

ACREU



Arthritis Community Research & Evaluation Unit

**ARTHRITIS COMMUNITY RESEARCH &
EVALUATION UNIT (ACREU)**

University Health Network

**AN EXPLORATION OF
COMPREHENSIVE
INTERDISCIPLINARY
MODELS FOR ARTHRITIS**

April 2005

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WORKING REPORT 2005-03



**The Arthritis
Society**



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Executive Summary

Objectives

The purpose of the report is to lay the foundation for the development of comprehensive interdisciplinary care models for arthritis using existing research and knowledge of experts in the field.

The specific objectives of the report are:

1. To examine models of care and promising approaches to arthritis management from the current literature
2. To explore the perspectives of health care providers, educators, and administrators related to models of care for arthritis in Ontario

Methodology

Two methods were used in the development of this report:

- A review of the academic and gray literature (e.g. organizational reports and websites) related to models of care for arthritis
- Key informant interviews with health care providers, administrators and educators

Results

Literature Review

Five different models of care that address the delivery of services for individuals with arthritis were examined in the literature. These models of care are at varying stages of development and evaluation.

Team care has been extensively evaluated. The more common members of the team described in the literature include rheumatologists, physiotherapists, occupational therapists, registered nurses, dietitians, and social workers. Although team composition varies, the client and his or her family have been identified as the most important members of the multidisciplinary team. The literature demonstrates several positive outcomes with a team approach to care of patients with arthritis including decreased pain, increased function, and improved overall health.

The results from studies on the use of allied health professionals in extended clinical roles suggest that an alternative model of care using specially trained health providers in arthritis management is promising. The evidence supports the implementation of nurse-led clinics for rheumatology. Although the research evaluating physical or occupational therapists in the role of the trained arthritis specialist in the literature is scarce, the current evidence suggests that these professional groups could also act in this capacity with advanced training. More research is required to evaluate the outcomes of patient care in arthritis management using occupational and physical therapists in this model as well as the professional implications in terms of scope of practice and standardization of training.

The primary therapist model, a case management model of service delivery in which the case managers play a key role in coordination of services and linking clients to their communities, has been recently evaluated for effectiveness and cost-effectiveness. The results suggest that patients referred to receive treatment from a primary therapist might receive better outcomes from those who were referred to receive traditional therapy.

Telemedicine is an emerging model of care to service rural and remote communities. Findings from the literature review suggest that telehealth rheumatology is a viable model to promote equitable access to care. More research into the benefits, costs and delivery of these programs may be needed.

Finally, patient-initiated care has been evaluated in recent literature demonstrating positive long-term outcomes. This model has the potential to empower patients in the management of their own care and reduce hospital visits. This model warrants further investigation in terms of acceptability of patients and providers in other settings.

Key Informant Study

Twenty-five key informant interviews were conducted. The models of care delivery being utilized to care for individuals with arthritis in Ontario vary widely. These include group programs for people with arthritis, as well as individual professionals working in solo practice. The three models of care for arthritis most commonly identified as feasible options were multidisciplinary team care (collaboratives), allied health professionals in extended clinical roles, and telemedicine.

The following 10 issues relating to models of care for arthritis were identified as important in any model of care for arthritis:

1. Multidisciplinary Collaboratives
2. Provider skill, education, and awareness; client/public education and awareness
3. Stable and predictable funding
4. Continuity of care across the health care system and community
5. Regulation to support expansion of clinical roles of allied health professionals
6. Conceptual approaches/frameworks (e.g. self-management and client-centredness)
7. Primary and secondary prevention strategies
8. Timely access to services
9. Community action
10. Methods for evaluation

Conclusion

To facilitate improved access to care for Ontarians with arthritis across the continuum of care, it is important to make the best use of current health care resources and maximize the utilization of skills of health care professionals. This may necessitate further evaluation of emerging models of care, such as the use of allied health professionals in extended clinical roles and telemedicine, to determine the outcomes of implementation of

these models of care and the circumstances under which they are best implemented. It is likely that there is not one model of care that is feasible for all environments.

1.0 Introduction

Arthritis is one of the most common chronic conditions in Ontario exacting a significant impact on the population (1). It is a leading cause of pain, physical disability and health care utilization (2-7). In Ontario alone, 1.6 million people have arthritis and this number is expected to increase with the aging of the babyboomers (6). The effects of arthritis are often underestimated and often dismissed as an inevitable part of aging (8). As a result people may fail to seek appropriate services. There is no cure for arthritis; however, there are treatments that have been shown to prevent disability, maintain function and reduce the pain associated with arthritis (4;9-13).

The current management of the disease is focused on controlling symptoms, secondary prevention of pain and disability and improving quality of life. There is evidence to support the use of a number of interventions to manage the pain and disability of arthritis, including pharmacologic treatment (such as disease modifying anti-rheumatic drugs (DMARDs) for early rheumatoid arthritis (11;14-20)), total hip and total knee replacement (21-26), exercise and physical activity (27-31), joint protection (26;32), assistive devices (33;34), as well as education and self-management (30;35;36). A summary of best practices is provided in Appendix A (*Summary of Evidence Based Care and Best Practices in the Management of Arthritis and Related Conditions*), and a full bibliography is available on request from ACREU@ACREU.CA.

Recent research indicates that the services available for people with arthritis are insufficient to meet the need in the population. In other words, access to the interventions that have been shown to be effective for arthritis is often insufficient and is variable across Ontario. These access issues are reflected in findings such as wide provincial variation in the availability of physicians, especially specialists (37), and increasing wait times for total joint replacement (38). As arthritis typically lasts the duration of a person's life, care must be available throughout the course of the disease to meet the needs of people at different stages of the disease trajectory. In order to reduce the burden of the disease, access to comprehensive primary, secondary and tertiary prevention strategies is key. The current challenge for health care providers, policymakers, and clients is to develop models of care for arthritis that enhance service delivery and ensure timely access to health care services.

1.1 Objectives

The purpose of the report is to lay the foundation for the development of comprehensive interdisciplinary care models for arthritis using existing research and knowledge of experts in the field.

The specific objectives of the report are:

1. To examine models of care and promising approaches to arthritis management from the current literature
2. To explore the perspectives of health care providers, educators, and administrators related to models of care for arthritis in Ontario

Although there are several types of arthritis, this report focuses on the most common: osteoarthritis and rheumatoid arthritis. Models of care developed for rheumatoid arthritis can serve as a model for other types of inflammatory arthritis.

1.2 Structure of the Report

This report presents two areas of research: a literature review and key informant study. The former presents findings from a literature review on models of care for arthritis management. The latter presents research from a key informant study of health care providers, educators, and administrators regarding models of care for arthritis in Ontario.

1.3 Key Definitions

1.3.1 Models of Care

For the purposes of this report, a model of care is defined as an approach to or method of delivering services to individuals with arthritis. Models of care can encompass aspects of care delivered by health care professionals within the health care system as well as care delivered by non-health care professionals within the community.

1.3.2 Osteoarthritis (OA)

Osteoarthritis (OA) results from the deterioration of the cartilage in one or more joints and leads to joint damage, pain and stiffness. OA typically affects the hands, knees, spine, and hips (39).

1.3.3 Rheumatoid arthritis (RA)

Rheumatoid arthritis (RA) is caused by the body's immune system attacking the body's joints. This leads to pain, inflammation, and joint damage. RA may also involve organs systems such as eyes, heart, and lungs (39).

2.0 Literature Review

2.1 Methods

2.1.1 Literature Search Strategy

Nine databases were searched using the same general strategy. These were MEDLINE, Cumulative Index to Nursing and Allied Health (CINAHL), EMBASE, PsychINFO, the Cochrane Library of Systematic Reviews, AgeLine, Social Services Abstracts, Sociological Abstracts, and ERIC. The disease mesh terms and keywords included: arthritis or arthr*; osteoarthr*; rheumatoid arthr*; systemic lupus erythematosus, lupus; spondyloarthropathy, ankylosing; spondylitis, spondy*; reiter*; scleroderma, sclerod*;

rheumatic diseases and rheumat*. These terms were all separated by the 'OR' bullion operator. A combination of key words used to elicit research related to models of care for arthritis are shown in Exhibit 1.

The basic limits applied to all searches were: 1980-2004; Human; English; 19and + years old.

The literature scan was executed between July and August 2004 and subsequently updated in March 2005 in order to include any references that had been published in subsequent months.

2.1.2 Study Selection and Methods of Review

Abstracts were initially screened by one of two research associates to determine eligibility for review. Studies were required to meet the following inclusion criteria:

- Subjects who had a clinical diagnosis of arthritis (osteoarthritis, rheumatoid arthritis, spondyloarthropathy, systemic lupus erythmatosus, and schleroderma)
- Subjects who were adults aged 18 years and over
- Research related to models of care/models of delivering health care services.

For the purposes of the review, studies were not limited to specific outcome measures. Standardized critical appraisal forms based on the work of Mary Law et al. (40) were developed to guide the appraisal process. All articles were graded according to Excellent, Good, Average, Poor and Very Poor based on a scoring system.

2.2 Results

Forty one studies were critically appraised for the literature review. Of these, 15 were graded as excellent and 19 as good. Most of the studies addressed rheumatoid arthritis (61%) while 32% addressed a mix of rheumatoid arthritis and osteoarthritis. The majority of studies (32) were of quantitative design. Five models of care that address the delivery of services for individuals with arthritis are discussed below. These include: team care, the extended clinical role for allied health professionals, the primary therapist model, telemedicine, and patient-initiated care.

Exhibit 1: Models of Care Keywords

metrologist, metrol*; telemedicine, telehealth, telemed*; health care delivery, health care deliv*; health services accessibility, health services access*; health services need and demand; approach; pathways to care, path* to care; access to care, access; patient care team, multidisciplinary care team, interdisciplinary, teamwork, interprofessional relations, interprofessional, collaboration; outcome*, outcomes (health care); referral, referral and consultation, self referral; nurse practitioner, nurse pract*; specialist, specialties, nursing, clinical nurse specialists, special*; model* of care, models, and models, theoretical.

2.2.1 Team Care

Literature related to health care teams and health care teams specializing in arthritis care was reviewed. Many concepts that emerged from the general literature regarding health care teams are important to consider when constructing models of care for health care teams specializing in arthritis. Key concepts from the general literature regarding health care teams are outlined followed by a summary of specific findings from the literature specific to arthritis and health care teams.

2.2.1.1 Health Care Teams

Teams exist in various organizational settings, including health care, because teams are thought to be more productive than individuals working in isolation (41). Various descriptions of teams exist in the literature including multidisciplinary, transdisciplinary, and interdisciplinary (42;43). Three main aspects of effective teams need to be considered: structure, leadership, and process (44).

The structure of the team is characterized by the range of skills of the team members. There is no optimal number of team members (44;45). However, it has been suggested that team size needs careful management (46). Small teams may not have a range of ideas, skills, experience or “clout” that is sufficient enough to accomplish a job while large teams may incur increased costs of coordination and communication. Conflict and related disadvantages of a larger size are additional considerations (46).

Team leaders must possess certain personal attributes as well as sufficient theoretical knowledge and practical experience in the field and relevant specialties (44). The literature supports the notion that team leaders could be from any number of professional backgrounds (42). However, attending physician’s leadership and involvement is statistically correlated with client-centred rehabilitation team cohesiveness (43). The concept of a team champion has also been highlighted as important to greater team effectiveness (46). Champions provide motivation, encouragement, and work on behalf of the team to acquire resources and support (46).

Team process refers to the type of team model that is adopted and includes decision-making processes and communication. More specifically related to team process and arthritis, it has been noted that ongoing communication between therapy facilities and physicians, especially with respect to waiting lists is critical (47).

2.2.1.2 Health Care Teams for Arthritis

Effective teams are important for improving quality of care for patients with chronic illnesses (such as arthritis) (46). The goal of a multidisciplinary team includes control of patient symptoms, prevention of disease progression, education of the client to perform

self care, and building and maintaining a satisfactory and fulfilling lifestyle (48). The literature reviewed considered both the osteoarthritis and rheumatoid arthritis populations. Settings varied from inpatient hospital, outpatient hospital, to community-based settings. Various combinations of team composition were described. Most literature examined the effectiveness of team work with respect to specific outcomes such as overall health, patient satisfaction, and ability to perform activities of daily living (ADL).

A prospective study that compared ongoing involvement of a coordinated team of health professionals in the management of patients with mild rheumatoid arthritis with episodic care by health professionals found that generally, a team approach had favourable outcomes on disease activity, functional ability, and psychosocial adaptation (49). A team approach in a day care rehabilitation setting has also shown favourable results for rheumatoid arthritis patients (50). A literature review specifically compared outcomes of patients who had undergone inpatient treatment using a multidisciplinary approach with those cared for in an outpatient multidisciplinary setting (51). Findings were inconclusive as to whether an inpatient or an outpatient multidisciplinary approach was more efficacious.

Team composition was described as various combinations of the following groups: rheumatologist, physiotherapist, occupational therapist, orthopaedic surgeon, nurse, social worker, family doctor, podiatrist/orthotist, dietitian, public health nurse, psychologist/mental health specialist, physiatrist, pharmacist, peer counselor, laboratory technician, social network, and patient. However, the client and his or her family have been identified as the most important member of the multidisciplinary team (48). The roles and contributions of some of the more common members of the team (rheumatologist, physiotherapist, occupational therapist, registered nurse, dietitian, and social worker) are documented in the literature and teams including these professionals have been shown to improve patient outcomes (52-54). Optimal longitudinal treatment requires a comprehensive, coordinated, and shared vision of care, as well as a team of health care providers who understand the diversity and complexity of the client problems that may arise with a chronic condition (48).

Several positive outcomes have been demonstrated in the literature with a team approach to care of patients with arthritis (49;51;55-57). These benefits include decreased pain, decreased tenderness, decreased swelling, decreased disease activity, increased ability to perform ADLs, overall increased function, increased psychosocial adaptation, decreased disability and perceptions of disability, and increased overall health.

2.2.2 Extended Clinical Role for Allied Health Professionals

The emergence of models of care utilizing the skills of allied health professionals in extended clinical roles to manage arthritis care has evolved partly as a result of issues in access to care. Published research in the area of alternative models of care utilizing allied health professionals in the assessment and management of arthritis is scarce. Yet there is evidence that health care professionals such as nurses, physiotherapists, and occupational

therapists, are increasingly working in extended roles in rheumatology internationally (e.g. nurse practitioners, physiotherapy practitioners) (58). This strategy is being utilized to improve access to care for patients with arthritis in the United Kingdom, where 20% of nurses and 14% of physiotherapists reported extended clinical roles that involve full clinical assessment and most aspects of disease management. These extended activities include giving joint injections, reading x-rays, running specialist clinics, recommending treatment changes to the rheumatologist and the primary care physician, and teaching (58). Evaluation of these extended clinical roles is critical to establish the efficacy of this model of service delivery. A review of the literature of available studies that have examined the outcomes of these models of care was undertaken.

2.2.2.1 Nurses in extended clinical roles

In response to the growing impact of arthritis globally, models of care with rheumatology nurse practitioners and clinical nurse specialists have developed in order to augment the capacity of multidisciplinary teams. These nurses have extended their roles to incorporate both the technical and patient management skills of the rheumatologist. The majority of these nurses hold nurse-led clinics and a growing part of their caseload includes monitoring of drugs (59). Studies that have evaluated the outcomes of effectiveness of care provided by nurses in extended clinical roles suggest that nurse practitioner clinics are effective, acceptable, and safe (60;61). Two randomized control trials compared the outcomes of patients who attended a rheumatology nurse practitioner clinic with those who attended a physician led clinic (consultant rheumatologist and junior hospital doctor). Effectiveness was measured using biochemical, clinical, psychological, and functional outcomes, as well as patient knowledge and satisfaction, using validated tools. Results of the studies found that patients in the rheumatology nurse practitioner clinics had significantly lower levels of pain, increased knowledge, and were more satisfied with their care than the physician led clinics (60;61). The nurse practitioner managed 83% of care without referral to the rheumatologist (60). The authors suggest that a nurse practitioner can bring additional benefits in greater symptom control and enhanced patient self-care (60;61).

Other researchers have examined the role of the clinical nurse specialist in rheumatology. Clinical nurse specialists specialize in the care of patients with a chronic disease and are often involved in delivering clinical care, education, and support to other health professionals (62). The performance of the clinical nurse specialist has been compared to inpatient team care, and day patient team care in a randomized controlled trial. No significant differences in functional outcomes, quality of life, health utility, and disease activity were found (62;63). Costs for initial treatment using clinical nurse specialists were examined and found to be lower compared to the other methods of care delivery. Other health care and non-health care costs were not significantly different between groups (63).

In Holland, transmural nurse clinics run by nurses trained in rheumatic care have been introduced into the health care system. Their major role is to provide information and support to patients with arthritis with the aim of improving continuity of care. In this

model of care the nurses do not provide a substitution of medical tasks (64). Research findings have shown that the transmural nurse clinics result in more contact with rheumatologists and occupational therapists. However, there were no significant differences in functional outcomes, use of health care services, or the need for information (65).

Limitations in these studies to date include small sample sizes and inclusion of few nurse practitioners/clinical nurse specialists in the research. However, the strong methodology used in these studies suggests that nurse led clinics are safe and effective methods for managing patients with rheumatoid arthritis.

2.2.2.2 Allied health professionals in Extended Clinical Roles

Literature regarding the role of other allied health care professionals, such as physiotherapists and occupational therapists, working in extended clinical roles in rheumatology, is less prevalent. However, there are a few studies that have described this model and/or evaluated outcomes of patients managed by therapists working in extended roles. Specially trained physiotherapists have been shown to assess inflammation and function in patients with rheumatoid arthritis as well as rheumatologists (66). In another study, a comparison of patients who attended a therapist-run clinic and patients managed by traditional follow-up was undertaken using a non-randomized comparison trial. This alternative service provided by the physiotherapist involved monitoring patients with drugs and physical therapy according to a pre-defined schedule with an emphasis on education. This study found that waiting times for care were significantly less for therapist-run clinics and the therapists spent a longer time consulting with their patients (67).

In Canada, there is also evidence that extended clinical roles for physiotherapists and occupational therapists have emerged in rheumatology (68). The physical therapy practitioner (PTP) model of sharing responsibilities among health professionals was developed at a Toronto children's hospital. Their one-year comprehensive academic and clinical program was described in the literature following the pilot phase of this program. In this model, the PTP is expected to discuss medication options with the patient and family although they cannot prescribe medications. The clinic aims to decrease the number of professionals who assess a patient during clinic, facilitate timely and comprehensive reviews, and alleviate the heavy physician burden (68).

The PTP model of care was evaluated using a Group Health Association of America's (GHAA) consumer satisfaction survey. The PTP clinic generated the same rating of overall satisfaction as the physician clinics. In the group of patients who saw either a PTP or physician, PTP patients gave higher ratings in the domains of access and communication but were lower for the domain of continuity compared to rheumatology clinics. This suggests that PTPs can deliver standards of care reflective of traditional physician clinics from the patients' or parents' perspectives. Other outcomes relevant to

arthritis care, including function, pain and fatigue, have not been documented in the literature (69).

Physiotherapists working in expanded roles have been evaluated in other musculoskeletal populations and these results may help to inform the development of models of care for rheumatology. The effectiveness of specially-trained physiotherapists in the assessment and management of referrals in hospital orthopaedic departments was examined in a randomized control trial of 481 patients. As patients were referred with musculoskeletal problems, the initial assessment was undertaken by either a post-fellowship junior orthopaedic surgeon or specially trained physiotherapist. The only measure with clinical or significant differences between groups was the measure of patient satisfaction, which favored the physiotherapist (70). In another study of a physiotherapist working as an orthopaedic assistant in a back pain clinic, the results demonstrated that the physiotherapist could manage 70% of the patients independently. The results of this study suggest that a physiotherapist can screen and manage specific patients in a low back pain clinic effectively (71).

2.2.3 Primary Therapist Model

Case management is a model of service delivery in which the case managers play a key role in coordination of services and linking clients to their communities (72). The Arthritis Society Consultation and Rehabilitation Service (CARS) program is a case management model of service delivery (Primary Therapist Model) in which assessment, treatment, and case management is provided by multi-skilled therapists in consultation with, or referral to, other providers as necessary (73). The first available therapist becomes the primary therapist or service coordinator for a client. Since 1976, all physiotherapists and occupational therapists receive the same specialized training in the assessment of polyarthritis during orientation to the program (74). Strengths and weaknesses of this model were examined in a questionnaire administered to CARS therapists. The advantages of this model were reported as a holistic approach to care, opportunity to expand skills, less duplication of services, and appropriate referrals to other professionals or community agencies. Reported disadvantages of the model were discomfort with increased responsibility, their concern about 'watered down' treatment, and isolation from colleagues (73).

A pilot study was conducted to evaluate the outcomes of patients with rheumatoid arthritis receiving treatment from a primary therapist and to assess the feasibility of a research protocol (75). A randomized control trial design with a sample of 24 clients was utilized, where clients were randomized to receive usual medical care or to receive treatment from a primary therapist as well as usual medical care (experimental group). The researchers found a trend toward improvement in the experimental group in all clinical measures at six weeks and six months from baseline. The usual care group showed a deterioration in pain and in disease-specific knowledge. The authors concluded that the study suggests improvement in outcomes of clients in the primary therapist model and that a study protocol is feasible for a full-scale trial to evaluate outcomes of

care in this model (75). Following this pilot study, further research evaluating outcomes of the primary therapist model was undertaken. In a recent doctoral thesis, the results of a pragmatic randomized control trial demonstrated that people who were referred for treatment for rheumatoid arthritis from a primary therapist have better outcomes than people referred for traditional therapy. The author suggests the findings should be interpreted with caution due to the high dropout rate in the traditional therapy group (76).

2.2.4 Telemedicine

Telemedicine is another emerging model of care being used to improve access to care for people living with arthritis in more remote locations. Telemedicine or telehealth is a means of sharing health information and providing health care services using telecommunications (77). It allows health care professionals to provide a service to patients regardless of location. A systematic review of the literature regarding telemedicine and patient outcomes found that there is relatively convincing evidence supporting telemedicine in some areas of medicine including teleradiology, teleneurosurgery, and telepsychiatry. However, they suggest that further research is needed, particularly focused on the cost-effectiveness of this model of health care delivery (78).

The literature examining telemedicine and arthritis is more limited. A Canadian telehealth program evaluated by Davis et al. examined the feasibility and acceptability of providing telehealth consultations in rheumatology by doing a prospective review of new consults from a rural area assessed via a telehealth linkage by a rheumatologist in an urban area. The authors concluded that telehealth rheumatology consultations were feasible, acceptable, and cost and time effective in locations where services are not readily available (77). Legget et al. also found that televisual consultations in rheumatology were highly accurate and acceptable to patients, general practitioners, and specialists (79).

In another study, the use of telemedicine technology for a population that included clients with orthopaedic conditions, joint consultations between general practitioners, specialists, and patients (via virtual outreach) was compared with outpatient referral (80). The trial showed that allocation of patients to virtual outreach consultations is variably associated with increased offers of follow-up appointments according to site and specialty but leads to significant increases in patient satisfaction and substantial reduction in tests and investigations. Efficient operation requires appropriate selection of patients, significant service reorganization, and provision of logistical support (80).

2.2.5 Patient-Initiated Care

Traditionally, clients with chronic diseases are managed by regular hospital follow-up initiated by the physician. Patients with rheumatoid arthritis are often managed by rheumatologists who provide ongoing follow-up every three to six months. More recently, patient-initiated care has been implemented in order to respond quickly to

clients' requests for help. As chronic diseases like arthritis are characterized by fluctuations in disease activity, this model aims to ensure that patients are seen by care providers when they need care as well as to empower patients. Patients can initiate care by directly accessing the health care provider, much like patients access primary care physicians when they are unwell (81;82).

In a recent study, patient-initiated care was examined in a randomized control trial comparing a direct access group and rheumatologist-initiated care group. Patients in the direct access group could arrange reviews with a rheumatologist, physiotherapist, or occupational therapist through a nurse-led telephone helpline. Primary care physicians of patients in the direct access group were given information to support the day-to-day management of patient care. The control group received traditional routine hospital reviews by the rheumatologist every three to six months (82). After two years, the patients in the direct access group had less pain, greater self-efficacy, used 33.5% less resources, and were more confident in the system (81). After 6 years, there were no significant differences between the groups for median change in psychological status and patients in the direct access group had 38% fewer hospital appointments. Satisfaction and confidence in the system remained significantly higher in the direct access group (82). This responsive model of care warrants further consideration in chronic disease management.

2.3 Conclusion

This section summarized the academic literature related to five different models of care that address the delivery of services for individuals with arthritis. These models of care are at varying stages of development and evaluation. Outcomes for team care have been well established and this approach to care is often considered the gold standard for care delivery for chronic diseases such as arthritis. However, given the constraints on current health care resources and barriers to accessing care, it is important to consider alternative ways of extending this model of care delivery. With the exception of team care, the models described in this report are emerging models of care with limited evaluation of outcomes in arthritis care. However, there are promising findings that these models may be alternative methods of delivering care to individuals with arthritis in some contexts. Further research exploring patient and system outcomes of care delivered in these models of care is warranted.

3.0 Key Informant Interviews

3.1 Methods

3.1.1 Sample

A sample of 25 individuals who were known experts and in a position to inform our study about key elements of an interdisciplinary model for arthritis care were invited to participate as key informants. Key informants were selected to represent various professions (e.g. medicine, nursing, physiotherapy, occupational therapy), practice sectors (e.g. community-based, hospital-based) and geographic variation (i.e. rural vs. urban). Prospective key informants were primarily identified through existing contacts from a dissemination event and workshop in March 2004, “Improving Access to Effective Care for Arthritis in Ontario”, organized by The Arthritis Community Research and Evaluation Unit. Key informants were also identified using a snowball technique whereby the key informants were asked to recommend other individuals who could inform our study.

3.1.2 Procedure

Potential participants were initially contacted by telephone or electronic mail to enquire about their interest in participating in the study. Those individuals who expressed an interest were sent an information letter and consent form that described the purpose of the study. After the letter was sent, potential participants were contacted by a research associate to answer any questions they might have about the study and to arrange an interview time. The interviews were held at a time and location that was convenient for the participant. All interviews were carried out by one of two research associates in person or by telephone. Prior to each interview, the interviewer emphasized the confidential nature of the interview.

The key informant interviews were guided by the research objectives. The interviews followed a semi-structured format. Interviewers followed an interview guide (see Appendix B), which addressed the following questions/topics:

1. Briefly describe your position and experience related to arthritis care.
2. Please describe your approach to provision of services/programs for arthritis care.
3. In your experience, what are the barriers that need to be addressed in a model of care for arthritis?
4. Please describe your perspective on ideal elements of an interdisciplinary care model for arthritis.
5. Based on the ideal elements, what do you believe is feasible using current/available health care resources?

Interviewers utilized probes to encourage participants to elaborate on information and provide further discussion.

3.1.3 Analysis

Data were analyzed using content analysis for questions one and two. Questions three through five were analyzed using a constant comparative approach. Interview data were categorized to identify key findings from each question posed to the key informants, including the key elements of a comprehensive interdisciplinary care model for arthritis.

3.2 Results

3.2.1 Sample Characteristics

Twenty-five individuals were contacted by a research associate and invited to participate in the study. Key informant interviews were completed with 25 consenting participants. One interview was a group interview with four individuals. Reasons for non-participation included lack of time to participate in a one-hour interview and non-response to the request for participation. Table 1 summarizes the professional backgrounds of the key informants.

Table 1. Characteristics of Key Informants

Profession	N (%)
Physiotherapist	11 (44)
Occupational Therapist	3 (12)
Physician	4 (16)
Registered Nurse	2 (8)
Other*	5 (20)

*psychologist, volunteer, social worker, coordinators

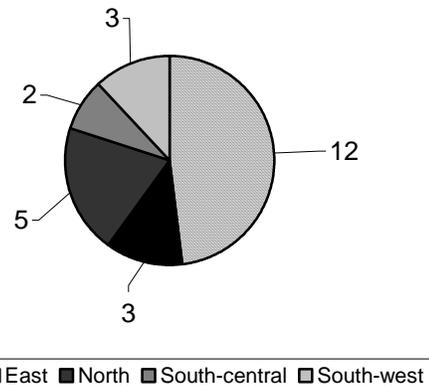


Exhibit 2. Number of Key Informants by OHA Region

The participants had a mean of 13.7 years experience working in arthritis care, with a range of experience from one to 28 years. Eleven of the participants worked in a hospital setting (e.g. outpatient department in a hospital), while 14 worked in a community setting (e.g. The Arthritis Society (TAS)). Although almost one half of participants worked in the Greater Toronto Area, there were representatives from across the province. The participants represented rural, remote and urban settings in Ontario. Exhibit 2 displays the number of participants by geographical location using Ontario Hospital Association (OHA) Regions in Ontario.

3.2.2 Approach to Service Provision

Participants described their experiences related to service provision, including:

- 1) Target populations;
- 2) Referral and communication processes;
- 3) Interventions/services; and
- 4) Methods of evaluation.

The common findings regarding each of these aspects of service provision are described. In some instances, specific examples of practices described by participants are presented in order to illustrate processes of care across the province.

3.2.2.1 Target Populations

The majority of participants provide services to clients with osteoarthritis and rheumatoid arthritis. Less commonly, participants reported clients with other types of arthritis including scleroderma, psoriatic arthritis, ankylosing spondylitis, lupus, and seronegative disease. A few participants also reported working with clients with osteoporosis and/or fibromyalgia.

Most participants provide services to adults across all age groups. However, a few participants also work with children with juvenile rheumatoid arthritis (e.g. TAS, The Hospital for Sick Children). The majority of participants reported that caseloads consisted of more women than men, clients with both stable and complex diseases, and clients with arthritis at different stages of the disease trajectory, from early onset to chronic and/or late stages of the disease.

3.2.2.2 Referral and Communication Processes

Referral Processes

Referral sources that were commonly reported by participants working in arthritis programs or as sole practitioners included:

- Rheumatologists
- Family physicians
- Rehabilitation therapists
- Surgeons
- Homecare/Community Care Access Centers (CCAC)/Case managers
- Client self-referral (however, most programs prefer clients consult with a physician first to get appropriate diagnosis)

Participants reported that in order to attend many group programs a confirmed rheumatological diagnosis by a family doctor or rheumatologist is required. Many participants also reported referring or linking clients to other providers and/or community resources (e.g. homecare/CCAC, TAS, and community facilities such as pool programs).

Communication Processes

Most participants described the use of both internal (within organizations) and external methods of communication. However, it was frequently noted that there was insufficient communication amongst providers. Internal communication methods reported by participants included:

- Face-to-face interaction/one-to-one interaction within a clinic
- Voice mail/phone
- Teleconference
- E-mail
- Formal or informal team meeting/rounds
- Formal and informal case consultation
- Newsletter

External communication methods reported by participants include: sending discharge/progress notes to referring physicians via fax; hand delivering notes; or providing a carbon copy of notes.

Some participants also reported having formal methods in place for communicating with clients. Exhibit 3 presents examples of communication processes 1) amongst providers, and 2) between providers and clients that were described by participants.

3.2.2.3 Interventions/Services

Participants described the interventions and services that were provided by them as an individual professional or by the programs they represented. Many programs/services were structured according to specific conceptual models or frameworks, including:

- Arthritis best practices (e.g. use of *Getting a Grip on Arthritis* best practices)
- Adult education models using self-management/self efficacy approaches
- Cognitive behavioural approach

Exhibit 3. Examples of Communication Processes

Communication Amongst Providers

*A letter is provided to the client's primary care physician after initial assessment by a physiotherapist, using the form letter developed by the *Getting a Grip on Arthritis* program. If the client goes back to see the primary care physician or consultant, the physiotherapist provides them with a letter for the doctor regarding their physiotherapy treatment.

*A group arthritis program provides letters to employers for individuals who work outside of the home in order to inform the employer that a client has been prescribed treatment that requires time off work.

Communication Between Provider and Client

*A team meets once a week for 1 hour at "rounds" to discuss each client case. Each client is then invited in to dialogue with the team regarding the treatment plan (program includes six clients in total).

*An "internet clinic site" was reported as a communication tool. After clients complete the program they are given a password and can log onto the internet clinic where clients can ask questions and responses will be posted in a FAQ area. The site also includes a chat room whereby clients can ask each other questions.

- Motivational interviewing techniques based on stages of change theory. This approach is specifically designed to move people across the stages of change; it focuses on listening to people and helping them make decisions.

Group Services/Programs

Some of the participants described the services and programs delivered to clients in a group setting. In most multidisciplinary team settings, participants reported that the arthritis team presented the program to clients. Most programs offered services in a group format for the program with opportunity for 1:1 intervention depending on the needs of the client. The type of health professionals delivering the programs varied depending on the needs of the group and type of arthritis (e.g. OA versus inflammatory arthritis). In other instances, volunteers were involved in the direct delivery of some of the programs (e.g. self-management programs). Examples of group program initiatives are described in Exhibit 4.

Exhibit 4. Examples of Group Program Initiatives

*One of the programs developed a maintenance program “Arthritis Supervised Exercise Program” offered 3 days/week with 3 different session times following the completion of the program. This is a pool-based program supervised by a lifeguard, where participants follow a video-tape led by a physiotherapist.

*Another program has a wellness library on site, which can be accessed for free by clients, family, and volunteers. The library is run by a volunteer and people have access to CDs, videos, relation tapes, books, brochures, and a computer.

Participants reported that education was primarily delivered to clients using an interactive approach, although there were components that are delivered in a didactic manner. The intention of the education programs was to get clients to apply what they learn and to develop problem-solving

skills. Most of the programs also include goal-setting or developing action plans as a key component. Programs were often limited to clients who can speak English and who have adequate cognition for the group education component. In several programs, caregivers and family members attended the education sessions at no additional cost. Many participants reported exercise as a key component of their program. A list of topics commonly addressed in education programs is presented in Exhibit 5.

Exhibit 5. Topics Addressed in Group and/or One-on-One Educational Sessions

- What is arthritis
- Healthy eating/nutrition
- Exercise (theory and practical)
- Coping with arthritis
- Footwear
- Joint protection
- Assistive devices
- Energy conservation
- Home management; sleeping positions
- Communicating with health providers
- Medications
- Pain management
- Community resources
- Alternative therapies
- Fall prevention

The frequency and duration of group programs and services varied widely, from daily sessions for two consecutive weeks to two hours per week for 10 weeks. The size of the groups also varied, but most groups were restricted to six to 15 individuals.

Individual Services/Interventions

Participants described a number of interventions that were delivered to individuals on a 1:1 basis. These interventions varied depending on the professional background of the participants. Interventions included: modalities (ice, heat, transcutaneous electrical nerve stimulation (TENS), acupuncture, massage); splinting and foot orthoses; counseling and education; medications; exercise (active range of motion, strengthening exercises, isometric exercises, general fitness/maintenance, postural and core strengthening exercises); Assistive Devices Program (ADP) assessment and authorization; and total joint replacement.

3.2.2.4 Methods of Evaluation

Outcome Measurement

Several participants reported that they do not use any formal method of measuring outcomes; however, participants acknowledged the importance of using outcome measures. Participants cited several challenges to using outcome measures including a lack of monetary support, lack of time, and an inability to administer repeat outcomes measures (i.e. second time) as clients do not always return for follow-up visits after program completion. The following are examples of outcome measures used by some programs/participants:

1. Joint count
2. Grip strength
3. Disease activity score
4. Health Assessment Questionnaire (HAQ) and Personal Impact Health Assessment Questionnaire (PI HAQ) (measures readiness to interact in functional tasks)
5. SF-36 Health Survey (use Mental Health subscale score as determinant of whether depression is present)
6. Chronic Pain Coping Inventory
7. Multidimensional Pain Inventory
8. Depression scale (CES-D)

Program Evaluation

Several participants reported using client satisfaction and knowledge surveys to evaluate outcomes during the development of the program, throughout the program, and at end of the program. Several programs

Exhibit 6. Examples of Outcome Measurement and Program Evaluation

*A program classified outcome measures using the International Classification of Impairments, Disabilities and Handicaps (ICIDH) (now International Classification of Functioning (ICF)). For example, the physical exam was classified at the impairment/body function/structure level; the HAQ was classified at the disability/activity level; and the PI HAQ was classified at the handicap/participation level.

*A program uses a database of information containing results of clients' clinical assessments, which can be used to generate a report card for the client.

*A program conducts focus groups at the completion of the program where a staff member external to the program obtains feedback from clients regarding the program. This information is then used to make ongoing changes to the program.

reported using a multidisciplinary approach to evaluation by obtaining feedback on the various group sessions regarding knowledge gained, approach of program, and comfort accessing the program. Examples of the use of outcome measures and tools for program evaluation are presented in Exhibit 6.

Follow-up

Most participants who worked within arthritis programs reported having no formal mechanisms for follow-up in place. One program that did have formal follow-up mechanisms performed assessments at six weeks post program completion for osteoarthritis and inflammatory arthritis and at one-year post program completion for fibromyalgia. Another program had follow-up appointments at one year following program completion.

Follow-up by solo practitioners varied, whereby some participants managed the clients' care throughout the course of the disease as needed and other participants were involved in the clients' care for a short duration of time with no formal follow-up mechanisms in place.

3.2.3 Barriers to Interdisciplinary Models of Care for Arthritis

Participants described the barriers and constraints that exist when delivering care to individuals with arthritis. Six domains emerged from the interviews regarding barriers that need to be addressed in a model of care for arthritis. Within each domain, a number of key themes emerged. The domains and respective themes are presented in Table 2.

Table 2. Emergent Domains and Themes

Domain	Access to Care	Funding	Education, Knowledge, and Awareness	Communication and Coordination of Care	Professional Issues	Chronic Disease Management
Themes	Geographic Variation	Funding for Providers	Academic Education	Provider-Provider Communication	Scope of Practice	Medical Model
	Physical	Funding for Programs/ Services	Provider Knowledge and Awareness	Provider-Client Communication	Professional Regulation	
	Cost		Client and Public Knowledge and Awareness	Coordination and Continuity of Care		
	Health Human Resources					
	Waiting Times					

1. Access to care

Four themes related to accessing care for arthritis emerged from the interviews. Overall, participants described a number of challenges that need to be overcome in order to ensure individuals with arthritis are able to access the interventions, programs and services they need in a timely manner.

a. Geographic Variation

Participants recognized that access to specific interventions, programs and services varied across the province. Most commonly, rural communities were identified as not having the same resources (e.g. equipment) and services (e.g. Arthritis Self Management Programs (ASMP)) as urban settings, resulting in the need to travel to access providers.

b. Physical

Physical barriers to accessing care were also recognized and included inaccessible buildings, sidewalks and public transit.

c. Cost

The cost of services (e.g. private physiotherapy services), programs (e.g. pool programs), and interventions (e.g. equipment) was identified as a barrier to accessing services.

d. Health Human Resources

This theme refers to the impact that shortages of health professionals throughout the province have on access to care. Participants identified shortages of orthopaedic surgeons, rheumatologists, primary care physicians, physical therapists, occupational therapists and social workers.

e. Waiting Times

Participants reported that long waiting lists posed an obstacle to timely access to care (e.g. long wait times for total joint replacement).

2. Funding

a. Funding for providers

Funding for health care providers emerged as a theme from the interviews. Participants raised the issue of payment structures and remuneration for physicians. Participants also identified a lack of funding for the emerging extended role of allied health practitioners as a barrier to this model of care.

b. Funding for Programs/services

Participants identified lack of funding for specific programs and services as a barrier. This included lack of publicly-funded rehabilitation services and insufficient increases in funding for established programs (e.g. The Arthritis Society programs) over time. Other examples of barriers described by participants included funding for equipment and funding for clients to travel to access services.

3. Education, knowledge, and awareness

a. Academic education

Participants identified deficits in current academic curricula as barriers to the provision of optimal arthritis care, including the following examples:

- Scarcity of academic medical programs for rheumatology;

- Lack of inter-professional learning opportunities in university programs;
 - A fragmented undergraduate curriculum for medical students with insufficient emphasis on rheumatology; and
 - Lack of post-graduate educational opportunities in rheumatology for allied health professionals.
- b. Provider knowledge and awareness*
- Participants recognized an overall lack of knowledge and awareness of arthritis of health care providers contributing to a lack of expertise and skills. This includes lack of access to information on arthritis (e.g. web based information not accessible to all providers); lack of information on services available in the community; and misinformation or misperceptions of arthritis (e.g. ‘arthritis as a disease of the elderly’). A number of participants felt that primary care physicians were not adequately equipped to diagnose arthritis and did not appropriately recommend rehabilitation services for clients with arthritis. Finally, participants identified the transfer of information among providers as a barrier to models of care (e.g. dissemination of clinical guidelines).
- c. Client and public knowledge and awareness*
- Client and public knowledge and awareness also emerged as a theme in barriers to care. Lack of publicly-available information on arthritis was cited as an example of barriers to client and public education. Participants recognized that access to information via the internet is not universal. Another example cited by participants was poor medication compliance of clients with arthritis and the concern that this is related to client education.

When participants referred to lack of knowledge of arthritis in the public, they also referred to groups such as employers and insurance companies having a poor understanding of arthritis. Public beliefs and myths regarding arthritis were given as examples, including the perception of arthritis as a ‘disease of the elderly’, implying it is a normal part of aging to cope with arthritis.

4. Communication and coordination of care

- a. Provider-Client communication*
- This theme refers to the lack of provider-client communication where participants identified that providers do not always communicate options to clients effectively.
- b. Provider-provider communication*
- A lack of communication amongst the team of health care providers was commonly identified as a barrier to care (e.g. communication between allied health professionals and physicians).
- c. Coordination and continuity of care*
- Lack of coordination and continuity of care emerged as a theme from the interviews. Examples cited by participants included lack of continuity of care due to limited provider resources and use of locum positions to provide services.

5. Professional Issues

a. Scope of practice

Issues around professional scope of practice emerged from the interviews. Participants identified scope of practice issues such as territorial behaviour of providers and politics amongst professional groups, where professionals may have difficulty accepting the expertise of other professionals.

b. Professional Regulation

Related to scope of practice is professional regulation. In particular, participants discussed the extended roles of allied health professionals (e.g. advanced therapist practitioners) in managing arthritis care. These providers have the skills to practise in a capacity that may extend beyond the competencies regulated by their professional bodies. Participants described professional regulation for allied health professionals (e.g. occupational therapists and physical therapists) as a barrier to expansion of roles for allied health practitioners, particularly lack of support from the professional regulatory bodies. This also relates to the lack of recognition of sub-specialization by the regulatory bodies for physical therapy and occupational therapy.

Due to issues in regulation for therapists working in extended clinical roles, there are no accredited programs. Allied health professionals that are trained in-house to enhance skills and competencies are unable to easily transfer their services to other institutions. As a result, participants identified that currently there is a lack of recognition and compensation for these roles.

6. Chronic Disease Management

a. Medical Model

Participants described the medical model as an inappropriate model to meet the needs of people with a chronic disease such as arthritis. Where primary care physicians were seen as ‘gatekeepers’ of care, this was identified as a barrier to receiving other services, such as appropriate referral to rehabilitation. As a result of the predominant medical model of care, participants also felt that there was a lack of focus on the psychosocial issues that need to be addressed in a model of care for arthritis.

3.2.4 Enhancing Models of Care for Arthritis

Participants were asked to describe the ideal elements of models of care for arthritis. These elements are the ideal structures and processes required to sustain models of care for arthritis. Ten key elements emerged from the interviews. Three of the key elements have been further divided into categories that describe the element. Table 3 presents the ten key elements of models of care for arthritis with categories describing each element presented, where applicable.

Table 3. Ideal Elements of Models of Care for Arthritis

Key elements			
1. Multidisciplinary Team			
<i>Team members</i>	<i>Team function</i>	<i>Communication</i>	<i>Referral</i>
2. Skill, education, and awareness			
<i>Provider skill and education</i>		<i>Client/public awareness</i>	
3. Funding			
4. Continuity of care across the continuum			
<i>Coordination and follow-up</i>		<i>Linkages</i>	
5. Regulation			
6. Conceptual framework			
7. Primary and secondary prevention strategies			
8. Timely access			
9. Community Action			
10. Evaluation			

1. Multidisciplinary Team

a. Team members

Participants identified a range of key members of a multidisciplinary team for arthritis care, including the following:

- Consultant (e.g. rheumatologist)
- Occupational therapist
- Pharmacist
- Physical therapist
- Primary care physician
- Registered dietitian
- Registered nurse
- Social worker

However, the composition of the multidisciplinary team may vary depending on the type of arthritis individuals have.

b. Team function

Participants identified the need to define the roles of team members ensuring that the skills of each team member are utilized effectively. Some participants felt that it was important to have overlapping boundaries of health professional roles, where professionals are able to perform some skills traditionally performed by other professions. The primary therapist model of care used by TAS is an example of this, where physiotherapists and occupational therapists are cross-trained in the skills of the other profession (e.g. physiotherapists are trained to do splinting). Participants identified the importance of building relationships among team members to develop team cohesion. Other participants identified processes to improve teamwork including:

- Providing incentives to physicians to refer to rehabilitation professionals;
- Rotating staff between organizations in the hospital and community setting;
- Providing mentorship to staff working in the field; and

- Establishing linkages between providers to facilitate joint specialist clinics among professional groups (e.g. joint clinics for orthopaedic surgeons and rheumatologists).

Depending on geography and accessibility of resources, there was variation in participants' descriptions of the ideal means of delivering care by a multidisciplinary team. Some participants described the ideal delivery of care by team members as 'one stop shopping' where care from different professionals is accessed in one setting. Other participants described a team of professionals that traveled together in order to provide care to people with arthritis living in more remote settings. The concept of team included creating networks of professionals throughout the community.

c. Communication

Participants identified both formal structures for communication and informal processes for communication as being important elements of a model of care. Technology to facilitate communication amongst providers was also identified by participants (e.g. listserves). The use of technology in communication also included communicating client information across the continuum of care, using electronic medical records.

d. Referral

Some participants identified the need for refined referral mechanisms among providers in order to improve the referral process. The importance of appropriate referrals also emerged from the interviews where participants identified the importance of the 'right' clients seeing the 'right' provider at the 'right' time.

2. Skill, education, and awareness

a. Provider skill and education

Participants identified the importance of providers having the necessary skills to identify arthritis and manage clients with arthritis. Provision of improved education for professionals regarding arthritis care was viewed as important to facilitating skills and knowledge (academic and continuing education). This means ensuring the training resources are available for providers to access. Some participants felt that specialization in arthritis care through training was also important.

Participants also identified having access to information on arthritis services in the community as important (e.g. awareness of resources such as TAS). This relates to communication processes to share information amongst providers.

b. Client/Public awareness

Participants identified the need for improved awareness by clients of services available for people with arthritis in their communities. Client education regarding the disease itself (e.g. education classes) was also felt to be important. On a population level, it was suggested that strategies to improve public awareness of the disease are key.

3. Funding

The need for stable and predictable funding for programs and services was identified as a key component of any model of care. Participants also described the need for funding emerging models of care, such as models using allied health professionals in extended clinical roles (therapist practitioner model).

4. Continuity of care across the continuum

a. Coordination and follow-up

Participants identified integration and coordination of services across the continuum of care as an important element of care for people with arthritis. As arthritis is a chronic disease, participants felt that access to ongoing follow-up and treatment across the disease trajectory was important. Some participants felt that multiple entry points to accessing the health care system should be available to clients; there should be multiple paths to reach the same outcomes.

b. Linkages

Linkages among providers and teams of providers across the continuum of care were identified as important, including linkages between hospitals and community organizations.

5. Regulation

Related to the emerging model of allied health professionals in extended clinical roles, participants identified the need for support from the professional regulatory bodies to expand roles of physical therapists and occupational therapists in arthritis management. For example, regulation that enables therapists to order radiographics, make referrals to specialists, or to prescribe a limited formulary of drugs.

6. Conceptual Framework

Participants identified a number of conceptual approaches that they felt to be important frameworks to be incorporated into models of care. These approaches included:

- Client-centredness
- Adult learning
- Self-management/self-efficacy
- Psychosocial

By a psychosocial approach, participants referred to a need for a focus on psychosocial issues within models of care and the provision of support to assist with coping with arthritis.

7. Primary and secondary prevention strategies

Some participants also identified specific strategies and interventions as paramount to any model of care. This included both primary and secondary prevention strategies. For example, participants identified strategies to target children in the school setting with the aim of increasing physical activity. Secondary prevention strategies, such as programs and interventions that delay or prevent further disability were also identified (e.g. programs that prevent or delay

the need for total joint replacement). Related to this, some participants identified exercise as a key component of any model of care.

8. Timely access

As client outcomes are related to timing of many interventions, participants felt that access to services early in the disease process was key (e.g. early referral to rehabilitation services or rheumatologist). Access should not be dependent on costs of services or geographical location.

9. Community Action

Participants recognized the importance of the community in arthritis prevention and management. This included community development through promotion of community initiatives and facilitation of community ownership of such initiatives. Within the role of the community, the importance of champions to lead initiatives within a community was highlighted. Finally, participants recognized the role of people with arthritis in a model of care. As an example, one participant suggested the use of peer mentors and client advocates within a model of care. Peer mentors are individuals with arthritis acting as a mentor to another individual with arthritis in order to provide support throughout the course of the disease.

10. Evaluation

Evaluation emerged as a theme from the interviews with participants. This included the use of outcome measures for evaluation of clients and programs. Some participants identified the need for standardization of outcome measures whereby there is consistent use of the same outcomes measures. Participants reported the benefits of collecting data for program planning and evaluation (e.g. workload statistics) and surveillance (e.g. the Ontario Joint Replacement Registry (OJRR)). At the system level, the creation of performance standards was suggested to be a key element of a model of care. An example presented was development and implementation of performance standards for total joint replacements using data collected from the OJRR.

3.3 Discussion

The emergent themes from the interviews included feasible options for models of care for arthritis. Throughout the key informant interviews, three models of care for arthritis were most commonly identified by participants, including multidisciplinary collaboratives, care using allied health professionals in extended clinical roles, and telemedicine.

3.3.1 Multidisciplinary Collaborative

Participants identified the multidisciplinary team or collaborative as an ideal and feasible model of care. Several participants recognized the potential of Family Health Teams to facilitate team care. They expressed the importance of these teams including allied health professionals in order to provide truly multidisciplinary care. Participants also identified the need for one individual to act as a main contact and coordinator of client care within

the team, acknowledging the central role of the client in coordinating their own care. It was also suggested that it is important to consider using the skills of other health care providers in arthritis care. For example, participants considered using kinesiologists to deliver the exercise component of care for some clients.

The key message regarding multidisciplinary collaboratives was that the processes for delivering care may vary depending on resources available within a community (e.g. human resources, geography). However, the key elements of multidisciplinary collaboratives should be maintained in any model of care (e.g. team members, communication etc.).

3.3.2 Use of Allied Health Professionals in Extended Clinical Roles

Several participants identified models of care using allied health professionals in extended roles (e.g. Therapist Practitioner model) as a viable model of care. Participants felt that this option was a model of care that could capitalize on using the skills of all health professionals to their potential and allow professionals to manage the clients that most require their expertise. Some participants recognized the value of non-physician health professionals specifically in the assessment of clients; hence reducing the time required of the consultant to assess clients. In order to facilitate further introduction of this model of care into Ontario, recognized training programs and support from professional regulatory bodies for these specialists are necessary.

3.3.3 Telemedicine

Participants identified telemedicine as a model of care that is feasible for delivering services to rural or remote communities with consultant shortages, particularly in Northern Ontario. Some participants indicated that this model was most appropriate for the follow-up of clients recognizing the benefits of an initial face-to-face meeting between the client and consultant.

3.4 Key Interview Summary

In summary, the models of care delivery being utilized to care for individuals with arthritis in Ontario vary widely. These include group programs for people with arthritis, where care is delivered by multidisciplinary teams over a short duration of time. Alternatively, there are also individuals professionals working in solo practice who may (or may not) manage the care of a client throughout the course of their disease. Emerging models of care, such as telemedicine and physiotherapy/occupational therapy practitioner models, have also been developed and implemented in the province.

The results of this study can be used to inform the development of future models of care for arthritis. The challenges to delivering care for arthritis in Ontario from the perspectives of health care providers and educators have been identified and strategies to overcome these challenges are presented in the form of enhanced models of care and key components of models of care for arthritis. Emerging models of care, such as the use of

allied health professionals in extended clinical roles, are promising. These models warrant further evaluation as well as the development of strategies for training, professional regulation, and implementation across settings in Ontario.

4.0 Conclusions

The purpose of this work was to lay a foundation for the development of interdisciplinary models of care in Ontario using current research evidence and the experience and perspectives of key informants working in arthritis care. The literature review describes the outcomes of a number of models of care, including the traditional team care model and more emerging models of care such as telemedicine and allied health practitioners working in extended clinical roles. The research suggests that a team approach to care is the gold standard for providing comprehensive care to individuals with arthritis. There is a range of emerging models of care, some of which build on the team concept, that are promising and warrant further investigation. In this era of reduced health care resources, there is a need to consider alternative models of care and to provide evaluation of these models.

The results of the key informant study suggest that there are key structures and processes that need to be part of any model of care for arthritis. However, there is no one model of care that will work for all populations and all local circumstances. Clearly, the implementation of models of care needs to be adapted to meet the needs of the individual communities.

One of the models that emerged both from the key informants and the literature review is the use of allied health professionals in extended clinical roles. In order for this model of care to expand in Ontario, there are some issues that need to be considered. Firstly, further evaluation of patient-level and system-level outcomes is warranted. Secondly, the following issues need to be addressed: professional regulation and scope of practice; training and education; and compensation.

In order to facilitate improved access to care for Ontarians with arthritis across the continuum of care, it is important to make the best use of current health care resources and maximize the utilization of skills of health care professionals. This report represents the first steps in understanding emerging models of care for arthritis in Ontario. Future research is required to evaluate the outcomes of new emerging models of care. It is also critical to take a broader perspective and examine the experiences of health professionals working in alternative models of care internationally. Finally, the perspectives of clients should be incorporated into the development of models of care for arthritis in Ontario. Through the development of models of care for arthritis, we can grow to understand health care delivery for all chronic diseases.

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Appendix A: Summary of Evidence Based Care and Best Practices in the Management of Arthritis and Related Conditions

Arthritis and related conditions comprise a large group of conditions affecting the joints, ligaments, tendons, bones and other components of the musculoskeletal system. The two main categories of arthritis are degenerative arthritis and inflammatory arthritis. Osteoarthritis (OA), a degenerative arthritis, is the most common form of arthritis, characterized by loss of cartilage with concomitant bony changes, including sclerosis and osteophytes. Rheumatoid arthritis (RA) is the most common form of inflammatory arthritis. It is a chronic inflammatory polyarthritis, which if untreated or inadequately treated, results in the destruction of the joints and severe functional disability. It may also be accompanied by extracurricular manifestations affecting other organs such as the eyes, heart, and lungs.

Although the medical management of degenerative arthritis and inflammatory arthritis differ, both share common elements with regard to the management of pain and disability, including non-pharmacologic interventions such as rehabilitation.

This appendix summarises key findings from a literature review on best practices related to primary prevention, pharmacologic interventions, and non-pharmacologic interventions including rehabilitation interventions and self-management strategies. It also explores recent findings related to access to total joint replacement. The literature scan was executed between July and August 2004 and subsequently updated in March 2005. A full bibliography is available on request (e-mail ACREU@ACREU.CA).

A systematic process to critically appraise the literature was undertaken, and articles were graded as Excellent, Good, Average, Poor and Very Poor based on a scoring system. Levels of evidence were determined for each subject area. For intervention studies, or studies that examine the outcomes/effectiveness of specific interventions/strategies, levels of evidence were based on the following definitions:

- a) **Conclusive evidence:** Systematic review(s) and/or guideline(s) and/or 1 Randomized Control Trial (RCT) that are graded “Good” or “Excellent” according to our criteria for appraisal.
- b) **Indicative evidence:** Consistent findings among multiple high quality studies other than RCTs (e.g. cohorts, case control studies, qualitative studies) and/or high quality (“Good” or “Excellent”) review(s) that is not systematic.
- c) **Emerging/Limited evidence:** 1-2 studies other than RCTs that are graded as “Average” or above according to our criteria for appraisal or 1 RCT that is graded “Average” according to our criteria for appraisal

For the purpose of this report, a best practice is a process or method that, through experience and research, has proven to reliably lead to a desired result. Best practices involve integrating information from clients and/or family members and individual clinical experience/expertise with the best available external clinical evidence from systematic research in making decisions about the care of individual clients.

Key Findings

Primary Prevention

- ✓ Prevention strategies can address only identified and modifiable risk factors.
- ✓ Prevention strategies must be feasible and accessible.
- ✓ Recommended prevention strategies include:
 - Weight control
 - Physical activity
 - Injury prevention

Pharmacologic Treatments for Osteoarthritis and Rheumatoid Arthritis

- ✓ Pharmacologic interventions for people with OA and RA must be prescribed in conjunction with non-pharmacologic interventions including patient education, exercise, rehabilitation modalities, and referral to specialty services if necessary.

Osteoarthritis:

- ✓ Best practice for pharmacologic interventions for OA includes starting with simple analgesics, only then followed by non-steroidal anti-inflammatory drugs (NSAIDs).
- ✓ If NSAIDs are prescribed, gastrointestinal (GI) risk factors should be reviewed and gastroprotective agents should be considered.
- ✓ Opioid analgesics may be used in patients with moderate to severe pain who cannot tolerate NSAIDs.
- ✓ Intra-articular injection with Hyaluron may be considered before systemic treatment for a symptomatic dry knee joint, and cortisone injection may be considered before systemic treatment for a symptomatic inflamed knee joint.
- ✓ There is conclusive evidence that topical agents such as capsaicin and topical NSAIDs can provide short-term pain relief.
- ✓ Glucosamine, an over the counter agent which is not currently regulated, has also demonstrated efficacy for pain control.

Rheumatoid Arthritis:

- ✓ Early aggressive pharmacologic treatment can halt RA disease progression and yield better patient outcomes.
- ✓ There is conclusive evidence that all patients with RA should be offered disease modifying antirheumatic drugs (DMARDs).
- ✓ Biologic response modifiers are targeted to the basic biological mechanisms of the disease process and have shown efficacy in RCTs although their long-term efficacy has yet to be determined
- ✓ NSAIDs continue to be recommended to manage pain and inflammation (with GI protection as required).
- ✓ Some patients may require vitamin or mineral supplements
- ✓ Low dose corticosteroids may provide short-term relief for uncontrolled disease and are often used successfully over the long-term with little risk of side effects.

Non-pharmacologic and Rehabilitation Best Practices in the Management of Arthritis

- ✓ There is conclusive evidence in systematic reviews and/or in practice guidelines for the following non-pharmacologic rehabilitation interventions for persons with RA and OA: client education, exercise (aerobic and strengthening), joint protection instruction, assistive devices, and orthoses (hand/wrist splint and foot orthosis) (note: for RA only).
- ✓ There is limited or emerging evidence for vocational/work rehabilitation and physiotherapy modalities.
- ✓ Persons with arthritis should receive these rehabilitation interventions early in the disease process; however, all interventions should be optimally timed based on client receptivity and need.
- ✓ An educational-behavioral approach appears to be an effective manner in which to deliver rehabilitation interventions for persons with arthritis.

Arthritis Self-Management Strategies

- ✓ There is conclusive evidence for the use of self-management programs as a best practice for arthritis management due to the short-term benefits shown in recent studies.
- ✓ Benefits are particularly positive for education delivered in a group format and are over and above what is already achieved by medications.
- ✓ Research supports psychoeducational programs with a skills-building focus as opposed to solely information-based programs.
- ✓ A focus on self-efficacy as a mediating factor has been associated with changes in health status more so than are changes in behaviour. Self-efficacy is also an important predictor of adherence.
- ✓ Education should be tailored to the individual needs of the patient.

Rehabilitation Best Practices in the Management of Total Joint Replacement

- ✓ There is conclusive evidence to support preoperative education interventions to decrease patient anxiety. Pre-operative rehabilitation tailored according to anxiety or targeted to those with more complex needs (e.g. those who are more disabled or have limited social support) is beneficial in reducing length of stay for individuals undergoing total hip or knee replacement.
- ✓ Inpatient rehabilitation following total joint replacement (TJR) is successful in improving patient functional outcomes.
- ✓ Patient characteristics that have been consistently associated with discharge to inpatient rehabilitation are older age, comorbidity, and living alone.
- ✓ There is a need to identify a standardized approach to determining optimal discharge destinations, given the evidence that is emerging that functional

outcomes following total joint replacement for individuals discharged home with home care are similar to those for individuals who receive inpatient rehabilitation.

Access To Orthopaedic Services for Arthritis

- ✓ Total joint replacement is a widely recognised effective procedure for the treatment of severe OA in terms of improvement of pain, function, and patient satisfaction.
- ✓ There is no evidence regarding a uniform definition of appropriateness of total joint replacement. However, the emerging evidence suggests that indications are made primarily based on pain and disability.
- ✓ There is a large population in need of total joint replacement even after accounting for willingness to undergo the surgery.
- ✓ Long waiting times for total joint replacement and unmet need suggest that the current level of access does not match demand in Canada.
- ✓ There is no published standard protocol for physicians to use in the management and maintenance of waiting lists in Canada. However, protocols are under investigation to standardize this practice.
- ✓ Potential positive outcomes of offering arthroscopy include high levels of satisfaction with services among patients and professionals and improved patient-related outcomes such as quality of life. However, evidence is conflicting with regard to the effectiveness of arthroscopy for OA of the knee necessitating further research.

Appendix B: Key Informant Interview Guide

Pan ACREU Project: A Comprehensive Interdisciplinary Model for Arthritis

<p>Date:</p> <p>Name:</p> <p>Background (position):</p> <p>Consent to interview and/or audiotape:</p>

Background: review objectives of project and methods

Objective of the interview:

Interview Questions

6. Briefly describe your position and experience related to arthritis care.

Role

Setting

Years Experience

Education

7. Please describe your approach to provision of service/program

Who is target population (stage of disease, age)

What interventions/services are provided/available (e.g. where delivered, best practices)

Who delivers interventions

Intake/referral process

Communication processes

Evaluation of program/outcomes: what and how evaluate

8. In your experience, what are the barriers that need to be addressed in a model of care for arthritis?

Funding issues

Access issues (geographical, HC provider shortages, direct access)

9. Please describe your perspective on ideal elements of an interdisciplinary care model for arthritis.

10. Based on the ideal elements, what do believe is feasible using current/available health care resources

11. Recommendations re. anyone else who can inform our study