both scenarios (OA and RA) combined, 13% were given an appointment within 6 months, 13% within 6 to 12 months, 24% waited longer than 12 months and 22% were

refused services (Figure 3). The remaining 28% were told that they would require an evaluation appointment based on a functional assessment prior to being given an appointment. Reasons for refusals included service providers only accepting patients referred internally by their institution (36%), only accepting post-operative or trauma patients (27%), not accepting persons with a diagnosis of RA or OA (18%), not accepting new patients at the time the request was made (10%) and finally, only accepting patients 65 years old and older (9%). Upon refusal or when a long wait time was given, the receptionist would often suggest that the patient seek private PT and OT services.

There was no difference with regards to diagnosis, RA versus OA, for patients obtaining an appointment by telephone. However, 28% of the service providers offered the patient an evaluation appointment, which implies some type of screening or prioritization based on their functional assessment as opposed to their diagnosis. The wait time would therefore be dependant on the need of the patient and prioritized accordingly at each service provider's discretion. When looking at the provision of an evaluation appointment prior to beginning services, a statistically significant difference ($p=0.006$) was found between cities with a School of Rehabilitation (10%, 95% CI 0.09,0.11) and the rest of the province (36%, 95% CI 0.32,0.40). The majority of the evaluation appointments were in the community health centres (82%) compared to the other service providers ($p=0.07$). Additionally, 70 of the 100 service providers required that the referral be sent for their review before the initial consultation regardless of the evaluation appointment.

Looking solely at the 50 service providers who gave an indication of the wait time, 26% were given an appointment within six months, 26% were given an appointment within

six to 12 months and 48% were told that they would have to wait longer than 12 months. The diagnosis (RA versus OA) and service provider (hospital versus community health centre versus rehabilitation centre) was not associated with getting an earlier appointment (Table 2). However, none of the rehabilitation centres provided an appointment within six months for the RA or OA case scenarios compared to 13 of the 86 other PT and OT departments (15%) who provided an appointment within six months.

## DISCUSSION

Improving access to health services and decreasing wait times is a priority for many governments, including Canada. We found problems with access to public PT and OT services for persons with arthritis (RA and OA) in terms of long wait times and unavailability of services for this population in over a fifth of the cases. Although not documenting actual wait times to receive services, Beatty et al. reported that among the 32.2% of patients with arthritis who felt that they needed rehabilitative services (including PT, OT, and assistive devices), only 58.3% actually received these services[14]. Hagglund et al. reported similar results: among 39% of patients who felt they needed rehabilitative therapies (PT and OT) only 61% received it[15]. Feldman et al. conducted interviews directly with patients and found that 96% of patients who felt they needed rehabilitation services received these services, however only 26.1% of patients perceived the need for these services[93]. Our study was based on hypothetical scenarios of patients: these patients were presumably referred to PT and OT because of the physician's assessment of need. Yet, only 26% were given an appointment within a year of referral.

Our findings echo the results of a qualitative study in Quebec that assessed therapists' perceptions regarding barriers and facilitators of access to PT and OT for persons with RA. Therapists pointed out that access to publicly-available programs was very limited[99] forcing patients to either pay for private services, or go without these services. This underscores the effect of socioeconomic status as a factor influencing access to PT and OT. In fact, the therapists believed that in many cases, a physician would not even initiate a referral because they were well-aware that their patient would be unable to gain access to a therapist[99]. Persons with higher levels of education are also more likely to perceive the need for therapy services[93, 113-116], possibly indicating better knowledge about potential benefits.

Sandhu et al. suggested that low referral to rehabilitation may be driven by a lack of understanding of the roles of PT and OT[90]. Based on the reasons for refusal to give an appointment, our data suggests that service providers or their administration perceive a greater PT and OT need for patients with acute conditions (i.e. post-operative conditions, traumas, fractures, or recent hospital admissions) or the elderly. This is consistent with Passalent et al. in that arthritis is categorized as a chronic condition and is therefore less prioritized in rehabilitation services[95]. Therefore, developing patient, physician and therapist awareness regarding the importance and benefits of early access to PT and OT care is extremely important. Campaigns like the widespread efforts to improve joint replacement outcomes (which is a priority area in Quebec, as in the rest of Canada) could actually potentially drain resources from other patient groups in need (such as those with chronic arthritis).

The excessive wait times for rehabilitation services reflect a need for re-evaluation of the supply and demand as well as the role of therapists as leaders in prevention and education for patients with rheumatic conditions. Adequate organization of publicly and privately accessible services is even more crucial given that staff shortages in OT[117] and PT [118] have been identified. Although there did not appear to be a formal triage system in place in all centres, more than a quarter of the public rehabilitation service providers gave evaluation appointments to new patients. The majority of these were in the community health centre setting, possibly indicating the need for prioritization in this setting since there are increasing demands for PT and OT in community settings. These evaluation appointments serve as a form of triage, to determine the needs of each patient as well as serving as an opportunity for therapists to provide some basic education to the patients regarding their condition.

We found no difference between RA and OA when requesting an appointment by phone. Moreover, no associations were found between obtaining an earlier appointment and the type of service providers.

Arthritis is the leading cause of pain and physical disability in Canada and has become a major public health challenge and economic burden[2]. PT and OT interventions can optimize function and increase participation. A focus is needed on developing strategies so that the referrals are completed and appointments are obtained rapidly and easily. Potential strategies include the development of a standardized model of prioritization or guidelines to ensure the provision of appointment in a timely manner. Moreover, knowing that persons with arthritis are not always receiving prompt

rehabilitation services, the implementation of management strategies to decrease the impact of arthritis through education, awareness and self management programs[2] could be provided by rehabilitation professionals. The evaluation of service delivery is also extremely important as therapist shortages could be further accentuated by the organization of these services[118].

**LIMITATIONS**

A limitation of our study was the inability to provide the personal details required by some departments, which could have expedited the initial consultation process and provided us with more accurate wait times for each scenario. As previously mentioned, in those cases, we were still able to obtain an estimated wait time for the appointment date from the receptionist verbally. However, we do not know how valid that estimate was or how an evaluation appointment would have affected the wait times. Additionally, our study does not account for the wait time differences between PT and OT as wait times were calculated as the time between the initial request and the appointment date received by one of the rehabilitation professionals, i.e. PT *or* OT. Although the OA case falls more likely under the scope of practice of PTs and the RA case under the scope of practice of OTs, these patients could have benefited from the expertise of both professionals. There was also the inability to account for staffing issues (i.e. a department being short-staffed for any reason including vacation, sick leave, etc.), which could have contributed to the wait times.

## CONCLUSION

Our study suggests that most persons with arthritis living in the province of Quebec are not receiving publicly accessible PT or OT intervention in a timely manner. Improved methods for triage and better resource allocation are needed to optimize function and participation for these persons.

**Figure 3**:

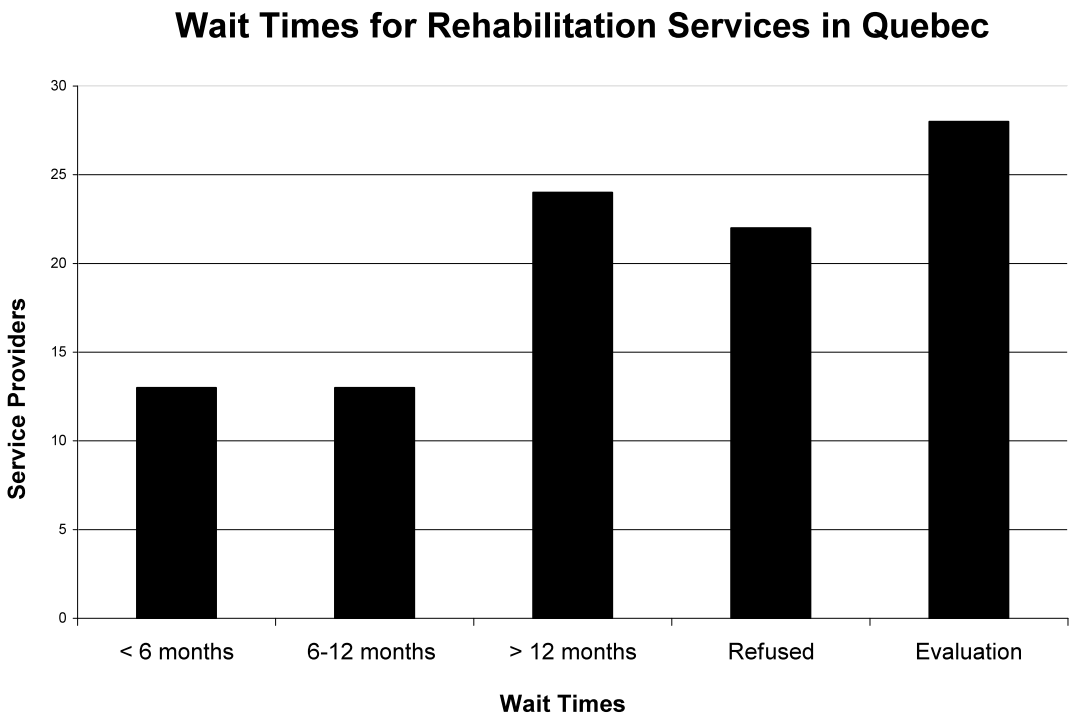
Wait Times for Rehabilitation Services in Quebec
Service Providers
30
25
20
15
10
5
0
< 6 months
6-12 months
> 12 months
Refused
Evaluation
Wait Times

**Table 2**: Factors Associated with Obtaining an Appoitment to Physical and Occupation Therapy within six months

| | | < 6 months n (%) | > 6 months n (%) | P-Values |
|---|---|---|---|---|
| Diagnosis | RA | 13 (26%) | 37 (74%) | p=1 |
| | OA | 13 (26%) | 37 (74%) | |
| Type of Centre | Hospital | 2 (29%) | 5 (71%) | p=0.46 |
| | Community Health Centre | 11 (28%) | 28 (72%) | |
| | Rehabilitation | 0 (0%) | 4 (100%) | |
| Region | Academic Cities | 4 (27%) | 11 (73%) | p=0.94 |
| | Rest of the province | 9 (26%) | 26 (74%) | |

# Chapter 7: Discussion

In this section, the results of this research study will be summarized and further discussed. The clinical implications, limitations and direction of future research will also be explored.

## 7.1 Summary of Results and Key Points

The main objective of this study was to determine the time to obtain an appointment to rheumatology and rehabilitation services for persons with arthritis, namely RA or OA. The results pertaining to these objectives are summarized below as well as key discussion points from the manuscripts.

### *7.1.1 Rheumatology Component*

#### *7.1.1.1 Summary of Results*

We found that among 71 rheumatology service providers in Quebec and irrespective of referral diagnosis (RA or OA) 34% were given an appointment with a rheumatologist within three months of referral, 32% waited longer than three months and 34% were told that the rheumatologist was not accepting new referrals at the time the request was made (Figure 2). Persons with RA were 13 times more likely to get an appointment with the rheumatologist within 3 months of referral than those with OA. However, 59% of the RA cases did not receive an appointment within three months.

#### *7.1.1.2 Summary of Key Points*

The results from the rheumatology component emphasize that persons with new-onset RA in Quebec are not always receiving prompt rheumatology care. This study focused solely on one component of the wait time (from referral until consultation with the rheumatologist) which is thought to be only 14% of the total wait-time to begin appropriate treatment[87]. However, our study suggests that almost 60% of persons with new onset RA are still not being seen by rheumatologists within three months post-referral, which means that their total wait time is much longer than current standards. These wait times are unacceptable as present recommendations state that patients with new-onset RA should receive rheumatology care (diagnosis and DMARDs) within three months of symptom onset in order to optimize their outcome[73-76]. Moreover, there is a substantial body of literature built up around the importance of early aggressive treatment initiation by a rheumatologist to prevent joint damage, slow progression of disease and improve quality of life[26-28].

### *7.1.2 Rehabilitation Component*

#### *7.1.2.1 Summary of Results*

Among the 100 public rehabilitation service providers in Quebec, 13% of patients with either RA or OA were given an appointment within 6 months, 13% within 6 to 12 months, 24% waited longer than 12 months and 22% were refused services (Figure 3). The remaining 28% were told that they would require an evaluation appointment based on

functional assessment prior to being given an appointment. There was no difference with regards to diagnosis, RA versus OA, for the rehabilitation consultation.

#### *7.1.2.2 Summary of Key Points*

There are problems with access to public PT and OT services for persons with RA and OA, specifically in terms of long wait times. Over one fifth of the patients were refused services and only 13% were given an initial appointment within 6 months which suggests that persons seeking timely access to PT or OT would have to pay for private services. Previous research in Quebec indicated that therapists believed that often physicians do not refer because they suspect that their patient would be unable to gain access to a therapist[99].

### 7.2 Comparison of Rheumatology and Rehabilitation Components

Both the rheumatology and rehabilitation components of this study were based on hypothetical scenarios of patients. These patients were presumably referred to rheumatology and rehabilitation services because of the physician's assessment of need, yet referrals resulted in unacceptably long wait times to initial consultation and in many cases patients were even refused services at that particular clinic or department.

The long rheumatology wait times as well as the large number of rheumatology offices not accepting new referrals could be explained by the manpower and resource shortage of Canadian rheumatologists[111]. Similarly, staff shortages in OT[117] and PT [118] have been identified which could have contributed to the long wait times for rehabilitation

services. Adequate organization of publicly accessible services and resource allocation is even more crucial given the increasing prevalence of arthritis[2] and the manpower shortages already identified.

In the case of rheumatology accessibility it is clear that this has to be a priority based on evidence. For rehabilitation services, the research may be less compelling, but it is reasonable to believe that early treatment will decrease deformity and prevent disability. Improving and maintaining function is extremely important also for the wellbeing of the individual. It would appear that the Canadian medical model still tends to be reactive rather than proactive. In the past, often persons with the most severe disease were those who were prioritized for treatment. The paradigm may need to be shifted: instead of focusing on only high risk patients it is important to address the needs of average risk persons who can potentially develop serious complications and problems. This obviously requires some reorganization in resources and development and implementation of novel service delivery options within a system that is already overstretched financially. One strategy may be improved ways to prioritize patients for prompt management. This will be discussed in the next section.

## 7.3 Prioritization

### *7.3.1 Rheumatology Component*

We found that there was great variability within the different rheumatology offices with regards to their booking methods and no consistent prioritization method or tool was used throughout the centres. Despite that, RA scenarios were prioritized over OA scenarios

for rheumatology consultation. This is consistent with a retrospective study at the McGill University Health Centre, which showed that even without a formal triage system persons with inflammatory arthritis might end up with a shorter wait time for reasons that remain unclear[110]. This could be indicative of some sort of prioritization (formal or informal) whereby the office appropriately assigns earlier appointments for urgent inflammatory conditions (new onset RA) versus non-urgent and non-inflammatory cases (OA). It is also possible that the receptionist plays a role in the prioritization of patients, particularly for the appointments obtained by telephone. If that is the case, efficiency of prioritization may depend on the capability of the receptionist to discern whether a referral is in fact a probable inflammatory arthritis patient or not.

There is an increase in literature on the topic of rheumatology prioritization and potential prioritization tool[100-102, 119]. De Coster et al. demonstrated that there is currently no reliable and valid measurement tool that rates the urgency for referrals from primary care providers to rheumatologists[101]. An arthritis cohort study in New Zealand indicated that the only factor predicting earlier treatment for RA was triage allocation based on the requested urgency of the referring physician[100]. Another study aimed to formulate and test a "Priority Referral Score" suggested that the referrals requiring expedited consultation should be referred directly to the rheumatologist (i.e. by telephone) and should not be placed on the wait list[119]. There is a consensus that a structured and reliable referral tool to prioritize referrals is a critical component of improving access to care and the referral process to rheumatology for persons with RA[100-102].

A Canadian study, which took place in Alberta, developed a central access and triage system for specialized medical services (which included rheumatology) and implemented it within the province[81]. There was a decrease in patient visits in both primary care and specialty care because all the information and required tests were provided within the central access and triage system[81]. This resulted in improved accessibility, decreased wait times and enhanced coordination of care for Albertans[81]. Another study evaluated the use of electronic consultation request process, called "eReferrals", as a method to reduce wait times[92]. This system facilitated communication between primary care providers and specialty care and showed numerous improvements among which were decreased wait times and fewer inappropriate referrals to specialty care[92].

A Norwegian study monitored the prioritization of services based on established national medical guidelines to insure the allocation of funds and the quality assurance of priority settings in public health-care system[120]. The diseases with the highest priority were those with guidelines stating that they should be seen for consultation within four weeks and low priority diseases were considered those that could wait six months or longer for consultation. The authors state that even though the global efforts to reduce the average wait time was achieved, there was more of an impact on low priority diseases as their wait times were more reduced than the wait time for the highest priority diseases. A possible reason for these results was that the system did not encourage the reduction of wait time specifically for high priority diseases and it was easier to have an impact by reducing the long wait times of those with low priority disease[120].

Rheumatology referral triage may have the potential to increase the timeliness with which more urgent cases are seen. However, how best to implement these tools is still undetermined. It could be hypothesized that provision of resources or sources of motivation (such as financial incentives[120]) would likely increase the chances of successful uptake of the referral triage among rheumatologist in Quebec.

### *7.3.1 Rehabilitation Component*

There was no prioritization noted between the RA and OA cases for the rehabilitation service providers and, similarly to the rheumatology component, there did not appear to be a formal triage system which was consistent across the centres. However, more than a quarter of the public rehabilitation service providers gave evaluation appointments to new patients which implies some type of prioritization based on assessment. The evaluation appointments serve as a form of triage, to determine the needs of each patient and present an opportunity for therapists to, presumably, provide some basic education to the patients regarding their condition. Moreover, this initial contact with either PT, OT or an interdisciplinary rehabilitation team may serve as an opportunity to teach self-management strategies, joint protection techniques and home exercise programs which are effective treatments for both RA and OA[2]. The majority of the centres offering the evaluation appointment were community health centres, possibly indicating a greater need for prioritization in this setting that serves all of the community needs for PT and OT.

The development of a prioritization tool may be useful in rehabilitation services. A study conducted in the Baffin Region of Nunavut, Canada, which developed a tool to

prioritize PT referrals found improved equity for PT service delivery and better job satisfaction among the PTs following the implementation of this tool[121]. However, a study evaluating a centralized model of triage for prioritization for community rehabilitation services showed that only moderate agreement (30% disagreement of triage decisions) when deciding on the patient priority for PT and OT[83]. It is possible that a standardized tool with increased objective criteria would enhance the agreement.

Based on the reasons for refusal to give an appointment, it would appear that rehabilitation service providers or their administration perceive a greater PT and OT need for patients with acute conditions (i.e. post-operative conditions, traumas, fractures, or recent hospital admissions) or the elderly. This is consistent with Passalent et al. in that arthritis is categorized as a chronic condition and is therefore less prioritized in rehabilitation services[95, 122]. Thus, developing patient, physician and therapist awareness regarding the importance and benefits of early access to PT and OT care is extremely important. However, awareness is only the first step. Concrete measures to improve access to care are sorely needed. One such measure is expanding the role of the rehabilitation professional. Expanding awareness and expanded roles of rehabilitation professionals will be discussed in the next sections.

### 7.4 Role of the Rehabilitation Professional

PT and OT interventions can optimize function and increase participation[2, 96-98]. Rehabilitation professionals, particularly PT and OT, can play a role in education, health

promotion, disease prevention, condition assessment, treatment and management of patients with arthritis.

Raising patient and family physician awareness regarding the importance of early access to rheumatology and rehabilitation care is vital for persons with arthritis. An increased understanding of the roles of PT and OT[90] and their benefits could help increase referrals rates to rehabilitation services by primary care providers. Patient education about potential advantages of PT and OT could facilitate greater perceived need and encourage patients to seek services[93, 113-116]. PTs and OTs have the expertise to communicate this knowledge to physicians and patients and to work as leaders in prevention, health promotion and public health.

The excessive wait times for rheumatology and rehabilitation services reflect a need for re-evaluation of the supply and demand in arthritis care. Rehabilitation professionals may help fill the current care gap as they develop and expand their roles as advanced-practice health care professionals[108, 123]. PTs and OTs have an extensive knowledge of the musculoskeletal system and an array of clinical skills which facilitate their role as advanced-practice clinicians. The advanced-practice PT in outpatient orthopaedic clinics has been present in the Ontario system for several years now and has been shown to decrease wait times for patients awaiting orthopaedic surgery[124]. They can also offer conservative management options for those who do not require surgery and enhance the management of those who do[124]. There is evidence that specially trained PTs in the UK screen and assess orthopaedic referrals which helps to reduce inappropriate referral to the orthopaedics department[104, 107]. Some PTs and OTs have already assumed these advanced

roles in Canada and conduct clinics and provide treatments within and beyond their tradition roles[108]. Continuing professional development has been associated with increasing PTs roles in the management of RA and OA[125].

There are programs that exist in Canada designed to offer specialty and advanced-practice options to healthcare professionals in clinical practice. Some of the current avenues for advanced-practice clinical education include facility-based training (i.e. Sunnybrook Holland Centre in Toronto), post-professional masters degrees (i.e. McMaster University (for PT and OT), Dalhousie University (for PT and OT), and The University of Western Ontario (for PT)), and certificate programs (i.e. Advanced Clinician Practitioner in Arthritis Care at St Michael's and Sickkids Hospital in Toronto and The Arthritis Continuing Education (ACE) Program in British Columbia)[125, 126]. There are also arthritis-specific training opportunities available through The Arthritis Society[127].

When approved by their provincial professional regulators, PTs and OTs are allowed to perform certain tasks beyond their regular scope of practice. For example, in Alberta, PTs and OTs are allowed to perform "advanced authorized activities" such as ordering imaging (i.e. x-rays, diagnostic ultrasound, magnetic resonance imaging) when appropriate[128, 129].

Rehabilitation professionals are an essential part of the interdisciplinary team for the management of persons with arthritis. As PTs and OTs expand their scope of practice in advanced-practice roles, they may help to improve wait times, decrease costs, increase patient satisfaction, improve patient outcomes and optimize care for persons with arthritis.

### 7.5 Clinical Implications

This study has shown that there are delays to rheumatology and rehabilitation services in Quebec. The clinical implications of these findings are described in this section.

Arthritis is one of the most common chronic health conditions in Canada and a major cause of morbidity, disability and health care utilization[130-132]. We used patient scenarios to obtain appointments. Unlike surveys that question clinicians about their impressions regarding wait times, we were able to document the current wait times for an appointment for persons with RA or OA in Quebec.

There are many steps within the care trajectories that can contribute to wait times and therefore improvements can be made at various levels. The wait time to see a rheumatologist may be the most amenable to improvement since rheumatologists strongly advocate for the need to see persons with RA as soon as possible[7] and there are clear guidelines to begin appropriate pharmacological treatment[5, 26-28].

Efforts have been underway to sensitize primary care providers to referring patients with RA early on in the course of disease. Rheumatologists want to see these patients as early as possible and specified referrals indicating suspicion of inflammatory arthritis may be helpful towards triaging these referrals. The implementation of programs and prioritization tools to facilitate timely access is needed.

There is an increased focus on reducing wait times in Canada and policy makers and clinicians are seeking ways to improve their practice and the way services are delivered. There is emerging evidence that the novel role of healthcare professionals as

advanced-practice clinicians may help reduce wait times and optimize care for patients. Utilizing PTs and OTs to their full scope can provide benefits for persons with RA and OA throughout the continuum of care. Increased health promotion for the prevention of disease progression and the management of RA and OA, along with the integration of advanced-practice models and public health programs will improve health outcomes and reduce the economical burden of arthritis on Quebecers.

### 7.6 Limitations

As mentioned in the manuscripts, there are several limitations to this study. When trying to get an appointment, we were unable to provide the personal details required by some offices, which could have expedited the initial consultation and provided us with more accurate wait times for each scenario. As previously mentioned, in those cases, an estimated wait time for the appointment date from the receptionist verbally was documented. Also, this study is focused in the province of Quebec and results and may not be generalizable to the rest of Canada. Common practice in Quebec is that the referring doctor gives the referral letter to the patient and it is then the patient's responsibility to coordinate the appointment with the specialist. This practice is not standard throughout the country.

Specifically for the rheumatology component, we were unable to account for the additional time that might have been required to organize the information requested, resend the referral, and receive a response from the rheumatology office. Moreover, had the primary care provider spoken directly to the rheumatologist to discuss the case or had the

patient called the office again offering to take the place of a cancellation, it could have also affected the wait times. Nonetheless, our data suggest that more than half of the offices do not use any formal triage for new patients and that 32% were not accepting new patients.

Additionally, regarding the rehabilitation component, this study does not account for the wait time differences between PT and OT as wait times were calculated as the time between the initial request and the appointment date received by one of the rehabilitation professionals, i.e. PT *or* OT. Although the OA case falls more likely under the scope of practice of PTs and the RA case under the scope of practice of OTs, these patients could have benefited from the expertise of both professionals. Even though they tend to have a different type of clientele, this study did not differentiate between rehabilitation centres and the other types of centres as they are all publicly funded and accessible PT and OT service providers.

### 7.7 Future Research

It is urgent that patients with arthritis receive prompt care and advice to manage their disease and prevent joint destruction and disability. Future research strategies are needed to try and improve the situation. These may include increasing awareness, implementing formal triage systems, expanding the role of allied health professionals, and having direct electronic linkages or networks for referral from the primary care provider's office.

A possible strategy to decrease the wait time to rheumatologists may be to establish a standardized model of triage or guidelines to ensure that referrals are completed and

appointments are obtained in a prompt fashion. This is being piloted in more than one centre in Quebec[103] and has been shown to decrease wait times in Alberta[81]. Establishing a prioritization or prognostic tool, could be further explored in the province of Quebec to ensure equity of distribution between the low and high priority patients.

A similar tool could be developed for rehabilitation services to optimize care and ensure the provision of appointments in a timely manner. Since persons with arthritis are not always receiving prompt rehabilitation services, the implementation of a management program to decrease the impact of arthritis while waiting for services could be extremely useful for this population. Further investigation is needed with regards to the evaluation appointment provided by some centres as it could serve as a stepping-stone to educate, raise awareness and introduce self-management programs to patients. There is also a need for the implementation and exploration of the advanced-practice PT and OT roles in Quebec which may have the ability to fill the care gap while waiting for services or even reduce the wait time by appropriately managing and triaging patients.

# Chapter 8: Conclusion

Arthritis is the leading cause of pain and disability in Canada and a major public health challenge. Persons with arthritis should have timely access to services in order to begin appropriate treatment and optimize health outcomes. This is especially crucial in the case of rheumatoid arthritis where early treatment with appropriate medications is needed. However, prompt treatment for osteoarthritis and rehabilitation strategies for both types of arthritis may serve to prevent deformity and disability.

The conclusions of our study are as follows. Although RA is prioritized over OA when obtaining an appointment to a rheumatologist in the province of Quebec, there are still problems with access to a rheumatologist once referred. The majority of persons with RA are still not receiving an appointment to a rheumatologist in a timely manner.

Most persons with arthritis living in the province of Quebec are not receiving publicly available PT or OT intervention in a timely manner. Those who require these services will either have to wait or access private services (i.e. pay for it themselves, or have supplementary insurance coverage).

Better methods for triage and increased resource allocation are needed to insure timely access to rheumatology and rehabilitation services that will ultimately optimize patient function and participation. There is emerging evidence that the advanced role of the rehabilitation professional may help to improve wait times and optimize care for persons with arthritis. Future research should focus on these new strategies in order to ensure timely and equitable care to persons with arthritis.

# Bibliography


1. **Canada H. First Minister's Meeting on the Future of Health Care 2004 - A 10-year plan to strengthen health care. 2004; http://www.hc-sc.gc.ca/hcs-sss/delivery-prestation/fptcollab/2004-fmm-rpm/index-eng.php. Accessed June 6, 2011.**

2. **Public Health Agency of Canada. Life with Arthritis in Canada: A personal and Public Health Challenge2010. Accessed February 2011.**

3. **Klippel J, Crofford L, Stone J, Weyand C. *Primer on the Rheumatic Diseases*. 12 ed: Arthritis Foundation; 2001.**

4. **Gabriel SE, Michaud K. Epidemiological studies in incidence, prevalence, mortality, and comorbidity of the rheumatic diseases. *Arthritis Res Ther.* 2009;11(3):229.**

5. **Alliance for the Canadian Arthritis Program. Arthritis Isn't a Big Deal... Until You Get It: Call to Action on Standards for Arthritis Prevention and Care2005: http://www.arthritisalliance.ca/docs/ACAP%20letter%20Final.pdf.**

6. **Bernatsky S, Feldman D, Shrier I, et al. Care pathways in early rheumatoid arthritis. *Can Fam Physician.* Nov 2006;52(11):1444-1445.**

7. **College of Family Physicians of Canada CMA, Royal College of Physicians and Surgeons of Canada. National Physician Survey, 2004: National Results for Rheumatologists. 2004; http://www.nationalphysiciansurvey.ca/nps/results/PDF-e/SP/Specialty/Rheum/Rheuma-G.pdf.**

8. **Recommendations for the medical management of osteoarthritis of the hip and knee: 2000 update. American College of Rheumatology Subcommittee on Osteoarthritis Guidelines. *Arthritis Rheum.* Sep 2000;43(9):1905-1915.**

9. **Glazier RH, Dalby DM, Badley EM, et al. Management of the early and late presentations of rheumatoid arthritis: a survey of Ontario primary care physicians. *CMAJ.* Sep 15 1996;155(6):679-687.**

10. **Hochberg MC, Altman RD, Brandt KD, et al. Guidelines for the medical management of osteoarthritis. Part II. Osteoarthritis of the knee. American College of Rheumatology. *Arthritis Rheum.* Nov 1995;38(11):1541-1546.**

**11. Buckwalter JA, Stanish WD, Rosier RN, Schenck RC, Jr., Dennis DA, Coutts RD. The increasing need for nonoperative treatment of patients with osteoarthritis. *Clin Orthop Relat Res.* Apr 2001(385):36-45.**

**12. Li LC, Iversen MD. Outcomes of patients with rheumatoid arthritis receiving rehabilitation. *Curr Opin Rheumatol.* Mar 2005;17(2):172-176.**

**13. Lineker SC, Bell MJ, Wilkins AL, Badley EM. Improvements following short term home based physical therapy are maintained at one year in people with moderate to severe rheumatoid arthritis. *J Rheumatol.* Jan 2001;28(1):165-168.**

**14. Beatty PW, Hagglund KJ, Neri MT, Dhont KR, Clark MJ, Hilton SA. Access to health care services among people with chronic or disabling conditions: patterns and predictors. *Arch Phys Med Rehabil.* Oct 2003;84(10):1417-1425.**

**15. Hagglund KJ, Clark MJ, Hilton SA, Hewett JE. Access to healthcare services among persons with osteoarthritis and rheumatoid arthritis. *Am J Phys Med Rehabil.* Sep 2005;84(9):702-711.**

**16. Speed CA, Crisp AJ. Referrals to hospital-based rheumatology and orthopaedic services: seeking direction. *Rheumatology (Oxford).* Apr 2005;44(4):469-471.**

**17. MacKay C, Canizares M, Davis AM, Badley EM. Health care utilization for musculoskeletal disorders. *Arthritis Care Res (Hoboken).* Feb 2010;62(2):161-169.**

**18. Klareskog L, Catrina AI, Paget S. Rheumatoid arthritis. *Lancet.* Feb 21 2009;373(9664):659-672.**

**19. Moser MM. Treatment for a 14-Year-Old Girl With Lyme Disease Using Therapeutic Exercise and Gait Training. *Phys Ther.* Jul 7 2011.**

**20. Fernandes L, Storheim K, Nordsletten L, Risberg MA. Development of a therapeutic exercise program for patients with osteoarthritis of the hip. *Phys Ther.* Apr 2010;90(4):592-601.**

**21. Fleming A, Crown JM, Corbett M. Early rheumatoid disease. I. Onset. *Ann Rheum Dis.* Aug 1976;35(4):357-360.**

**22. Myasoedova E, Davis JM, 3rd, Crowson CS, Gabriel SE. Epidemiology of rheumatoid arthritis: rheumatoid arthritis and mortality. *Curr Rheumatol Rep.* Oct 2010;12(5):379-385.**

**23.** **Berkanovic E, Hurwicz ML. Rheumatoid arthritis and comorbidity. *J Rheumatol.* Jul 1990;17(7):888-892.**

**24.** **Aletaha D, Neogi T, Silman AJ, et al. 2010 Rheumatoid arthritis classification criteria: an American College of Rheumatology/European League Against Rheumatism collaborative initiative. *Arthritis Rheum.* Sep 2010;62(9):2569-2581.**

**25.** **Lee DM, Weinblatt ME. Rheumatoid arthritis. *Lancet.* Sep 15 2001;358(9285):903-911.**

**26.** **Puolakka K, Kautiainen H, Mottonen T, et al. Impact of initial aggressive drug treatment with a combination of disease-modifying antirheumatic drugs on the development of work disability in early rheumatoid arthritis: a five-year randomized followup trial. *Arthritis Rheum.* Jan 2004;50(1):55-62.**

**27.** **Goekoop-Ruiterman YP, de Vries-Bouwstra JK, Allaart CF, et al. Comparison of treatment strategies in early rheumatoid arthritis: a randomized trial. *Ann Intern Med.* Mar 20 2007;146(6):406-415.**

**28.** **Finckh A, Bansback N, Marra CA, et al. Treatment of very early rheumatoid arthritis with symptomatic therapy, disease-modifying antirheumatic drugs, or biologic agents: a cost-effectiveness analysis. *Ann Intern Med.* Nov 3 2009;151(9):612-621.**

**29.** **Saag KG, Teng GG, Patkar NM, et al. American College of Rheumatology 2008 recommendations for the use of nonbiologic and biologic disease-modifying antirheumatic drugs in rheumatoid arthritis. *Arthritis Rheum.* Jun 15 2008;59(6):762-784.**

**30.** **Maini R. Patient information: Disease modifying antirheumatic drugs (DMARDs). 2011; http://www.uptodate.com/contents/patient-information-disease-modifying-antirheumatic-drugs-dmards. Accessed June 17, 2011.**

**31.** **Smolen JS, Landewe R, Breedveld FC, et al. EULAR recommendations for the management of rheumatoid arthritis with synthetic and biological disease-modifying antirheumatic drugs. *Ann Rheum Dis.* Jun 2010;69(6):964-975.**

**32.** **Cronstein BN. Therapeutic cocktails for rheumatoid arthritis: the mixmaster's guide. *Arthritis Rheum.* Jul 2004;50(7):2041-2043.**

**33.** **Wolfe F, Marmor MF. Rates and predictors of hydroxychloroquine retinal toxicity in patients with rheumatoid arthritis and systemic lupus erythematosus. *Arthritis Care Res (Hoboken).* Jun 2010;62(6):775-784.**

**34.** **Katchamart W, Trudeau J, Phumethum V, Bombardier C. Efficacy and toxicity of methotrexate (MTX) monotherapy versus MTX combination therapy with non-biological disease-modifying antirheumatic drugs in rheumatoid arthritis: a systematic review and meta-analysis. *Ann Rheum Dis.* Jul 2009;68(7):1105-1112.**

**35.** **Bijlsma JW, Boers M, Saag KG, Furst DE. Glucocorticoids in the treatment of early and late RA. *Ann Rheum Dis.* Nov 2003;62(11):1033-1037.**

**36.** **Brooks PM, Day RO. Nonsteroidal antiinflammatory drugs--differences and similarities. *N Engl J Med.* Jun 13 1991;324(24):1716-1725.**

**37.** **Donahue KE, Gartlehner G, Jonas DE, et al. Systematic review: comparative effectiveness and harms of disease-modifying medications for rheumatoid arthritis. *Ann Intern Med.* Jan 15 2008;148(2):124-134.**

**38.** **British Columbia Ministry of Health. Rheumatoid Arthritis: Diagnosis and Management. 2006; http://www.bcguidelines.ca/guideline_ra.html#rec5.**

**39.** **Hurkmans E, van der Giesen FJ, Vliet Vlieland TP, Schoones J, Van den Ende EC. Dynamic exercise programs (aerobic capacity and/or muscle strength training) in patients with rheumatoid arthritis. *Cochrane Database Syst Rev.* 2009(4):CD006853.**

**40.** **Casimiro L, Brosseau L, Robinson V, et al. Therapeutic ultrasound for the treatment of rheumatoid arthritis. *Cochrane Database Syst Rev.* 2002(3):CD003787.**

**41.** **Chalmers AC, Busby C, Goyert J, Porter B, Schulzer M. Metatarsalgia and rheumatoid arthritis--a randomized, single blind, sequential trial comparing 2 types of foot orthoses and supportive shoes. *J Rheumatol.* Jul 2000;27(7):1643-1647.**

**42.** **Robinson V, Brosseau L, Casimiro L, et al. Thermotherapy for treating rheumatoid arthritis. *Cochrane Database Syst Rev.* 2002(2):CD002826.**

**43.** **Macedo AM, Oakley SP, Panayi GS, Kirkham BW. Functional and work outcomes improve in patients with rheumatoid arthritis who receive targeted, comprehensive occupational therapy. *Arthritis Rheum.* Nov 15 2009;61(11):1522-1530.**

**44.** **Stenstrom CH. Therapeutic exercise in rheumatoid arthritis. *Arthritis Care Res.* Dec 1994;7(4):190-197.**

**45. van den Ende CH, Breedveld FC, le Cessie S, Dijkmans BA, de Mug AW, Hazes JM. Effect of intensive exercise on patients with active rheumatoid arthritis: a randomised clinical trial. *Ann Rheum Dis.* Aug 2000;59(8):615-621.**

**46. de Jong Z, Munneke M, Zwinderman AH, et al. Is a long-term high-intensity exercise program effective and safe in patients with rheumatoid arthritis? Results of a randomized controlled trial. *Arthritis Rheum.* Sep 2003;48(9):2415-2424.**

**47. Baillet A, Zeboulon N, Gossec L, et al. Efficacy of cardiorespiratory aerobic exercise in rheumatoid arthritis: meta-analysis of randomized controlled trials. *Arthritis Care Res (Hoboken).* Jul 2010;62(7):984-992.**

**48. Ottawa Panel evidence-based clinical practice guidelines for therapeutic exercises in the management of rheumatoid arthritis in adults. *Phys Ther.* Oct 2004;84(10):934-972.**

**49. Steultjens EM, Dekker J, Bouter LM, van Schaardenburg D, van Kuyk MA, van den Ende CH. Occupational therapy for rheumatoid arthritis: a systematic review. *Arthritis Rheum.* Dec 15 2002;47(6):672-685.**

**50. Steultjens EM, Dekker J, Bouter LM, van Schaardenburg D, van Kuyk MA, van den Ende CH. Occupational therapy for rheumatoid arthritis. *Cochrane Database Syst Rev.* 2004(1):CD003114.**

**51. Warsi A, LaValley MP, Wang PS, Avorn J, Solomon DH. Arthritis self-management education programs: a meta-analysis of the effect on pain and disability. *Arthritis Rheum.* Aug 2003;48(8):2207-2213.**

**52. Garstang SV, Stitik TP. Osteoarthritis: epidemiology, risk factors, and pathophysiology. *Am J Phys Med Rehabil.* Nov 2006;85(11 Suppl):S2-11; quiz S12-14.**

**53. Hochberg MC. Mortality in osteoarthritis. *Clin Exp Rheumatol.* Sep-Oct 2008;26(5 Suppl 51):S120-124.**

**54. Nuesch E, Dieppe P, Reichenbach S, Williams S, Iff S, Juni P. All cause and disease specific mortality in patients with knee or hip osteoarthritis: population based cohort study. *BMJ.* 2011;342:d1165.**

**55. Altman R, Asch E, Bloch D, et al. Development of criteria for the classification and reporting of osteoarthritis. Classification of osteoarthritis of the knee. Diagnostic and Therapeutic Criteria Committee of the American Rheumatism Association. *Arthritis Rheum.* Aug 1986;29(8):1039-1049.**

**56. Altman R, Alarcon G, Appelrouth D, et al. The American College of Rheumatology criteria for the classification and reporting of osteoarthritis of the hand. *Arthritis Rheum.* Nov 1990;33(11):1601-1610.**

**57. Altman R, Alarcon G, Appelrouth D, et al. The American College of Rheumatology criteria for the classification and reporting of osteoarthritis of the hip. *Arthritis Rheum.* May 1991;34(5):505-514.**

**58. Jordan KM, Arden NK, Doherty M, et al. EULAR Recommendations 2003: an evidence based approach to the management of knee osteoarthritis: Report of a Task Force of the Standing Committee for International Clinical Studies Including Therapeutic Trials (ESCISIT). *Ann Rheum Dis.* Dec 2003;62(12):1145-1155.**

**59. Arroll B, Goodyear-Smith F. Corticosteroid injections for osteoarthritis of the knee: meta-analysis. *BMJ.* Apr 10 2004;328(7444):869.**

**60. Bjordal JM, Ljunggren AE, Klovning A, Slordal L. Non-steroidal anti-inflammatory drugs, including cyclo-oxygenase-2 inhibitors, in osteoarthritic knee pain: meta-analysis of randomised placebo controlled trials. *BMJ.* Dec 4 2004;329(7478):1317.**

**61. Deyle GD, Henderson NE, Matekel RL, Ryder MG, Garber MB, Allison SC. Effectiveness of manual physical therapy and exercise in osteoarthritis of the knee. A randomized, controlled trial. *Ann Intern Med.* Feb 1 2000;132(3):173-181.**

**62. Fransen M, Crosbie J, Edmonds J. Physical therapy is effective for patients with osteoarthritis of the knee: a randomized controlled clinical trial. *J Rheumatol.* Jan 2001;28(1):156-164.**

**63. Messier SP, Loeser RF, Miller GD, et al. Exercise and dietary weight loss in overweight and obese older adults with knee osteoarthritis: the Arthritis, Diet, and Activity Promotion Trial. *Arthritis Rheum.* May 2004;50(5):1501-1510.**

**64. Allen KD, Oddone EZ, Coffman CJ, et al. Telephone-based self-management of osteoarthritis: A randomized trial. *Ann Intern Med.* Nov 2 2010;153(9):570-579.**

**65. Lopopolo RB, Greco M, Sullivan D, Craik RL, Mangione KK. Effect of therapeutic exercise on gait speed in community-dwelling elderly people: a meta-analysis. *Phys Ther.* Apr 2006;86(4):520-540.**

**66. Binder SA, Moll CB, Wolf SL. Evaluation of electromyographic biofeedback as an adjunct to therapeutic exercise in treating the lower extremities of hemiplegic patients. *Phys Ther.* Jun 1981;61(6):886-893.**

**67. Lutzner J, Kasten P, Gunther KP, Kirschner S. Surgical options for patients with osteoarthritis of the knee. *Nat Rev Rheumatol.* Jun 2009;5(6):309-316.**

**68. Brosseau L, Wells GA, Tugwell P, et al. Ottawa Panel evidence-based clinical practice guidelines for strengthening exercises in the management of fibromyalgia: part 2. *Phys Ther.* Jul 2008;88(7):873-886.**

**69. Tsakonas E, Fitzgerald AA, Fitzcharles MA, et al. Consequences of delayed therapy with second-line agents in rheumatoid arthritis: a 3 year followup on the hydroxychloroquine in early rheumatoid arthritis (HERA) study. *J Rheumatol.* Mar 2000;27(3):623-629.**

**70. Anderson JJ, Wells G, Verhoeven AC, Felson DT. Factors predicting response to treatment in rheumatoid arthritis: the importance of disease duration. *Arthritis Rheum.* Jan 2000;43(1):22-29.**

**71. Mottonen T, Hannonen P, Korpela M, et al. Delay to institution of therapy and induction of remission using single-drug or combination-disease-modifying antirheumatic drug therapy in early rheumatoid arthritis. *Arthritis Rheum.* Apr 2002;46(4):894-898.**

**72. van der Linden MP, le Cessie S, Raza K, et al. Long-term impact of delay in assessment of patients with early arthritis. *Arthritis Rheum.* Dec 2010;62(12):3537-3546.**

**73. Emery P, Breedveld FC, Dougados M, Kalden JR, Schiff MH, Smolen JS. Early referral recommendation for newly diagnosed rheumatoid arthritis: evidence based development of a clinical guide. *Ann Rheum Dis.* Apr 2002;61(4):290-297.**

**74. Pincus T, Sokka T. How can the risk of long-term consequences of rheumatoid arthritis be reduced? *Best Pract Res Clin Rheumatol.* Mar 2001;15(1):139-170.**

**75. Potter T, Mulherin D, Pugh M. Early intervention with disease-modifying therapy for rheumatoid arthritis: where do the delays occur? *Rheumatology (Oxford).* Aug 2002;41(8):953-955; author reply 955.**

**76. Quinn MA, Emery P. Window of opportunity in early rheumatoid arthritis: possibility of altering the disease process with early intervention. *Clin Exp Rheumatol.* Sep-Oct 2003;21(5 Suppl 31):S154-157.**

**77. Jamal S, Alibhai SM, Badley EM, Bombardier C. Time to treatment for new patients with rheumatoid arthritis in a major metropolitan city. *J Rheumatol.* Jul 2011;38(7):1282-1288.**

**78.** **O'Dell JR. Therapeutic strategies for rheumatoid arthritis. *N Engl J Med.* Jun 17 2004;350(25):2591-2602.**

**79.** **Yelin EH, Such CL, Criswell LA, Epstein WV. Outcomes for persons with rheumatoid arthritis with a rheumatologist versus a non-rheumatologist as the main physician for this condition. *Med Care.* Apr 1998;36(4):513-522.**

**80.** **British Columbia Ministry of Health. Osteoarthritis in Peripheral Joints - Diagnosis and Treatment. 2008; www.bcguidelines.ca/guideline_osteoarthritis.html#10. Accessed August 20, 2011.**

**81.** **Lopez JP, Burant CJ, Siminoff LA, Kwoh CK, Ibrahim SA. Patient perceptions of access to care and referrals to specialists: a comparison of African-American and white older patients with knee and hip osteoarthritis. *J Natl Med Assoc.* May 2005;97(5):667-673.**

**82.** **Hammond A, Young A, Kidao R. A randomised controlled trial of occupational therapy for people with early rheumatoid arthritis. *Ann Rheum Dis.* Jan 2004;63(1):23-30.**

**83.** **Helliwell PS, O'Hara M, Holdsworth J, Hesselden A, King T, Evans P. A 12-month randomized controlled trial of patient education on radiographic changes and quality of life in early rheumatoid arthritis. *Rheumatology (Oxford).* Apr 1999;38(4):303-308.**

**84.** **Werner RA, Franzblau A, Gell N. Randomized controlled trial of nocturnal splinting for active workers with symptoms of carpal tunnel syndrome. *Arch Phys Med Rehabil.* Jan 2005;86(1):1-7.**

**85.** **Hawker G BE, Jaglal S, Dunn S, Croxford R, Ko B, Degani N, Bierman AS Ontario Women's Health Equity Report. *Chapter 8: Musculoskeletal Conditions.* Vol 22010: http://www.powerstudy.ca/the-power-report/the-power-report-volume-2/musculoskeletal-conditions.**

**86.** **Lacaille D, Anis AH, Guh DP, Esdaile JM. Gaps in care for rheumatoid arthritis: a population study. *Arthritis Rheum.* Apr 15 2005;53(2):241-248.**

**87.** **Tavares R TG, Boire G, Laupacis A, Bombardier C. UNCOVER Investigators. Time to Disease Modifying Anti-Rheumatic Drug Treatment in a National, Multi-Centre, Historical Inception Cohort of Randomly Selected, Early Rheumatoid Arthritis. Boston: 2007 Annual Scientific Meeting of the American College of Rheumatology; 2007.**

**88.** **Feldman DE, Bernatsky S, Haggerty J, et al. Delay in consultation with specialists for persons with suspected new-onset rheumatoid arthritis: a population-based study. *Arthritis Rheum.* Dec 15 2007;57(8):1419-1425.**

**89.** **Feldman DE, Schieir O, Montcalm AJ, Bernatsky S, Baron M. Rapidity of rheumatology consultation for people in an early inflammatory arthritis cohort. *Ann Rheum Dis.* Nov 2009;68(11):1790-1791.**

**90.** **Sandhu RS, Treharne GJ, Justice EA, et al. Accessibility and quality of secondary care rheumatology services for people with inflammatory arthritis: a regional survey. *Clin Med.* Dec 2007;7(6):579-584.**

**91.** **Kumar K, Daley E, Carruthers DM, et al. Delay in presentation to primary care physicians is the main reason why patients with rheumatoid arthritis are seen late by rheumatologists. *Rheumatology (Oxford).* Sep 2007;46(9):1438-1440.**

**92.** **O'Donnell CA. Variation in GP referral rates: what can we learn from the literature? *Fam Pract.* Dec 2000;17(6):462-471.**

**93.** **Feldman DE, Bernatsky S, Levesque JF, Van MT, Houde M, April KT. Access and perceived need for physical and occupational therapy in chronic arthritis. *Disabil Rehabil.* 2010;32(22):1827-1832.**

**94.** **Québec Rdlam. Coverage of Medical Services in Québec. 2011; http://www.ramq.gouv.qc.ca/en/citoyens/assurancemaladie/serv_couv_queb/serv_med_sc.shtml. Accessed August 19, 2011.**

**95.** **Passalent LA, Landry MD, Cott CA. Wait times for publicly funded outpatient and community physiotherapy and occupational therapy services: implications for the increasing number of persons with chronic conditions in ontario, Canada. *Physiother Can.* Winter 2009;61(1):5-14.**

**96.** **The Bone and Joint Decade Foundation TELAR, The European Federation of National Associations of Orthopaedics and Traumatology, and The International Osteoporosis Foundation. European Action Towards Better Musculoskeletal Health: A Public Health Strategy to Reduce the Burden of Musculoskeletal Conditions - Turning Evidence into Everyday Practice. Sweden: The Bone & Joint Decade; 2005: www.boneandjointdecade.org/ViewDocument.aspx?ContId=534.**

**97.** **Bartlett SJ BC, Maricic MJ, Iversen MD, Ruffing V. *Clinical Care in the Rheumatic Diseases*. 3rd ed. Atlanta, GA: Association of Rheumatology Health Professionals, American College of Rheumatology; 2006.**

**98.** **National Arthritis and Musculoskeletal Conditions Advisory Group (NAMSCAG). Evidence to Support the National Action Plan for Osteoarthritis, Rheumatoid Arthritis and Osteoporosis: Opportunities to Improve Health-Related Quality of Life and Reduce the Burden of Disease and Disability. . Canberra: Australian Government Department of Health and Ageing; 2004: http://www.nhpac.gov.au.**

**99.** **Bernatsky S, Feldman D, De Civita M, et al. Optimal care for rheumatoid arthritis: a focus group study. *Clin Rheumatol.* Jun 2010;29(6):645-657.**

**100.** **Robinson PC, Taylor WJ. Time to treatment in rheumatoid arthritis: factors associated with time to treatment initiation and urgent triage assessment of general practitioner referrals. *J Clin Rheumatol.* Sep 2010;16(6):267-273.**

**101.** **De Coster C, Fitzgerald A, Cepoiu M. Priority-setting tools for rheumatology disease referrals: a review of the literature. *Clin Rheumatol.* Nov 2008;27(11):1411-1416.**

**102.** **Fautrel B, Benhamou M, Foltz V, et al. Early referral to the rheumatologist for early arthritis patients: evidence for suboptimal care. Results from the ESPOIR cohort. *Rheumatology (Oxford).* Jan 2010;49(1):147-155.**

**103.** **Bernatsky S BA, Goldstein H, Baron M, Lou B, Ménard H, Dawes M. Rapid Referral to Rheumatology: A Pilot Study (Abstract). *Family Medicine* Vol 42 (suppl 2)2010:S7254.**

**104.** **Li LC, Badley EM, MacKay C, et al. An evidence-informed, integrated framework for rheumatoid arthritis care. *Arthritis Rheum.* Aug 15 2008;59(8):1171-1183.**

**105.** **Gormley GJ, Steele WK, Gilliland A, et al. Can diagnostic triage by general practitioners or rheumatology nurses improve the positive predictive value of referrals to early arthritis clinics? *Rheumatology (Oxford).* Jun 2003;42(6):763-768.**

**106.** **Hill J, Thorpe R, Bird H. Outcomes for patients with RA: a rheumatology nurse practitioner clinic compared to standard outpatient care. *Musculoskeletal Care.* Mar 2003;1(1):5-20.**

**107.** **O'Cathain A, Froggett M, Taylor MP. General practice based physiotherapy: its use and effect on referrals to hospital orthopaedics and rheumatology outpatient departments. *Br J Gen Pract.* Jul 1995;45(396):352-354.**

**108.** **Campos A, Graveline C, Ferguson J, Lundon K, Schneider R, Laxer R. The physical therapy practitioner: an expanded role for physical therapy in pediatric rheumatology. *Physiotherapy Canada.* 2001;53(Part 4):282-287.**

**109.** **Campos A, Graveline C, Ferguson J, et al. The physical therapy practitioner (PTP) in pediatric rheumatology: high level of patient and parent satisfaction with services. . *Physiotherapy Canada.* 2002;54:32-36.**

**110.** **Qian J, Ehrmann Feldman D, Bissonauth A, et al. A retrospective review of rheumatology referral wait times within a health centre in Quebec, Canada. *Rheumatol Int.* Mar 2010;30(5):705-707.**

**111.** **Hanly JG. Physician resources and postgraduate training in canadian academic rheumatology centers: a 5-year prospective study. *J Rheumatol.* Jun 2004;31(6):1200-1205.**

**112.** **Tabenkin H, Oren B, Steinmetz D, Tamir A, Kitai E. Referrals of patients by family physicians to consultants: a survey of the Israeli Family Practice Research Network. *Fam Pract.* Apr 1998;15(2):158-164.**

**113.** **Freburger JK, Carey TS, Holmes GM. Physician referrals to physical therapists for the treatment of spine disorders. *Spine J.* Sep-Oct 2005;5(5):530-541.**

**114.** **Freburger JK, Carey TS, Holmes GM. Management of back and neck pain: who seeks care from physical therapists? *Phys Ther.* Sep 2005;85(9):872-886.**

**115.** **Jacobi CE, Mol GD, Boshuizen HC, Rupp I, Dinant HJ, Van Den Bos GA. Impact of socioeconomic status on the course of rheumatoid arthritis and on related use of health care services. *Arthritis Rheum.* Aug 15 2003;49(4):567-573.**

**116.** **Jacobi CE, Triemstra M, Rupp I, Dinant HJ, Van Den Bos GA. Health care utilization among rheumatoid arthritis patients referred to a rheumatology center: unequal needs, unequal care? *Arthritis Rheum.* Aug 2001;45(4):324-330.**

**117.** **Von zweck C. The occupational therapy workforce in Canada: A Review of Available Data. *Occupational Therapy Now - Canadian Association of Occupational Therapists.* 2008;10(2):3-6.**

**118.** **Québec Sess. Garantir l'accès : un défi d'équité, d'efficience et de qualité. *Document de consultation*2006: http://publications.msss.gouv.qc.ca/acrobat/f/documentation/2005/05-721-01.pdf.**

**119.** **Fitzgerald A, de Coster C, McMillan S, et al. Relative urgency for referral from primary care to rheumatologists: the Priority Referral Score. *Arthritis Care Res (Hoboken).* Feb 2011;63(2):231-239.**

**120.** **Askildsen JE, Holmas TH, Kaarboe O. Prioritization and patients' rights: analysing the effect of a reform in the Norwegian hospital sector. *Soc Sci Med.* Jan 2010;70(2):199-208.**

**121.** **Miller Mifflin T, Bzdell M. Development of a physiotherapy prioritization tool in the Baffin Region of Nunavut: a remote, under-serviced area in the Canadian Arctic. *Rural Remote Health.* Apr-Jun 2010;10(2):1466.**

**122.** **Passalent LA, Landry MD, Cott CA. Exploring wait list prioritization and management strategies for publicly funded ambulatory rehabilitation services in ontario, Canada: further evidence of barriers to access for people with chronic disease. *Healthc Policy.* May 2010;5(4):e139-156.**

**123.** **Li LC, Davis AM, Lineker SC, Coyte PC, Bombardier C. Effectiveness of the primary therapist model for rheumatoid arthritis rehabilitation: a randomized controlled trial. *Arthritis Rheum.* Feb 15 2006;55(1):42-52.**

**124.** **Aiken AB, Harrison MM, Hope J. Role of the advanced practice physiotherapist in decreasing surgical wait times. *Healthc Q.* 2009;12(3):80-83.**

**125.** **Li LC, Hurkmans EJ, Sayre EC, Vliet Vlieland TP. Continuing professional development is associated with increasing physical therapists' roles in arthritis management in Canada and the Netherlands. *Phys Ther.* Apr 2010;90(4):629-642.**

**126.** **Canadian Association of Occupational Therapists (CAOT). Professional Issue Forum: Advanced Practice for Occupation Therapy. 2009; http://www.caot.ca/pdfs/AP%20PIF%20Master%20Presentation%202009.pdf.**

**127.** **Stokes BA, Helewa A, Lineker SC. Total assessment of rheumatoid polyarthritis--a postgraduate training program for physical and occupational therapists: a 20 year success story. *J Rheumatol.* Aug 1997;24(8):1634-1638.**

**128.** **Physiotherapy Alberta College and Association. Restricted Activities. http://www.physiotherapyalberta.ca/physiotherapists/licensed_in_alberta/restricted_activities. Accessed August 2011.**

**129.** **Alberta Regulation: Health Professions Act. Occupation Therapist Profession Regulation2006: http://www.acot.ca/files/Alberta_Regulation_217.pdf.**

**130.** **Perruccio AV, Power JD, Badley EM. The relative impact of 13 chronic conditions across three different outcomes. *J Epidemiol Community Health.* Dec 2007;61(12):1056-1061.**

**131. Badley EM. Rheumatic diseases: the unnoticed elephant in the room. *J Rheumatol.* Jan 2008;35(1):6-7.**

**132. Public Health Agency of Canada. Arthritis in Canada: An Ongoing Challenge. Ottawa, ON: Health Canada; 2003: http://www.acreu.ca/pdf/Arthritis_in_Canada.pdf. Accessed May 2011.**

# Appendix A: Ethics Approval

Université de Montréal
Faculté de médecine

Montréal, le 8 avril 2009

Mme Ashley Delaurier
Dre Debbie Feldman
École de Réadaptation

**Objet : Non nécessité de l'émission d'un certificat éthique**

Madame Delaurier, Docteure Feldman,

Le Comité d'éthique de la recherche de la Faculté de médecine de l'Université de Montréal (CERFM) a étudié les documents déposés le 23 mars 2009 concernant l'étude d'assurance de qualité intitulée : « **Les délais d'attente en rhumatologie et en service de réadaptation: l'arthrite rhumatoïde est-elle une priorité?** » présentée par Mme Ashley Delaurier et Dre Debbie Feldman.

Numéro de référence au CERFM : **CERFM (09)#349**

Le CERFM considère que ce projet constitue une étude d'assurance de qualité et non pas une recherche avec des humains, par conséquent, l'émission d'un certificat éthique n'est pas requise.

Veuillez agréer l'expression de mes sentiments les meilleurs.

Isabelle B-Ganache, présidente
Comité d'éthique de la recherche
Faculté de médecine
Université de Montréal

McGill

Faculty of Medicine
3655 Promenade Sir William Osler
Montreal, QC H3G 1Y6

Faculté de médecine
3655, Promenade Sir William Osler
Montréal, QC, H3G 1Y6

Fax/Télécopieur: (514) 398-3595

August 14, 2009

Dr. Sasha Bernatsky
Division of Clinical Epidemiology
V-Building
Royal Victoria Hospital
687 Pine Avenue West
Montreal Quebec H3A 1A1

Dear Dr. Bernatsky,

Our office has received your protocol submission for ethics review for the study titled, *"Time to get an appointment to a rheumatologist and for rehabilitation services: is rheumatoid arthritis prioritized?"*

As this study involves no more than minimal risk, and in accordance with Article 1.6 of the Canadian Tri-Council Policy Statement of Ethical Conduct for Research Involving Humans and U.S. Title 45 CFR 46, Section 110 (b), paragraph (1), we are pleased to inform you that approval for the study (July 2009) was provided via an expedited review by the Chair on August 14, 2009, valid until **August 2010.** The study proposal will be presented for corroborative approval at the next meeting of the Committee and a certification document will be issued to you at that time.

A review of all research involving human subjects is required on an annual basis in accord with the date of initial approval. The annual review should be submitted at least one month before **August 2010**. Should any modification to the study occur over the next twelve months, please advise IRB appropriately.

Yours sincerely,

Serge Gauthier, MD
Chair
Institutional Review Board

cc: Dr. Debbie Feldman, Université de Montréal ✓
A08-E67-09B

McGill

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August 31, 2010

Dr. Sasha Bernatsky
Division of Clinical Epidemiology
V-Building
Royal Victoria Hospital
687 Pine Avenue West
Montreal Quebec H3A 1A1

**RE: IRB Study No. A08-E67-09B**

Dear Dr. Bernatsky,

We are writing in response to your request for continuing review for the study entitled, ***"Time to get an appointment to a rheumatologist and for rehabilitation services: is rheumatoid arthritis prioritized?"***

The progress report was reviewed and we are pleased to inform you that full Board re-approval for the study was provided on **August 30, 2010, valid until August 29, 2011**. The certification of annual review has been enclosed.

We ask you to take note of the investigator's responsibility to assure that the current protocol and consent document are deposited on an annual basis with the Research Ethics Board of each hospital where patient enrollment or data collection is conducted.

Should any modification or unanticipated development occur prior to the next review, please advise the IRB promptly.

Yours sincerely,

Serge Gauthier, MD
Chair
Institutional Review Board

cc: Dr. Debbie Feldman, Université de Montréal
A08-E67-09B

# Appendix B : Agreement of Co-Authors

**ACCORD DES COAUTEURS ET PERMISSION DE L'ÉDITEUR (Annexe I)**

**A) Accord des coauteurs d'un article**

1. Identification de l'étudiant et du programme

Ashley Delaurier
Code permanent : DELA 03618308
M.Sc. Sciences biomédicales, option réadaptation
École de Réadaptation, Faculté de médecine
Université de Montréal

2. Description de l'article:

Title: Wait Times for Rheumatology Consultation: Is Rheumatoid Arthritis Prioritized?
Auteurs: Delaurier, A.; Bernatsky,S.; Baron, M.; Légaré, J.; Ehrmann Feldman, D.
État actuel : Soumis pour publication à Healthcare Quarterly

3. Déclaration de tous les coauteurs autres que l'étudiant :

À titre de coauteur de l'article identifié ci-dessus, je suis d'accord pour que ASHLEY DELAURIER inclue l'article identifié ci-dessus dans mémoire de maîtrise qui a pour titre : « Wait Times to Rheumatology and Rehabilitation Services for Persons with Arthritis in Quebec ».

le 26 mai 2011

Coauteur Signature — Date
Debbie Ehrmann Feldman

May 27th, 2011

Coauteur Signature — Date
Sasha Bernatsky

June 1st, 2011

Coauteur Signature — Date
Murray Baron

June 4th, 2011

Coauteur Signature — Date
Jean Légaré

**ACCORD DES COAUTEURS ET PERMISSION DE L'ÉDITEUR (Annexe I)**

**A) Accord des coauteurs d'un article**

1. Identification de l'étudiant et du programme

Ashley Delaurier
Code permanent : DELA 03618308
M.Sc. Sciences biomédicales, option réadaptation
École de Réadaptation, Faculté de médecine
Université de Montréal

2. Description de l'article:

Title: Wait Times for Physical and Occupational Therapy in the Public System for Person with Arthritis in Quebec, Canada.
Auteurs: Delaurier, A.; Bernatsky,S.; Raymond, M.-H.; Ehrmann Feldman, D.
État actuel : En préparation, destiné à Canadian Journal of Rehabilitation

3. Déclaration de tous les coauteurs autres que l'étudiant :

À titre de coauteur de l'article identifié ci-dessus, je suis d'accord pour que ASHLEY DELAURIER inclue l'article identifié ci-dessus dans mémoire de maîtrise qui a pour titre : « Wait Times to Rheumatology and Rehabilitation Services for Persons with Arthritis in Quebec ».

le 26 mai 2011

Coauteur Signature — Date
Debbie Ehrmann Feldman

May 27th 2011

Coauteur Signature — Date
Sasha Bernatsky

Le 27 mai 2011

Coauteur Signature — Date
Marie-Hélène Raymond

# Curriculum Vitae

## Ashley Delaurier PT

### EDUCATION

Candidate M.Sc. Biomedical Sciences, Rehabilitation — pending
*Faculty of Medicine, Université de Montréal*

B.Sc.PT Physiotherapy — 2007
*School of Rehabilitation and Health Sciences, University of Ottawa*

### PRESENTATIONS & PUBLICATIONS

Canadian Arthritis Society Café Scientifique, Montreal — 2011
*Oral Presentation Panelist: "The Current Situation: Physical and Occupational Therapy in the Public System for Persons with Arthritis in Quebec, Canada"*

Canadian Association for Health Services and Policy Research, Halifax — 2011
*Oral Presentation and Abstract Publication: "Wait Times to Get an Appointment to a Rheumatologist and for Rehabilitation Services for Persons with Arthritis in Quebec"*

American Congress of Rehabilitation Medicine, Montreal — 2010
*Poster Presentation and Abstract Publication: "Wait Times to Get an Appointment to a Rheumatologist and for Rehabilitation Services: Is Rheumatoid Arthritis Prioritized?"*

Canadian Arthritis Network Annual Scientific Conference, Gatineau — 2010
*Poster Presentation and Abstract Publication: "Wait Times to Get an Appointment to a Rheumatologist and for Rehabilitation Services: Is Rheumatoid Arthritis Prioritized?"*

Academy Health Annual Research Meeting, Boston — 2010
*Poster Presentation and Abstract Publication: "Time to Get an Appointment to a Rheumatologist: Is Rheumatoid Arthritis Prioritized"*

Gustave-Gingras Conference, School of Rehabilitation, Univeristé de Montréal — 2010
*Oral Presentation: "Les délais d'attente en rhumatologie et en services de réadaptation; L'arthrite rhumatoïde est-elle une priorité?"*

Canadian Arthritis Network Annual Scientific Conference, Vancouver — 2009
*Abstract Publications, Poster Presentation, and Travel Award Recipient: 1) "Time to Get an Appointment to a Rheumatologist: Is Rheumatoid Arthritis Prioritized"; 2)"Access to Outpatient Physical Therapy in Quebec: Preliminary Results"*

### AWARDS & FUNDING

CIHR Institute of Health Services and Policy Research Travel Award, Halifax — 2011
Faculty of Medicine Scholarship, Bourse de Rédaction, Université de Montréal — 2011
OPPQ Scholarship, Ordre Professionel de Physiothérapie de Québec Bourse de Recherche — 2010
Canadian Arthritis Network Travel Award, Gatineau — 2010
Canadian Arthritis Network Travel Award, Vancouver — 2009